

January 2017

Examining the Impacts of Wife Abuse and Child Abuse on Saudi Women's Mental and Physical health

Eman Alhalal

The University of Western Ontario

Supervisor

Marilyn Ford-Gilboe

The University of Western Ontario

Graduate Program in Nursing

A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of Philosophy

© Eman Alhalal 2016

Follow this and additional works at: <https://ir.lib.uwo.ca/etd>



Part of the [Nursing Commons](#)

Recommended Citation

Alhalal, Eman, "Examining the Impacts of Wife Abuse and Child Abuse on Saudi Women's Mental and Physical health" (2016). *Electronic Thesis and Dissertation Repository*. 4316.
<https://ir.lib.uwo.ca/etd/4316>

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact tadam@uwo.ca, wlsadmin@uwo.ca.

ABSTRACT

Research has not extensively examined the contextual mechanisms by which Intimate Partner Violence (IPV) and child abuse lead to chronic pain. Post-traumatic Stress Disorder (PTSD) and depressive symptoms overlap, yet, it is not clear whether they function in unique ways as mediators of the relationships of abuse with chronic pain. Thus, the purposes of this study were to: a) test a causal model that explains the mechanisms by which severity of child abuse and wife abuse affect chronic pain among Saudi women, and the mediating role of symptoms of depression and PTSD and perceived family support and, b) advance the measurement of IPV and health problems associated with it by evaluating the psychometric properties of Arabic versions of the Composite Abuse Scale (CAS) and PTSD Checklist—Civilian Version (PCL-C).

A two-phase study design was used. In Phase one, a pilot study was conducted to translate three self-report measures from English to Arabic and to assess their reliability in a sample of 30 Arab women. In Phase two, the theoretical model was tested using data from 299 Saudi women. The psychometric properties of Arabic versions of both PCL-C and CAS were examined. Structural equation modeling was used to test the hypothesized model two times using different mental health outcomes.

Initial support for the reliability and concurrent and construct validity of the PCL-C and CAS were found. Both theoretical models were found to fit the data. In both models, severity of wife abuse and child abuse did not affect chronic pain directly, but indirectly, through mental health, although the strength of the path coefficients differed. Severity of wife and child abuse were directly associated with greater mental health

problems and less perceived family support. Family support partially mediated the relationship between abuse and depressive symptoms but not PTSD symptoms.

The results demonstrate the reliability and validity of the Arabic versions of the PCL-C and Arabic CAS. The study substantially contributes to the literature by delineating the mediating role of PTSD and depressive symptoms. The findings underscore the significance of considering abuse experiences and mental health in chronic pain treatment.

Key words: Intimate partner violence, child abuse, Saudi Arabia, depressive symptoms, Post-Traumatic Stress Disorder symptoms, chronic pain, and social support.

CO-AUTHORSHIP

Eman Alhalal conducted this dissertation work under the supervision of Dr. Marilyn Ford-Gilboe, Dr. Carol Wong, and Dr. Fadia Albuhairan who will be co-authors on publications resulting from Chapters Three, Four, and Five.

DEDICATION

This dissertation is dedicated to my parents, Abdulmohsen and Stoor who have always inspired me to pursue higher education. They have helped in so many ways throughout this journey. Their prayers have always been with me and led my path to get me to where I am today.

This dissertation is also dedicated to my loving husband, Ghasem Almusallam. He has stood by me and supported me with his unwavering love and patience over the course of graduate school. I would have been unable to achieve this major milestone in my life without his encouragement and sacrifices.

I also dedicate this dissertation to my children, Abdullah and Elyas, the most beautiful and gorgeous sons in the world! Their smiles and cheers have given me inspiration.

ACKNOWLEDGEMENTS

I owe much of completing this dissertation to my mentor and supervisor, Dr. Marilyn Ford-Gilboe. Your knowledge, advice, support, guidance, and time during this process has contributed so much to my growth as a researcher and scholar. You have helped me in many ways to develop confidence in my own abilities. I am grateful for the opportunities I have had to learn with you and I am certain your influence will remain with me during my academic career.

I would also like to extend my most sincere appreciation to my committee members, Dr. Carol Wong and Dr. Fadia Albuhairan, for your insights and contributions. You facilitated my progress in so many ways.

Thank you to all of the women who took part in this study. Without you, this study would not have been possible. It is my hope that your participation will help other women who have been affected by intimate partner violence.

TABLE OF CONTENTS

CERTIFICATE OF EXAMINATION	II
ABSTRACT.....	III
CO-AUTHORSHIP	V
DEDICATOIN.....	VI
ACKNOWLEDGMENTS	VII
TABLE OF CONTENTS.....	VIII
LIST OF FIGURES	XII
LIST OF TABLES.....	XIII
LIST OF APPENDICES.....	XIV
CHAPTER ONE – OVERVIEW TO THE DISSERTATION.....	1
Introduction.....	1
The Present Study	8
Purpose.....	8
Theoretical framework.....	9
Method	11
Significance.....	13
Organization of the Dissertation	16
Reference	18
CHAPTER TWO – REVIEW OF LITERATURE.....	31
Overview of Saudi Arabia	32
Economic and Social Background of Saudi Arabia.....	32
Prevalence of Wife Abuse in Saudi Arabia	34
Prevalence of Child Abuse in Saudi Arabia	36
Health Consequences of IPV and Child Abuse	37
Post-Traumatic Stress Disorder Symptoms	38
Conceptualization	38
Post-traumatic stress disorder across cultures.....	39
Prevalence of PTSD symptoms in the general population.....	41
Post-traumatic stress disorder symptoms among IPV and child abuse survivors.....	42
How IPV and child abuse lead to PTSD.....	46
Summary	48
Depressive Symptoms.....	49
Definition	49
Depression across cultures.....	49
Prevalence of depression in the general population	51
Depressive symptoms among child abuse and IPV survivors	52
How child abuse and IPV lead to depression.....	55
Summary	57
Co-occurrence of PTSD and Depression	58
Chronic Pain.....	60

Chronic pain among child abuse and IPV survivors	62
How child abuse and IPV could lead to chronic pain.....	65
The relationship between chronic pain and PTSD	66
The Relationship between chronic pain and depression.....	67
Summary.....	68
Social Support.....	69
Defining Social Support.....	70
Social Support and Child Abuse and IPV.....	71
Summary	74
Conclusion	74
References.....	76
CHAPTER THREE – FACTORS MEDIATING THE IMPACTS OF CHILD ABUSE AND INTIMATE PARTNER VIOLENCE ON CHRONIC PAIN AMONG SAUDI WOMEN.....	129
Review of Literature	131
Origins of Chronic Pain	131
Chronic Pain among IPV and Child Abuse Survivors	132
Mediators of the Relationship between Abuse and Chronic Pain.....	133
Social Support.....	135
Theoretical and Hypothesized Model	137
Method	139
Design	139
Setting	139
Sample.....	140
Study Procedures	142
Measurement.....	143
Wife abuse (IPV) severity	143
Severity of child abuse	145
PTSD symptoms	147
Depressive symptoms	148
Chronic pain	149
Perceived family support.....	151
Analysis.....	152
Results.....	155
Measurement Model	155
Model Fit.....	157
Direct Versus Indirect Effects of Wife Abuse and Child Abuse	157
Comparing Model 1 and Model 2.....	158
Discussion.....	161
References.....	168
CHAPTER FOUR – RELIABILITY AND VALIDITY OF THE ARABIC PTSD CHECKLIST CIVILIAN VERSION (PCL-C)	194
Review of Literature	195

Conceptualizing Post-Traumatic Stress Disorder	195
Post-Traumatic Stress Disorder Symptoms Among IPV survivors	199
PSTD in varied Cultural Contexts	201
PTSD Measures	202
Method	205
Cultural Adaptation, Translation and Pilot Testing of the PCL-C.....	205
Evaluating the Reliability and Validity of the Arabic Version of the (PCL- C).....	207
Sample.....	208
Measurement.....	208
Data Analysis	209
Results.....	210
Descriptive	210
Construct and Concurrent Validity	210
Reliability.....	212
Discussion.....	214
Conclusion	218
References.....	220
CHAPTER FIVE – THE RELIABILITY AND VALIDITY OF THE ARABIC VERSION OF COMPOSITE ABUSE SCALE.....	237
Introduction.....	237
Method	243
Data Collection	244
Sample.....	244
Measurement.....	245
Composite Abuse Scale	245
Center for Epidemiologic Studies-Depression (CESD) Scale.....	245
Data Analysis	246
Results.....	248
Reliability and Validity Based on the Original Four-Factor Structure	251
Exploratory Analysis of the CAS Structure	252
Discussion.....	256
Conclusion	263
References.....	264
CHAPTER SIX – STUDY SUMMARY AND ITS IMPLICATIONS	281
Conceptual Model.....	282
Method	283
Results.....	285
Study Limitations.....	287
Implications of the Findings	287
Implications for Nursing Practice	289
Nursing Education	295

Implications for Future Research.....	297
Implications for Policy.....	298
Conclusion	299
References.....	300
APPENDICES	312
CURRICULUM VITAE.....	387

LIST OF FIGURES

Figure	Description	Page
1	Hypothesized structural equation model derived from the Stress Process Model	139
2	Structural equation model with manifest variables, latent variables, measures, and standardized (unstandardized) path coefficients (Model 1)	157
3	Structural equation model with manifest variables, latent variables, measures, and standardized path coefficients (Model 2)	158

LIST OF TABLES

Table	Description	Page
1	Profile of Demographic Characteristics of the Sample (N=299)	142
2	Descriptive statistics for manifest variables assumptions and indicators of latent variables (N = 299)	154
3	Pearson Correlation among Measured Variables	155
4	Effect estimates for Model 1	159
5	Effect estimates for Model 2	160
1	Four Different PTSD Symptoms Models	198
2	Item-level descriptive statistics of PCL-C (N = 299)	211
3	Goodness-of-fit Indices	212
4	Standardized factor loadings and factor correlations for the five-factor PTSD model	213
1	Item-level descriptive statistics, item-total correlations, and internal consistency of CAS (N=299)	249
2	Factor Loadings for the Four Factors Arabic Composite Abuse Scale	254
3	Correlation Matrix for the Four Factors	255

LIST OF APPENDICES

Appendix	Description	Page
A	Pilot Study Summary	312
B	Ethics Approval for Phase 1 (Pilot Study)	315
C	Recruitment Flyer for Phase 1 (Pilot Study)	316
D	Eligibility and Enrollment Form for Phase 1 (Pilot Study)	318
E	Letter of Information and Consent Form for Phase 1 (Pilot Study)	320
F	Structured Interview for Phase 1 (Pilot Study)	327
G	Ethics Approval for Phase 2 (main study)	340
H	Eligibility and Enrollment Form for Phase 2 (main study)	343
I	Letter of Information and Consent Form for Phase 2 (main study)	348
J	Structured Interview for Phase 2 (main study)	355
K	Safety Guidelines for the Interviewers	383
L	Debriefing Protocol	384
M	Assessment of Risk for Suicide	386

CHAPTER ONE

OVERVIEW TO THE DISSERTATION

As required by the School of Nursing, this dissertation has been prepared in integrated article format and includes six chapters. In the introductory chapter presented here, I set the context and overview for the entire dissertation. The second chapter presents a comprehensive review of literature relevant to the study purposes. The third, fourth, and fifth chapters focus on study results, with each chapter formatted as a stand-alone journal article. There is, therefore, some natural repetition across the chapters. The sixth chapter provides a general discussion and concluding remarks related to the study results as well as their implications for practice, policy, and future research. Supplementary information, such as the ethics approvals for the study, the letters of information and consents, structured interviews, and safety protocol used to guide recruitment and data collection, are found in the Appendices.

Introduction

Violence against women is a major social and health problem worldwide (World Health Organization, 2013). The most common and detrimental forms of violence faced by women are intimate partner violence (IPV) and child abuse (Devries et al., 2013; Garcia-Moreno, Heise, Jansen, Ellsberg, & Watts, 2005; World Health Organization, 2013). Intimate partner violence is defined as a pattern of physical, sexual and/or emotional abuse by a current or former intimate partner in the context of coercive control (Tjaden & Thoennes, 2000). In the context of a heterosexual, marital relationship, IPV is often referred to as wife abuse (Sev'er, 1997). In 2005, the WHO conducted its *Multi-country Study on Violence against Women* by male intimate partners by gathering data from over 24,000 women from 15 sites in 10 countries to represent varied cultural

settings. This study revealed that violence against women is a universal phenomenon that exists in all countries with the proportion of women who have experienced IPV in their lifetime ranging from 15% to 71% (World Health Organization, 2005). It is also estimated that 30% of women worldwide have experienced IPV (García-Moreno, 2013). Although no community or socioeconomic, ethnic, or religious group is immune to IPV (National Institute for Justice and Centers for Disease Control and Prevention [CDC], 2001; World Health Organization, 2012), perspectives and attitudes toward IPV vary across societies and these variations are reflected in whether IPV is justified, as well as how the society perceives abusive partners (Waltermaurer, 2012; World Health Organization, 2009).

In societies with less gender equality (Harvey, Garcia-Moreno, & Butchart, 2007; Langhinrichsen-Rohling, 2010) and divorce restrictions (Levinson, 1989), such as those found in Saudi Arabia (Zuhur, 2011), women's risk of experiencing IPV is heightened. In addition, the public perception in Saudi Arabia that IPV is a private matter (Ashy, 2004) has resulted in lack of attention to violence against women. Reliable data about IPV from agencies, such as police, hospitals, or social services in Saudi Arabia are not yet available, and national statistics about the prevalence and the impact of IPV are still limited. An enduring cultural belief that IPV is a family matter in which outsiders should not intervene, along with fear of "losing face" or facing stigma, have made it difficult for women to seek help and for professionals to publicly show an interest in this area (Ashy, 2004). Therefore, when Saudi women who are experiencing IPV access health care with injuries or health problems that are linked to abuse, they are usually treated medically and then sent home (Zuhur, 2011). Women are often fearful and ashamed about disclosing

their abuse experiences due to cultural beliefs and sanctions. Given cultural norms against intimate relationships outside of marriage in Saudi society, the term “wife abuse”, rather than intimate partner violence, is most often used in context. In this dissertation, both terms (IPV and wife abuse) will be used as appropriate.

In the past decades, there has been an unprecedented growth in research that has documented the widespread effects of IPV on various aspects of women’s lives and health (Banks, 2007; Campbell et al., 2002; Dillon, Hussain, Loxton, & Rahman, 2013; Golding, 1999; Leserman & Drossman, 2007; Wong & Mellor, 2014). In addition, women continue to suffer from health problems in the aftermath of IPV (Adkins & Kamp Dush, 2010; Fishman, Bonomi, Anderson, Reid, & Rivara, 2010; Ford-Gilboe et al., 2009). Thus, IPV explains a significant proportion of the global burden of disease for women (Lim et al., 2012) and is considered by some to be a chronic stressor (Anderson & Saunders, 2003; Goodman, Smyth, Borges, & Singer, 2009). As a consequence, women who have experienced IPV have higher rates of health service utilization than women who have not experienced abuse (Campbell, 2002; Plichta, 2004; Ruiz-Perez, Plazaola-Castano, & Del Rio-Lozano, 2007; Ford-Gilboe, Varcoe, Noh et al., 2015). For example, it is estimated that more than 971,000 outpatient physician visits each year in United States are directly related to IPV (National Center for Injury Prevention and Control [NCIPC], 2003), where the annual cost of health service use among abused women was estimated to be 19% higher than for women with a history of IPV that for those without such as history (Rivara et al., 2007). Intimate partner violence costs the Canadian economy \$1.1 billion on annual basis for direct medical care to women (Public Health Agency of Canada, 2012) and more than 6 billion when factoring in the costs to a broad

range of sectors and to women themselves (Varcoe et al., 2011), with rates of service use being 2 to 292 times higher than for women in the general population (Ford-Gilboe et al., 2015).

Key health outcomes that have been associated with IPV include Post Traumatic Stress Disorder (PTSD), depression, and chronic pain. PTSD is the most prevalent mental health consequence of IPV (Jones, Hughes, & Unterstaller, 2001; Nathanson, Shorey, Tirone, & Rhatigan, 2012) and it has been associated with women's risk for lethality from IPV (Wilson, Messing, Patchell, & Campbell 2011). PTSD affects 31% to 84.4% of women (weighted mean 63.8%) (Golding, 1999). Similarly, IPV puts women at significant risk of developing depressive symptoms (Kelly, 2010; Loxton, Schofield, & Hussain, 2006; Martinez-Torteya, Bogat, Eye, Levendosky, & Davidson, 2009). The weighted mean prevalence for depression among women experiencing IPV is also high (50%) (Golding, 1999), with rates varying from 32% to 51.4% across studies (Cascardi et al., 1999; Edmond, Bowland, & Yu, 2013; Helfrich, Fujiura, & Rutkowski-Kmitta, 2008). Chronic pain is a common physical health problem faced by women who have experienced IPV, often with substantial disabling effects (Cerulli, Poleshuck, Raimondi, Veale, & Chin, 2012; Humphreys et al., 2011; Tiwari, Fong, Chan, & Ho, 2013; Wuest et al., 2010). For example, in one study (Wuest et al., 2008), more than one-third of women who left an abusive partner were experiencing high disability, moderately or severely limiting pain.

Similarly, child abuse has been consistently linked to tremendous physical and mental health problems in adulthood (Kendall-Tackett, 2003; Kendall-Tackett, Marshall, & Ness, 2003; Paolucci, Genuis, & Violato, 2001). Child abuse substantially increases

the risk of being a victim of IPV (Cold et al., 2001; Thompson et al., 2006; Whitfield, Anda, Dube, & Felitti, 2003), and there is some evidence linking experiences of both child abuse and IPV in adulthood to greater distress and poorer health than experiences of a single forms of abuse, providing support for the position that the effects of abuse are cumulative (Campbell, 2002; Kilpatrick, 2004; Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009) and often long-term. For example, women who have experienced both IPV and child abuse are four to seven times more likely to report depression than non-abused women (Ouellet-Morin, et al., 2015). Yet, women's health has typically been studied primarily as a consequence of recent IPV experiences without sufficiently considering the interactive effects of several abuse experiences (Davies et al., 2015).

Research on the health consequences of IPV remains mainly at a descriptive level. In other words, there is lack of extensive research that fully explores the contextual mechanisms through which IPV leads to different physical and mental health problems. In essence, the relationship between lifetime abuse, including childhood and IPV, and health is complex and still poorly understood (Mcnutt, Carlson, Persaud, & Postmus, 2002). Although PTSD symptoms have been found to mediate the impact of abuse (IPV and/or child abuse) on chronic pain (Powers et al., 2014; Tiwari, Fong, Chan, & Ho, 2013; Wuest et al., 2009), the literature lacks of research that teases out whether depressive and PTSD symptoms mediate the relationships between abuse experiences and chronic pain in similar or different ways. Since the literature is still inconclusive about whether PTSD and depression are two distinct constructs or a single construct (Post, Feeny, Zoellner, & Connell, 2016) and comorbidity between PTSD and depression is common among women who have experienced IPV (Flory & Yehuda, 2015; O'Campo et

al, 2006), there is a need to examine whether PTSD and depression function in unique ways as mediators in the context of IPV.

Moreover, almost all of the research on the health consequences of abuse has been carried out in North America and other developed countries. Thus, the results of these studies may not be generalizable to women in developing countries. The question of whether the health consequences of IPV varies cross-culturally has not been well studied. Given that IPV is shaped by the social context in which it occurs, research must be conducted in ways that takes these different contexts into account (Jewkes, 2002).

Saudi Arabia is documented as one of highest “gender gap” countries, ranking 131 out of 135 countries in terms of the gender inequities (Hausmann, Tyson, Bekhouche & Zahidi 2012). In this context, women may experience IPV in unique ways and the consequences may also differ. In fact, there is little information about the incidence, prevalence, and pattern of wife abuse in Saudi Arabia. In the few studies that have been conducted (e.g. Alzahrani, Abaalkhail, Ramadan, 2016; Bohlaiga et al., 2014; Tashkandi & Rasheed, 2009), the prevalence of wife abuse (physical, emotional, sexual and/or financial) has ranged widely from 12.2% to 57.7%. Wife abuse is still an unrecognized cause of chronic mental and physical health problems among Saudi women with only a few studies investigate abused women’s health (AboulAzm, Hashem, & Elebiary, 2009; Alhabib, 2011; Eldoseri, Tufts, Zhang, & Fish, 2014; Rachana, Suraiya, Hisham, Abdulaziz, & Hai, 2002). However, mental health problems, such as PTSD and chronic health conditions, such as chronic pain, have not yet been explored among Saudi women who have experienced abuse.

Importantly, the studies conducted in Saudi Arabia have often used measures of IPV and health that have not been adequately evaluated for reliability and validity, leading to difficulty interpreting the results. A few researchers (e.g. AboulAzm et al., 2009; Bohlaiga et al., 2014) have developed measures without explaining the conceptual or theoretical basis of the instruments or elaborating on their psychometric properties. Other researchers (Rachana et al., 2002) have used single items about experiences of IPV. However, the use of single questions that are framed around abuse, rather than actions that reflect abuse, are likely to result in under-reporting of IPV, since many women who experience abuse do not define themselves as “abused”. Alhabib (2011) translated the Composite Abuse Scale (CAS; Hegarty, Bush, & Sheehan, 2005), an established and widely used measure of IPV severity, into Arabic and used it in a study of Saudi women but did not report its reliability or validity. In addition, there is a lack of research on PTSD among Saudi women which could be due to the lack of reliable and valid measures of PTSD symptomology available in Arabic. Using methodologically sound research instruments is essential to the advancement of knowledge about IPV and health impacts, such as PTSD, depression and chronic pain. Thus, there is a pressing need to adapt and validate existing self-report measures of IPV and important health outcomes in order to accurately understand the issue of IPV among Saudi women and permit meaningful cross-cultural comparisons.

IPV weakens women’s social support (Katerndahl, Burge, Ferrer, Becho, & Wood, 2013; Montero, Martín-Baena, Escribà-Agüir, Vives-Cases & Ruiz-Pérez, 2015) because abusive partners intentionally isolate women (Dobash & Dobash, 1998; Refaeli, Levy, Ben-Porat, Dekel, & Itzhaky, 2016); abused women may also distance themselves from

their social network due to shame and guilt, feeling stressed and humiliated (LaViolette & Barnett, 2013). When women's social support is reduced by exposure to IPV, mental health problems, such as PTSD and depressive symptoms are likely to increase (Chuang, Cattoi, Camacho, Dyer, & Weisman, 2012; Ridings et al., 2016; Samuels-Dennis et al., 2013). Social support has been found to mediate the relationship between IPV and mental health (Beeble, Bybee, Sullivan, & Adams, 2009; Glass, Perrin, Campbell, & Soeken, 2007). Yet, the question of whether social support mediates the relationship between abuse experiences (IPV and child abuse) and chronic pain has not been examined. In addition, the way in which IPV/wife abuse influences social support among Saudi women has not been examined.

Based on existing literature, there is a need to develop context-specific evidence about the mechanisms explaining how IPV and child abuse lead to health problems, such as depressive symptoms, PTSD symptoms, and chronic pain, in the Saudi context. In addition, research examining whether PTSD and depressive symptoms play similar or different roles in mediating the impacts of abuse on chronic pain is needed to gain a greater insight into unique and similar features of these two responses to traumatic events. Moreover, in order to conduct these types of studies, there is a need to develop reliable and valid Arabic self-report measures of IPV and associated health consequences.

The Present Study

Purpose

This study was designed to address key gaps in the literature with respect to understanding the health impacts of IPV for women, with a specific focus on Saudi women. The purposes of this study were to: a) advance the measurement of IPV and

common health problems associated with it by evaluating the psychometric properties of both Composite Abuse Scale (CAS) and PTSD Checklist—Civilian Version (PCL-C) using versions translated from English into Arabic, and, b) test a theoretical model of the mechanisms which explains how both severity of child abuse and IPV/wife abuse affect chronic pain among women experiencing IPV, and the mediating role of PTSD and depressive symptoms, and perceived social support.

Theoretical Framework

The Stress Process Model (SPM) (Pearlin, Menaghan, Lieberman, & Mullan, 1981), which focuses on the ways in which different aspects of stress are interrelated to form a process (Pearlin et al., 1981) was used as a theoretical framework for this study. SPM is based on empirical knowledge about the broad array of social and psychological conditions that combine over time to produce stress (Pearlin et al., 1981). While the SPM model identifies stressors as having an essential role to play in the stress–illness trajectory, it also recognizes that certain personal and social resources affect well-being.

There are three core concepts in the SPM: stressors, stress mediators, and health outcomes. Stressors refer to difficult life events or chronic strains that arise from an individual's life and social context and could challenge their ability to adjust and adapt (Pearlin, 1995). Stressors can have harmful consequences on cognitions, emotions, physiological functioning, and health (Pearlin & Bierman, 2013). Stress mediators are resources that are capable of influencing the effects of stressors on health. Mediators are linked with both the stressors which shape them and to health outcomes (Pearlin & Bierman, 2013). Outcomes in the SPM are framed in terms of health and well-being

(Pearlin, 1989; Pearlin et al., 1997) such that they are the observed effects of the stressors after the mediating factors have been taken into account (Pearlin, 1989).

Both child abuse and IPV are considered to be chronic stressors in adult life (Anderson & Saunders, 2003; Greenfield, Lee, Friedman, & Springer, 2011). IPV is a chronic stressor and not a single life event because it is a pattern of experience within a continuing relationship that often endures over time and is rooted in institutionalized social roles (Pearlin, 1989). IPV also has salient long-term effects on women's health and lives (Campbell, 2002; WHO, 2013). Similarly, child abuse is an important chronic stressor in adulthood given its cumulative nature of experiencing trauma (Turner & Butler, 2003) and subsequent health consequences (Kendall-Tackett, Marshall, & Ness, 2003; Mersky, Topitzes, & Reynolds, 2013). Although abused women may employ various resources, the focus in this study is on social support because this variable is well-documented as having profound positive health effects, both in general (Lakey & Orehek, 2011; O'Donovan & Hughes, 2008) and for women experiencing IPV (Beeble et al., 2009; Bosch & Bergen, 2006; Thompson et al., 2000). In the Saudi context, support from family may play a particularly powerful role in women's lives (Harb, 2015). Although Pearlin's model has been used primarily to study mental health outcomes, aspects of physical health, such as suppression of the immune system and lower back pain, have also been recognized as potential outcomes within this model (Pearlin, 1989, 1995).

Based on SPM and the literature review, a theoretical model about the relationships among severity of wife abuse and child abuse, mental health problems (PTSD and depressive symptoms), perceived family support and chronic pain was

developed and tested. Specifically, the severity of wife abuse and child abuse are hypothesized to each affect chronic pain directly and indirectly, through their impact on mental health (i.e. PTSD and depressive symptoms) and women's perceived family support.

Method

To address the purposes of this study, this research was carried out in two phases. In Phase one, a pilot study was conducted to translate two standard self-report scales, the PTSD Checklist Civilian Version (PCL-C; Weathers, Litz, Huska, & Keane, 1994) and Chronic Pain Grade (CPG; Von Korff, Ormel, Keefe & Dworkin, 1992) as well as the five item sexual abuse scale from the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) from English to Arabic, and to assess initial reliability of these translated scales. An integrated method for exploring conceptual equivalence within the process of translating measures (Sidani, Guruge, Miranda, Ford-Gilboe, & Varcoe, 2010) was used to produce a linguistic and cultural translation of these scales. The reliability of the three scales (PCL-C, Chronic Pain Grade, and Childhood Trauma Questionnaire) was assessed in a convenience sample of 30 adult, Arab women who were recruited from a community agency serving newcomers to Canada. Structured Interviews (SI) were used to administer translated scales to women and to obtain their feedback on the clarity and appropriateness of the questions. Interviews were conducted in a private room in the agency or another private location selected by the woman. Ethics approval for the pilot study was obtained from the Research Ethics Board at The University of Western Ontario. For each scale, internal consistency reliability was assessed using Cronbach's alpha. Inter-item

correlations, item-scale correlations and correlations among subscales and total scores were also inspected (Polit & Beck, 2008).

In Phase two (main study), the theoretical model was tested using data collected from a convenience sample of 299 married Saudi women seeking medical care in nine primary health care centers in Saudi Arabia. The recruitment took place at eight primary healthcare centers in Dammam, the capital city of Eastern Province, and one primary center in the country's capital city of Riyadh. All participants had experienced wife abuse in the past 12 months based on their responses to the Abuse Assessment Screen (AAS) (Parker & McFarlane, 1991), which had previously been adapted (Ford-Gilboe et al., 2009) and was translated into Arabic for this study. Data were collected using structured interviews comprised of self-report measures of the study variables and survey questions, all of which were administered to women in Arabic. Ethics approval was obtained from the Research Ethics Board at Western University and Institutional Review Boards (IRB) for both Ministry of Health and King Abdullah International Medical Research Center (KAIMRC), Ministry of the National Guard Health Affairs (MNGHA) in Saudi Arabia prior to recruitment. Descriptive statistics were computed for each variable. The prevalence of wife abuse was assessed by computing the number of women who were positive for abuse based on the AAS out of total number of women approached. Cronbach's alpha reliability was estimated for all instruments to determine the internal consistency of all measures among Saudi women. Confirmatory Factor Analysis was used to assess the factor structure of the Arabic versions of the scales. Structural equation modeling (SEM) was used to simultaneously test the theoretical model.

Significance

Adapting, translating, and psychometry testing self-report measures of IPV and common health outcomes associated with abuse are key to establishing the reliability and validity of these measures (Rathus & Feindler, 2004). Having a valid measure of IPV for use in Saudi Arabia will allow for accurate estimation of prevalence rates of IPV, enable meaningful comparisons to be made about research results across settings and contexts, and has potential to promote the development of rigorous research on IPV within Saudi Arabia and among Arabic populations more generally. Establishing the reliability and validity of health-related measures is greatly needed as a mean of documenting the health consequences of IPV and addressing important gaps in knowledge. For example, PTSD is a prevalent mental health outcome of IPV (Golding, 1999), yet PTSD symptoms have not been assessed among Arab women experiencing IPV due to the lack of reliable and valid PTSD measures (Norris & Aroian, 2008). Research examining the health impacts of IPV among Arab populations may lead to insights that could enhance understanding about the influence of culture on IPV and its impacts, and ultimately inform context-appropriate interventions and health policy.

Assessing the causal pathways by which IPV and child abuse lead to health outcomes could result in a more comprehensive understanding about the ways in which mental health problems, and social support, are implicated in women's experiences of chronic pain. For example, the findings of this research could highlight the importance of addressing PTSD symptoms and depressive symptoms in order to reduce the likelihood of developing chronic pain among women who have experienced IPV. This study could also add to the body of research that reinforces the connection of mind and body.

Examining differences in how depressive and PTSD symptoms mediate the impacts of abuse on chronic pain has potential to contribute to the literature, because the evidence is still inconclusive about whether PTSD and depression are two different constructs or a single construct (Post, Feeny, Zoellner, & Connell, 2016). Teasing out the differences between PTSD and depressive symptoms could provide insights into the question of whether PTSD is a distinctive mental health disorder. In addition, the study has the potential to produce context-specific knowledge about Saudi women's health and the impacts of abuse experiences that addresses important gaps in the literature.

In general, studies examining health outcomes associated with IPV tend to focus on recent abuse experience (Scott-Storey, 2011), overlooking the long-term consequences of child abuse. Thus, the attention given in this study to examining the impacts of child abuse in the context of wife abuse could extend the literature by more accurately capturing the consequence of both past and recent abuse experiences. This approach is congruent with evolving understanding about the fact that women's abuse experiences are often cumulative and the need to consider this when studying women's health. Examining the mechanisms by which child abuse can impact Saudi women health extends existing research by providing an evidence within a cultural context of Saudi Arabia. It could also advance theories about how Saudi women have responded to child abuse in comparison with women in Western societies.

In terms of healthcare practice, there is evidence that women who have experienced abuse visit health care systems, such as primary care settings, frequently to seek treatment for the health effects of IPV (Plichta, 2007; Ulrich, Cain, Sugg, Rivara, Rubanowice & Thompson, 2003). Thus, health care providers including nurses are in an

ideal position to play a significant role in the prevention, detection, treatment, and scholarly investigation of this health concern (Campbell & Humphreys, 1993). Since nurses need to base their practice on empirical knowledge about the nature of IPV experience and its consequences, the current study has the potential to influence nursing practice in the area of IPV. Specifically, the results of this study could increase understanding about how women's health is shaped by the social and cultural contexts of their lives and reinforce the need for nurses to consider the context in order to effectively care for women. The results of this study could also expand Saudi health care providers' knowledge and awareness about wife abuse locally and contribute to a shift in thinking so that they begin to see violence as more than an individual woman's private problem. This knowledge might empower the health care providers to advocate for and with abused women and respond to them in empathetic and supportive ways. Evidence about the prevalence of wife abuse in the primary health care centers in Saudi Arabia could be used as a first step toward considering the need to adopt a trauma-informed approach, which is based on an understanding of the effects of abuse on people's lives, health, and development (Elliot, Bjelajac, Fallot, Markoff, & Reed, 2005).

Finally, the knowledge generated from this study has potential to reframe IPV within Saudi Arabia as a public health issue that concerns all sectors of society. The availability of empirical evidence may also sensitize professionals in various sectors along with policy-makers to the social importance of reducing IPV and providing supports and services for women who live with violence. Further, the study could begin the process of developing effective interventions to address abused women's mental and physical health with giving an attention to role of social support.

Organization of the Dissertation

In chapter One (i.e. this chapter), the background for this study and the organization of this dissertation are presented. Chapter Two provides a comprehensive review of both empirical and theoretical literature related to intimate partner violence and child abuse in Saudi Arabia and the serious health consequences of these two phenomena worldwide. The existing literature is reviewed, critiqued, and presented in three sections, where the first section offers an overview of Saudi Arabia and the context of child abuse and IPV, the second section provides a review relevant to understanding the health consequences of child abuse and IPV, and third section summarizes and critiques literature about social support in the context of child abuse and IPV. The section on health consequences is organized according to key health outcomes experienced by women who have experienced abuse: Post Traumatic Stress Disorder (PTSD), depression, and chronic pain. A search of CINAHL, Medline, PsycINFO, Proquest, and SCOPUS data bases was conducted using the following key words or combinations of them: intimate partner violence (IPV), wife abuse, domestic violence, child abuse, posttraumatic stress disorder (PTSD), depression, chronic pain, and social support. Together, Chapters One and Two provide a backdrop to understand the state of current knowledge about intimate partner violence and its consequences, including limitations and gaps in the knowledge base.

Chapters Three to Five are data-based manuscripts in which the study results are presented. Chapter Three provides the results of testing the theoretical model which hypothesizes that severity of IPV/wife abuse and child abuse affect chronic pain directly and, indirectly, through mental health (PTSD and depressive symptoms) and perceived

family support. Furthermore, severity of both wife abuse and child abuse affect women's mental health (PTSD and depressive symptoms) directly and indirectly through perceived family support.

Chapter Four focusses on the evaluating the psychometric properties of the PTSD Checklist—Civilian Version (PCL-C), a standard self-report scale which was adapted and translated to Arabic for this study. The processes of adapting the measure and conducting initial pilot testing (Phase 1 of this dissertation) are described, along with the results of more in-depth testing with a cohort of 299 women recruited in Phase 2. Results focus on reliability assessment, item-analysis, concurrent validity, and a confirmatory Factor Analysis to test alternative models of the factor structure of PTSD symptoms based on the literature.

Chapter Five is a manuscript that details psychometric testing of the Arabic version of the Composite Abuse Scale (CAS), an established measure of IPV severity originally developed by Hegarty (2005). The CAS was initially translated from English to Arabic by Alhabib (2011) but its psychometric properties and factor structure have not been previously assessed. In this paper, the reliability and concurrent validity of the Arabic version of the CAS was assessed and the factor structure examined through both confirmatory and exploratory factor analysis techniques.

Finally, Chapter Six is the concluding chapter in which the results of the study as a whole are summarized and the implications for nursing practice, education and future research are outlined.

References

- AboulAzm, S., Hashem, W. E., & Elebiary, H., A. (2009). Impact of domestic violence against Saudi Arabian married women on their reproductive health outcomes. *Medical Journal of Cairo University*, 77(1), 485-494.
- Adkins, K. S., & Kamp Dush, C. M. (2010). The mental health of mothers in and after violent and controlling unions. *Social Science Research*, 39(6), 925–937. doi:10.1016/j.ssresearch.2010.06.013.
- Alhabib, S. (2011). *The Prevalence and Experiences of Intimate Partner Violence among Saudi Women in the UK*. (Unpublished doctoral dissertation). University of Bristol, UK.
- Alzahrani, T., A., Abaalkhail, B., A., & Ramadan, I., K. (2016). Prevalence of intimate partner violence and its associated risk factors among Saudi female patients attending the primary healthcare centers in Western Saudi Arabia. *Saudi Medical Journal*, 37(1), 96-99.
- Anderson, D., & Saunders, D. (2003). Leaving an abusive partner: An empirical review of predictors, the process of leaving, and psychological well-being. *Trauma, Violence, & Abuse*, 4(2), 163-191.
- Ashy, M. A. (2004). Saudi Arabia. In K. Malley-Morrison (Ed.), *International perspectives on family violence and abuse* (pp. 167-186). Mahwah, NJ: Lawrence Erlbaum.
- Banks, M.E. (2007). Overlooked but critical: Traumatic brain injury as a consequence of interpersonal violence. *Trauma, Violence & Abuse*, 8(3), 290-298.

- Barnawi, F. H. (2015). Prevalence and risk factors of domestic violence against women attending a primary care center in Riyadh, Saudi Arabia. *Journal of Interpersonal Violence*, 1–16. doi: 10.1177/0886260515587669
- Beeble, M.L., Bybee, D., Sullivan, C.M., & Adams, A.E. (2009) Main, mediating, and moderating effects of social support on the well-being of survivors of intimate partner violence across 2 years. *Journal of Consulting and Clinical Psychology*, 77(4), 718–729.
- Bohlaiga, A., Al-Kakhli, B., Al-Mattar, H., Al-Bahrani, I., Al-Lowaim, K., Al-Baqshi, M., & Alnasir, F. (2014). *Journal of General Practice*, 2(2). doi.org/10.4172/2329-9126.1000150.
- Bosch, K., & Bergen, M. B. (2006). The influence of supportive and nonsupportive persons in helping rural women in abusive partner relationships become free from abuse. *Journal of Family Violence*, 21(5), 311–320.
- Campbell, J. C. (2002). Health consequences of intimate partner violence. *Lancet*, 359(9314), 1331–1337.
- Campbell, J., C. & Humphreys, J. (1993). Nursing care of survivors of family violence. St. Louis: Mosby.
- Campbell, J., Jones, A. S., Dienemann, J., Kub, J., Schollenberger, J., O'Campo, P., ... & Wynne, C. (2002). Intimate partner violence and physical health consequences. *Archives of internal medicine*, 162(10), 1157-1163.
- Cascardi, M., O'Leary, K. D., & Schlee, K. A. (1999). Co-occurrence and correlates of posttraumatic stress disorder and major depression in physical/psychologically abused women. *Journal of Family Violence*, 14(3), 227.

- Cerulli, C., Poleshuck, E., Raimondi, C., Veale, S., & Chin, N. (2012). 'What Fresh Hell Is This?' Victims of Intimate Partner Violence Describe Their Experiences of Abuse, Pain, and Depression. *Journal Of Family Violence, 27*(8), 773-781.
doi:10.1007/s10896-012-9469-6.
- Cold, J., Petruckevitch, A., Feder, G., Chung, W., Richardson, J., & Moorey, S. (2001). Relation between childhood sexual and physical abuse and risk of revictimization in women: A cross sectional survey. *Lancet, 258*(9280), 450-454.
- Davies, L., Ford-Gilboe, M., Willson, A., Varcoe, C., Wuest, J., Campbell, J., & Scott-Storey, K. (2015). Patterns of cumulative abuse among female survivors of intimate partner violence: Links to women's health and socioeconomic status. *Violence Against Women, 21*(1), 30-48.
- Dillon, G., Hussain, R., Loxton, D., & Rahman, S. (2013). Mental and physical health and intimate partner violence against women: A review of the literature. *International journal of family medicine. 2013* (2013), 1-15.
- Edmond, T., Bowland, S., & Yu, M. (2013). Use of Mental Health Services by Survivors of Intimate Partner Violence. *Social Work In Mental Health, 11*(1), 34-54.
doi:http://dx.doi.org/10.1080/15332985.2012.734180.
- Eldoseri, H. M., Tufts, K. A., Zhang, Q., & Fish, J. N. (2014). Adverse health effects of spousal violence among women attending Saudi Arabian primary health-care clinics. *Eastern Mediterranean Health Journal, 20*(11), 717-725.
- Elliot, D., Bjelajac, P., Fallot, R., Markoff, L., & Reed, B. (2005). Trauma-informed or trauma-denied: Principles and implementation of trauma-informed services for women. *Journal of Community Psychology, 33*(4), 461-477.

- Fageeh, W. M. K. (2014). Factors associated with domestic violence: A cross-sectional survey among women in Jeddah, Saudi Arabia. *BMJ Open* 4 (e004242), 1-8. doi:10.1136/bmjopen-2013-004242.
- Fishman, P. A., Bonomi, A. E., Anderson, M. L., Reid, R. J. & Rivara, F. P. (2010). Changes in health care costs over time following the cessation of intimate partner violence. *Journal of General Internal Medicine*, 25(9), 920-925.
- Flory, J. D., & Yehuda, R. (2015). Comorbidity between post-traumatic stress disorder and major depressive disorder: Alternative explanations and treatment considerations. *Dialogues in Clinical Neuroscience*, 17(2), 141-150.
- Ford-Gilboe, M., Merritt-Gray, M., Varcoe, C., & Wuest, J. (2011). A theory-based primary health care intervention for women who have left abusive partners. *Advances in Nursing Science*, 34(3), 198–214.
- Ford-Gilboe, M., Varcoe, C., Noh, M., Wuest, J., Hammerton, J., Alhalal, E., & Burnett, C. (2015). Patterns and predictors of service use among women who have recently left abusive partners. *Journal of Family Violence*, 30(4), 419-431. doi:10.1007/s10896-015-9688-8 (Open Access).
- Ford-Gilboe, M., Wuest, J., Varcoe, C., Davies, L., Merritt-Gray, M., Campbell, J., & Wilk, P. (2009). Modelling the effects of intimate partner violence and access to resources on women's health in the early years after leaving an abusive partner. *Social science & medicine*, 68(6), 1021-1029.
- García-Moreno, C. (2013). *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*. World Health Organization.

- Garcia-Moreno, C., Heise, L., Jansen, H., A., F., M., Ellsberg, M., & Watts, C. (2005). Violence against women. *Policy Forum Public Health*, 310, 1282-1283
- Golding, J.M. (1999). Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence*, 14(2), 99-132.
doi: 10.1023/A:1022079418229.
- Goodman, L. A., Smyth, K. F., Borges, A. M., & Singer, R. (2009). When crises collide: How intimate partner violence and poverty intersect to shape women's mental health and coping? *Trauma, Violence, and Abuse*, 10(4), 306-329.
doi:10.1177/1524838009339754
- Greenfield, E.A., Lee, C., Friedman, E.L., & Springer, K.W. (2011). Childhood abuse as a risk factor for sleep problems in adulthood: Evidence from a US national study. *Annals of Behavioral Medicine*, 42(2), 245–256.
- Harvey, A., Garcia-Moreno, C., & Butchart, A. (2007). Primary prevention of intimate partner violence and sexual violence: Background paper for WHO expert meeting May 2-3, 2007. *Geneva: World Health Organization, Department of Violence and Injury Prevention and Disability*.
- Hausmann, R., Tyson, L.D., Bekhouche, Y. & Zahidi, S. (2012), *The Global Gender Gap Index 2012*, accessed at http://www3.weforum.org/docs/GGGR12/MainChapter_GGGR12.pdf, October 10 2013.
Health Issues, 17, 101-106.

- Hegarty, K., Bush, R., & Sheehan, M. (2005). The composite abuse scale: Further development and assessment of reliability and validity of a multidimensional partner abuse measure in clinical settings. *Violence and Victims, 20*(5), 529-547.
- Heise, L.L., Ellsberg, M., & Gottemoeller, M. (1999). *Ending violence against women*. Baltimore: Johns Hopkins University School of Public Health, Center for Communications Programs.
- Helfrich, C. A., Fujiura, G. T., & Rutkowski-Kmitta, V. (2008). Mental health disorders and functioning of women in domestic violence shelters. *Journal of Interpersonal Violence, 23*(4), 437–453.
- Humphreys, J., Cooper, B. A., & Miaskowski, C. (2011). Occurrence, characteristics, and impact of chronic pain in formerly abused women. *Violence Against Women, 17*, 1327–1343.
- Jewkes, R. (2002). Intimate partner violence: causes and prevention. *Lancet, 359*(9315), 1423-1429.
- Jones, L., Hughes, M., & Unterstaller, U. (2001). Post-traumatic stress disorder (PTSD) in victims of domestic violence: A review of the research. *Trauma, Violence, & Abuse, 2*(2), 99-119.
- Kilpatrick, D. (2004). What is violence against women? Defining and measuring the problem. *Journal of Interpersonal Violence, 19*(11), 1209-1234.
- Lakey, B. & Orehek, E. (2011) Relational regulation theory: A new approach to explain the link between perceived social support and mental health. *Psychological Review, 118*(3), 482–495.

- Langhinrichsen-Rohling, J. (2010). Controversies involving gender and intimate partner violence in the United States. *Sex Roles, 62*(3), 179–193.
- Leserman, J., & Drossman, D. (2007). Relationship of abuse history to functional gastrointestinal disorders and symptoms: Some possible mediating factors. *Trauma Violence & Abuse, 8*(3), 331-343.
- Levinson, D. (1989). *Family Violence in Cross-Cultural Perspectives*. Newbury Park, CA: Sage.
- Lim, S. S., Vos, T., Flaxman, A. D., Danaei, G., Shibuya, K., . . . Laden, F. (2012). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: A systematic analysis for the global burden of disease study 2010. *The Lancet, 380*(9859), 2224-2260. doi:10.1016/S0140-6736(12)61766-8
- McNutt, L., Carlson, B., Persaud, M., & Postmus, J. (2002). Cumulative abuse experiences, physical health and health behaviors. *Annals of Epidemiology, 12*(2), 123-130.
- Mersky, J., Topitzes, J., & Reynolds, A. (2013). Impacts of adverse childhood experiences on health, mental health, and substance use in early adulthood: A cohort study of an urban, minority sample in the US. *Child Abuse & Neglect, 37*(11), 917-925. doi:10.1016/j.chiabu.2013.07.011.
- Nathanson, A. M., Shorey, R. C., Tirone, V., & Rhatigan, D. L. (2012). The prevalence of mental health disorders in a community sample of female victims of intimate partner violence. *Partner Abuse, 3*(1), 59-75. doi:10.1891/1946-6560.3.1.59

- National Center for Injury Prevention and Control (NCIPC). (2003). *Costs of intimate partner violence against women in the United States*. Atlanta, GA: Centers for Disease Control and Prevention.
- Norris, A. E. & Aroian, K. J. (2008). Assessing reliability and validity of the Arabic language version of the Post-traumatic Diagnostic Scale (PDS) symptom items. *Psychiatry Research, 160*(3), 327–334.
- O'Donovan, A. & Hughes, B.M. (2008) Access to social support in life and in the laboratory: Combined impact on cardiovascular reactivity to stress and state anxiety. *Journal of Health Psychology, 13*(8), 1147–1156.
- O'Campo, P., Kub, J., Woods, A., Garza, M., Jones, A. S., Gielen, A. C.. . Campbell, J. (2006). Depression, PTSD, and comorbidity related to intimate partner violence in civilian and military women. *Brief Treatment and Crisis Intervention, 6*(2), 99-110. doi:10.1093/brief-treatment/mhj010
- Ouellet-Morin, I., Fisher, H. L., York-Smith, M., Fincham-Campbell, S., Moffitt, T. E., & Arseneault, L. (2015). Intimate partner violence and new-onset depression: A longitudinal study of women's childhood and adult histories of abuse. *Depression and Anxiety, 32*(5), 316–324.
- Paolucci, E., Genuis, M., & Violato, C. (2001). A meta-analysis of the published research on the effects of child sexual abuse. *Journal of Psychology, 135*(1), 17–36.
- Parker, B., & McFarlane J. (1991). Nursing assessment of the battered pregnant woman. *American Journal of Maternal Child Nursing, 16*(3), 161–164.
- Pearlin, L.I. (1989). The sociological study of stress. *Journal of Health and Social Behavior, 30*(3), 241–256.

- Pearlin, L. I., & Bierman, A. (2013). Current issues and future directions in research into the stress process. In C. S. Aneshensel, J. C. Phelan and A. Bierman. (Eds.), *Handbook of the sociology of mental Health* (2nd ed., pp. 325–340). New York, NY: Springer.
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, 22(4), 337-356.
- Plichta, S.B. (2004). Intimate partner violence and physical health consequences: Policy and practice implications. *Journal of Interpersonal Violence*, 19(11), 1296–1323.
- Plichta, S. B. (2007). Interactions between victims of intimate partner violence against women and the health care system policy and practice implications. *Trauma, Violence, & Abuse*, 8(2), 226-239.
- Polit, D.F., & Beck, C.T. (2008). *Nursing Research: Generating and Assessing Evidence for Nursing Practice* (8th ed.). Philadelphia: Lippincott.
- Public Health Agency of Canada. (2012). *WHO Facts on Alcohol and Violence: Intimate Partner Violence and Alcohol*. Retrieved on January 1, 2014 from: <http://www.phac-aspc.gc.ca/ncfv-cnivf/sources/fem/fem-intin-alco/index-eng.php>.
- Rachana, C., Suraiya, K., Hisham, A., Abdulaziz, A., & Hai, A. (2002). Prevalence and complications of physical violence during pregnancy. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 103(1), 26-29.
- Rathus, J. H., & Feindler, E. L. (2004). *Assessment of partner violence: A handbook for researchers and practitioners*. Washington, DC: American Psychological Association.

- Refaeli, T., Levy, D., Ben-Porat, A., Dekel, R., & Itzhaky, H. (2016). Personal and environmental predictors of depression among victims of intimate partner violence: Comparison of immigrant and israeli-born women. *Journal of Interpersonal Violence*, doi:10.1177/0886260516651624
- Richmond, J. M., Elliot, A. N., Pierce, T. W., Aspelmeier, J. E., & Alexander, A. A. (2009). Polyvictimization, childhood victimization, and psychological distress in college women. *Child Maltreatment*, *14*(2), 127-147.
- Rivara, F. P., Anderson, M. L., Fishman, P., Bonomi, A. E., Reid, R. J., Carrell, D., & Thompson, R. S. (2007). Healthcare utilization and costs for women with a history of intimate partner violence. *American journal of preventive medicine*, *32*(2), 89-96.
- Ruiz-Perez, I., Plazaola-Castano, J., & Del Rio-Lozano, M. (2007). Physical health consequences of intimate partner violence in Spanish women. *European Journal of Public Health*, *17*(5), 437-443.
- Samuels-Dennis, J., Bailey, A., Killian, K. Ray, S. (2013). The mediating effects of empowerment, interpersonal conflict, and social Support on the violence–PTSD process among single mothers. *Canadian Journal of Community Mental Health*, *32*(1), 109- 124.
- Scott-Storey, K. (2011). Cumulative abuse: Do things add up? An evaluation of the conceptualization, operationalization, and methodological approaches in the study of the phenomenon of cumulative abuse. *Trauma, Violence, & Abuse*, *12*(3), 135-155, 1524838011404253.

- Sidani, S., Guruge, S., Miranda, J., Ford-Gilboe, M., & Varcoe, C. (2010). Cultural adaptation and translation measures: an integrated method. *Research in Nursing & Health, 33*(2), 133–143.
- Tashkandi, A. A. & Rasheed, P. (2009). Wife abuse: A hidden problem. A study among Saudi women attending PHC centers. *Eastern Mediterranean Health Journal, 15*(5), 1242- 1253.
- Thompson, M. P., Kaslow, N. J., Kingree, J. B., Rashid, A., Puett, R., Jacobs, D., & Matthews, A. (2000). Partner violence, social support, and distress among inner-city African American women. *American Journal of Community Psychology, 28*(1), 127–143.
- Thompson, R.S., Bonomi, A.E., Anderson, M., Reid, R. J., Dimer, J.A., Carrell, D., & Rivara, F. P. (2006). Intimate partner violence prevalence, types, and chronicity in adult women. *American Journal Preventive Medicine, 30*(6), 447–57.
- Tiwari, A., Fong, D. Y. T., Chan, C., & Ho, P. (2013). Factors mediating the relationship between intimate partner violence and chronic pain in Chinese women. *Journal of Interpersonal Violence, 28*(5), 1067-1087.
doi:<http://dx.doi.org/10.1177/0886260512459380>
- Tiwari, A., Leung, W.C., Leung, T.W., Humphreys, J., Parker, B., & Ho, P.C. (2005). A randomized controlled trial of empowerment training for Chinese abused pregnant women in Hong Kong. *British Journal of Obstetrics and Gynecology, 112*(9), 1-8.
- Tjaden, P., & Thoennes, N. (2000). *Extent, nature, and consequences of intimate partner violence: Findings from the National Violence Against Women Survey*. National Institute of Justice and the Center for Disease control and Prevention.

- Turner, H. A., & Butler, M. J. (2003). Direct and indirect effects of childhood adversity on depressive symptoms in young adults. *Journal of Youth and Adolescence*, 32(2), 89-103. doi:10.1023/A:1021853600645.
- Ulrich, Y., Cain, K., Sugg, N., Rivara, F., Rubanowice, D., & Thompson, R. (2003). Medical care utilization patterns in women with diagnosed domestic violence. *American Journal of Preventive Medicine*, 24(1), 9-15.
- Varcoe, C., Hankivsky, O., Ford-Gilboe, M., Wuest, J., & Wilk, P & Campbell. J. (2011). Attributing selected costs to intimate partner violence in a sample of women who have left abusive partners: A social determinants of health approach. *Canadian Public Policy*, 37(3), 1-22.
- Waltermaurer, E. (2012). Public Justification of Intimate Partner Violence: A Review of the Literature. *Trauma, Violence & Abuse*, 13(3), 167-175.
doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1177/1524838012447699>.
- Whitfield, C.L., Anda, R.F., Dube, S.R., & Felitti, V.J. (2003). The violent childhood and the risk of intimate partner violence in adults: Assessment in a large health maintenance organization. *Journal of Interpersonal Violence*, 18(2), 166-185.
- Wilson, J. P. (2007). The lens of culture: Theoretical and Conceptual Perspectives in the Assessment of Psychological Trauma and PTSD. In J. P. Wilson and C. S. Tang (Eds.). *Cross-Cultural Assessment of Psychological Trauma and PTSD* (pp. 3-30). New York: Springer Science and Business Media.
- Wilson, J.S., Messing, J.T., Patchell, B., & Campbell, J.C. (2011). Factors related to posttraumatic symptoms in women experiencing police-involved intimate partner violence. *Advances in Nursing Science*, 34(3), E14–E28.

- Wong, J., & Mellor, D. (2014). Intimate partner violence and women's health and wellbeing: Impacts, risk factors and responses. *Contemporary nurse*, 46(2), 170-179.
- Woods, S. (2000). Prevalence and patterns of posttraumatic stress disorder in abused and post-abused women. *Issues in Mental Health Nursing*, 21(3), 309-324.
- World Health Organization (2005). *WHO multi-country study on women's health and domestic violence: Report of initial results on prevalence, health outcomes and women's responses*. Geneva: WHO.
- World Health Organization (2009). *Changing cultural and social norms that support violence*. Geneva: WHO.
- World Health Organization (2012). *Preventing intimate partner and sexual violence against women: Taking action and generating evidence*. Geneva: WHO.
- World Health Organization (2013). *Responding to intimate partner violence and sexual violence against women WHO clinical and policy guidelines*. Geneva: WHO.
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Varcoe, C., Lent, B., Wilk, P., & Campbell, J. (2009). Abuse-related injury and symptoms of posttraumatic stress disorder as mechanisms of chronic pain in survivors of intimate partner violence. *Pain Medicine*, 10(4), 739-747.
- Wuest, J., Merritt-Gray, M., Ford-Gilboe, M., Lent, B., Varcoe, C., & Campbell, J. C. (2008). Chronic pain in women survivors of intimate partner violence. *Journal of Pain*, 9(11), 1049-1057.
- Zuhur, S. (2011). *Middle East in Focus Saudi Arabia*. ABC-CLIO, LLC: California, USA.

CHAPTER TWO

REVIEW OF LITERATURE

A review of empirical and theoretical literature related to both intimate partner violence (IPV) and child abuse and their health consequences is presented here. The role of social support in mediating the relationship between both IPV and child abuse and women's health is also reviewed. A search of CINAHL, Medline, PsycINFO, Proquest, and SCOPUS data bases was conducted using the following key words or combinations of keywords: intimate partner violence (IPV), wife abuse, domestic violence, child abuse, posttraumatic stress disorder (PTSD), depression, chronic pain, and social support. The search was augmented by reviewing selected bibliographies with a focus on combinations of the keywords. In addition, the grey literature was reviewed to provide some contextual information about Saudi Arabia and its population. Publications were included if they were essential for understanding the concepts included in this review. Given that most IPV is carried out on women (Caldwell, Swan, & Woodbrown, 2012; Counts, Brown, & Campbell, 1992), this review focuses on IPV against women. In addition, throughout the literature review, wife abuse is used synonymously with IPV in the context of Saudi culture, because intimate relationships are neither appropriate in Arabic culture nor from an Islamic perspective outside of marriage. In addition, "abuse experiences" is used to encompass both child abuse and IPV.

This literature review is organized into 3 main sections. The first section provides an overview of Saudi Arabia. I describe the economic and social context in SA, including the family structure, as a backdrop for considering how the context might shape women's experiences of IPV. The prevalence of wife abuse and child abuse in Saudi Arabia are reviewed in order to address the scope of these phenomena. The second section focuses

on reviewing the literature related to the health consequences of child abuse and IPV, with particular attention given to Post Traumatic Stress Disorder (PTSD), depression, and chronic pain, as these are key health outcomes among IPV and child abuse survivors. In addition, research that examines the effects of both PTSD and depression on chronic pain is summarized and critiqued. In the third section, the role of social support in mediating the relationship between both child abuse and IPV and their health consequences is scrutinized.

Overview of Saudi Arabia

Economic and Social Background of Saudi Arabia

Saudi Arabia is a vast country, covering an area of 2.15 million km². It is one of the wealthiest oil countries. Over the past 30 years, the country has witnessed stimulation of its socio-economic development with substantial improvements seen in health, education, housing, and the environment (World Health Organization, 2006). The United Nations Development Program (UNDP) annual global human development report ranked Saudi Arabia 57th globally in terms of its human development index along three dimensions (life expectancy, educational attainment, and command over the resources needed for a decent living) (United Nations Development Program, 2013).

The Saudi population is around 31.5 million with an annual population growth rate of 2.4% (Central Department of Statistics & Information, 2015) and is relatively young, as 18.85% of population is between 15 - 24 years old and 46.4% is between 25-54 years old (Index Mundi, 2016). School enrolment is improving with 90% of males and 93% of females enrolling for primary education, and 91% of population enrolling in secondary education. The adult literacy rate is 90.8% for males and 82.2% for females;

youth illiteracy is 1% and 3% respectively (UNESCO Institute for Statistics, 2011). In 2011, about 17.71% of the population lived in rural areas, while 82.3% were residents of urban cities (Index Mundi, 2013). Traditional social bonds in Saudi society are based on blood relationships with members of the same tribe or family (Al-Saif, 1997).

In Saudi Arabia, the family structure is traditionally made up of husband, wife, and children, living in a separate home. Almost all daughters and sons live with their parents until they get married. The mean age of marriage for females is 24.60 (Quandl, 2011). In some cases, a shift from the nuclear to extended family could occur as a result of polygamy or living with other family members, such as a divorced daughter or sister or an elderly parent might live with the nuclear family (Ashy, 2004). Polygamy (i.e. multiple marriages) is neither obligatory, nor encouraged, but is permitted in the Islamic religion and is still practiced in Saudi Arabia culture (Mobaraki & Söderfeldt, 2010). Divorce is viewed as a common social problem in Saudi society (Albrithen, 2006). The man can divorce his wife with a verbal statement and he can go later to register the divorce, but the procedure is more difficult when the woman initiates the divorce. There is greater stigma against divorce attached to women than men in the society and it is highly undesirable among the older generation (Zuhur, 2011).

Traditionally and culturally, women's roles focus on caring for the family and men are seen as providers. Yet, in the 2000s, the country witnessed a number of positive changes including the 'enhancement of women's role in society' (Le Renard, 2015). More women are continuing their education and looking to have professional careers (Alchoui, 2009) and 58% of all Saudi university students are now women (Taibah & Jamjoom, 2014). There are 24,498 Saudi women with graduate degrees (Saudi Gazette,

2015). AlMunajjed (2010) noted that Saudi women make up around 15% of the workforce, while the unemployment rate is 34% for Saudi women (UNDP, 2014).

Prevalence of Wife Abuse in Saudi Arabia

There is little information about the incidence, prevalence and pattern of wife abuse in SA. In the literature, eleven studies have been conducted with Saudi women. Eight studies aimed specifically to assess wife abuse (AboulAzm, Hashem, & Elebiary, 2009; Alhabib, 2011; Al-Faris et al., 2013; Alzahrani, Abaalkhail, & Ramadan, 2016; Bohlaiga et al., 2014; Eldoseri, Tufts, Zhang & Fish, 2014; Rachana, Suraiya, Hisham, Abdulaziz, & Hai, 2002; Tashkandi & Rasheed, 2009), whereas three studies focused on domestic violence or violence against women in general (Afifi, Al-Muhaideb, Hadish, Ismail, & Al-Qeamy, 2011; Barnawi, 2015; Fageeh, 2014). The prevalence of lifetime wife abuse in these studies ranged from 12.2% - 57.7% and the prevalence of current or previous year wife abuse ranged from 11.9% -32.8%. All but one study assessed wife abuse by surveying women in Saudi health care settings. One study was conducted with Saudi women who had lived at United Kingdoma for three years (Alhabib, 2011). Thus, the sample for this study is unlikely to be representative of Saudi women because they had been exposed to Western cultural norms that could have influenced women's beliefs and practices.

The previous studies demonstrate the high prevalence of wife abuse in Saudi Arabia and are consistent with findings from the WHO Multi-Country Study which documented lifetime rates of IPV ranging from 15% to 71% among women living in ten different countries (WHO, 2005). In comparison, one in four Canadian women experienced IPV in their lifetimes (Clark & DuMont, 2003). However, studies in Saudi

Arabia have used different measures and definitions of wife abuse. For example, Al-Faris et al. (2013), Rachana et al. (2002), and Eldoseri et al. (2014) only assessed the prevalence of physical abuse without considering the non-physical dimensions of abuse (e.g. emotional and sexual) which has been acknowledged in the literature as more prevalent than physical abuse and which is linked to similar or worse outcomes (Outlaw, 2009; Strauchler et al., 2004). Alzahrani et al (2016) used the HITS screening tool in which women are asked how often their partner: “physically hurt you, insult you or talk down to you, threaten you with harm, and scream or curse at you?” without specifying a time frame (previous year or lifetime). Both AboulAzm et al. (2009) and Bohlaiga et al. (2014) developed and used their own questionnaire to assess wife abuse without reporting the reliability and validity. As well, Alhabib (2011) translated and used the Composite Abuse Scale (CAS) without assessing its validity among Saudi women. The highest prevalence of wife was reported by Tashkandi and Rasheed (2009) who measured both physical and emotional abuse. Yet, the researchers in this study used the Conflict Tactics Scale (CTS) which was originally created to measure conflict in relationships without considering coercive control (Dobash & Dobash, 2004), which is a central feature of IPV (Tjaden & Thoennes, 2000).

In sum, a limited number of studies have assessed wife abuse in SA. While these studies make important contributions in beginning to document wife abuse prevalence, they are limited by: a) the inadequacy of the reliability and validity of the IPV measures used, b) the emphasis on physical abuse and exclusion non-physical aspects of abuse, and, c) failure to differentiate between the experiences of lifetime and past year abuse.

Prevalence of Child Abuse in Saudi Arabia

In Saudi Arabia, child abuse and neglect was officially identified as a public issue in 2000 (Al Eissa & Almuneef, 2010). A recent study conducted with total 2,043 Saudi adolescents (aged 15–18 years) revealed that the incidence of psychological abuse, physical abuse, exposure to violence, neglect, and sexual abuse was 74.9%, 57.5%, 50.7%, 50.2%, and 14.0%, respectively (Al-Eissa et al., 2015). Elarousy and Al-Jadaani (2013) found that 90% of Saudi children (aged 12-18 years) reported at least 1 form of emotional abuse. Al-Dabaan, Newton, and Asimakopoulou (2014) found that, in the previous five years, 59% of Saudi dentists had encountered a case of child abuse or neglect in their practice. Psychological abuse is the most prevalent (65%) form of child abuse in Saudi Arabia (Al-Eissa et al., 2016).

In 2000, the Suspected Child Abuse and Neglect (SCAN) team was established at one center (the King Abdul Aziz Medical City for the National Guard) to examine child abuse and neglect cases. From 2000 to 2008, 133 of referred abuse cases were investigated by the team and 70.7% of these cases were substantiated as abuse or neglect cases. Among the investigated cases, physical abuse was the most prevalent form (48.9%) followed by neglect (32.3%), while 15% were cases of sexual abuse, and 3.8% were cases of emotional abuse (Al-Eissa & Almuneef, 2010). In addition, a web-based data registry system for surveillance and collection of data about child abuse in major hospitals was also established (Almuneef et al., 2014). The system identified 616 child abuse cases during a 16-month period (National Family Safety Program, 2010).

Assessing all reported cases from 2006 to 2010 revealed that about 85% of reported cases

were sexual abuse, 13% were physical abuse, and 2.3% were combined physical and sexual abuse (AlMadani, Bamousa, Alsaif, Kharoshah, & Alsowayigh, 2012).

However, the information about investigated cases of child abuse in Saudi Arabia cannot be used to estimate the prevalence of child abuse in the country or compare it to the number of investigated child abuse cases in other countries, because the cases in Saudi Arabia were referred and investigated by a hospital-based team, while in most countries, such as the United States, the reported cases are from professionals in various disciplines and non-professionals. In addition, collecting national information about child abuse prevalence needs a well validated tool. Recognition of child abuse in Saudi Arabia is in its beginning stages, so the social perceptions of abuse could influence the number of reported cases. It is likely that professionals might only recognize the apparent or severe cases (Al-Eissa & Almuneef, 2010) in the context of limited knowledge about referral procedures and fear of anger from family members (Mogaddam, Kamal, Merdad, & Alamoudi, 2016).

Health Consequences of IPV and Child Abuse

There is substantial evidence that women who have experienced IPV and/or child abuse are more likely to experience physical and mental health problems, as the association between IPV and health is multifaceted (Campbell, 2002; Coker, Hopenhayn, DeSimone, Bush & Crofford, 2009; Dutton et al., 2006; Golding, 1999; Rees et al., 2011). Health problems that occur as a result of IPV could be acute or chronic (Ford-Gilboe et al., 2010), and are caused by injuries and/or women's physical and psychological responses to trauma (Plichta, 2004; Wuest, Ford-Gilboe, Merritt-Gray, Varcoe et al., 2009). In this section, the literature on PTSD, depression, and chronic pain

among abuse survivors is reviewed as these are key health outcomes and the focus of the current study.

Post- Traumatic Stress Disorder Symptoms

Conceptualization. The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* identified PTSD as three clusters of symptoms (i.e. re-experiencing, hyperarousal, and avoidance) (American Psychiatric Association [APA], 2000). The DSM-IV sets diagnostic criteria for PTSD including a history of exposure to a traumatic event, symptoms from each of these clusters (i.e. intrusiveness or reexperiencing the trauma, hyperarousal, and avoidance such as dissociation) that last more than one month and cause impairment in important areas of functioning (e.g. social or occupational) (APA, 2000). Symptoms of re-experiencing include unwanted recollections of the incident in the form of distressing images, nightmares, or flashbacks. Hyperarousal is related to the physiological manifestations of trauma, such as insomnia, irritability, impaired concentration, hypervigilance, and increased startle reactions. Avoidance symptoms consist of attempts to avoid reminders of the event, including persons, places, or even thoughts associated with the incident (APA, 2000).

Herman argued for an alternative conceptualization of PTSD symptomology, called complex PTSD, which results from exposure to prolonged and repeated trauma (Herman, 1992; Haskell & Randall, 2009). Classic PTSD results from time-limited trauma; complex PTSD differs in the nature of symptoms (i.e. more diffuse and tenacious PTSD symptoms), along with changes in personality characteristic and vulnerability to repeated harm (Herman, 1992). Complex PTSD is important in the context of IPV and

child abuse survivors, because these survivors live in a state of captivity with prolonged and constant exposure to a pattern of abuse.

A body of empirical research as well as clinical observations highlights several concerns about how trauma and PTSD are conceptualized (Weathers, Marx, Friedman & Schnurr, 2014). As a result, the *DSM-5* criteria for PTSD were released with a modified definition of PTSD symptoms. Specifically, PTSD was moved from the anxiety disorders category into a new trauma- and stressor related disorders category and conceptualized as four clusters of symptoms, including intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity (APA, 2013). The fit of this recent conceptualization of PTSD symptoms for abuse survivors is not yet clear; research is required to assess the applicability of new *DSM-5* symptom clusters to IPV survivors.

Post-traumatic stress disorder across cultures. There is still a controversy in the literature regarding the cross-cultural applicability of PTSD (Good & Hinton, 2016; Kienzler, 2008). This debate has two distinctive positions. On one hand, some researchers argue that PTSD is a universal and cross-culturally valid response to traumatic events (Costa et al., 2011; Wilson, 2007; Yehuda & McFarlane, 1997), and on another hand, some researchers argue that the Western conceptualization of trauma only fits the context of Western culture (Nqweni & Van Rooyen, 2012; Summerfield, 2004).

Culture is a powerful socializing force for generating and forming beliefs that impact the perception and processing of trauma and its symptoms (Nicolas, Wheatley, & Guillaume, 2015; Wilson, 2007). This perspective assumes that PTSD lacks validity as a cross-cultural construct (Hollifield et al., 2002). These researchers have argued that the

concept of distress might be more applicable than PTSD in non-Western cultures (Nichter, 2010), because PTSD is a culturally-specific construct that has resulted from a combination of various political, economic, legal, and medical influences (Young, 1995) based on particular conceptualizations of suffering (Kohurt & Hrushka, 2010).

Other researchers believe that PTSD is not socially constructed, but is a valid cross-cultural construct (Costa et al., 2011; McNally, 2004; Wilson, 2007; Yehuda & McFarlane, 1997). The argument that PTSD is an applicable construct in non-Western cultures has been based on similar findings across cultures (De Jong, 2005) because PTSD is the most frequently reported problem after experiencing interpersonal trauma (Yehuda & LeDoux, 2007). In addition, trauma has a neurobiological effect which impacts both learning and memory (Dyregrov, Gupta, Gjestad, & Raundalen, 2002; Nqweni & Van Rooyen, 2012). Neurobiological studies have shown that dysregulation and right hemisphere alterations in brain functioning as a result of trauma exposure are universal in PTSD (Friedman, 2000; Schore, 2003), and these alterations result in universal characteristics and emotional experience (e.g., hyperarousal) (Wilson, 2007). Trauma advocates across the globe also assert that symptoms following trauma exposure become worse in non-Western countries if they are not treated by Western-style treatment approaches, which legitimize PTSD as a universal response to traumatic distress (Kienzler, 2008). Thus, if PTSD differs cross-culturally, this may suggest “plasticity” of the human brain and mind, in terms of the role of culture in forming and causing mental issues. This position does not fit well with Psychiatry’s “disease” model, in which there is well-defined symptomology and treatment protocols (Marsella, 2010). Some researchers believe that the problem is not the application of PTSD cross-culturally, but the scarcity

of valid and reliable instruments to assess PTSD in non-Western cultures (Hollifield et al., 2002; Patel, Flisher, Nikapota, & Malhotra, 2008). In essence, there is still a crucial need to examine the psychometric properties of Western-based instruments among non-Western people to enhance the evidence of PTSD universality.

Prevalence of PTSD symptoms in the general population. Several epidemiological studies have provided information regarding the prevalence of PTSD symptoms among individuals who have experienced a traumatic event. The National Center for PTSD (2013) estimated the lifetime prevalence of PTSD is about 7% around the world. Studies show that women are at significantly increased risk for PTSD following exposure to serious trauma (Creamer, Burgess, & McFarlane, 2001; Nayback, 2009; Zlotnick, Johnson, & Kohn, 2006), as they have a two-fold risk of PTSD compared to men (Tolin & Foa, 2006).

The causes of marked gender differences in post-trauma reactions or what leads to higher risk of PTSD development among women are still not clear. Biological factors, like hormonal differences or neuroendocrine responses and processes, could account for the vulnerability of women to PTSD symptoms (Inslicht et al., 2013; Villamor & de Adana, 2015). A few researchers suggested that differences in emotional regulation between men and women could provide an explanation for gender differences in PTSD symptoms (Olf, Langeland, Draijer, & Gersons, 2007; Peirce, Newton, Buckley, & Keane, 2002). Women have higher perceptions of threat or loss of control (Dickerson & Kemeny, 2004; Olf et al., 2007) and their coping styles are more emotion and avoidance focused (Matud, 2004; Tamres, Janicki, & Helgeson, 2002). Women's age at the time of trauma exposure could also explain gender differences in risk of developing PTSD,

because women are exposed to trauma at younger age (Olf et al., 2007). Traditional gender role socialization has been postulated as a risk factor for experiencing high rates of PTSD symptoms among women, because it socializes individuals to particular expression of feelings, such that women are supposed to be self-sacrificing, passive, and submissive, while men are supposed to be strong, brave, and ruling (Norris, Perilla, Ibañez, & Murphy, 2001; Villamor, & de Adana, 2015). It has also been suggested that loss of resources, including social and material support after trauma exposure is more common among women, which may exacerbate the development of PTSD (Wade, Fletcher, Carty, & Creamer, 2015). Other evidence suggests that women's greater exposure to specific types of trauma, such as interpersonal violence, childhood sexual abuse, and sexual harassment, might account for the difference between female and male PTSD symptoms risk (Nayback, 2009; Walker, Carey, Mohr, Stein, & Seedat, 2004). In sum, several factors might explain the higher rates of PTSD among women versus men, yet gender differences in PTSD symptoms have not been sufficiently explained (Inslicht et al., 2013; Olf et al., 2007). What is missing from previous explanations is whether the cumulative nature of abuse in women's life influences gender difference in the prevalence of PTSD and the contextual mechanism shaping women's experiences of PTSD symptoms versus men.

Post-traumatic stress disorder symptoms among IPV and child abuse

survivors. Women's risk for lethality from IPV is associated with PTSD symptoms (Wilson, Messing, Patchell, & Campbell 2011), and PTSD is the most prevalent mental health consequence of IPV (Campbell, 2002; Nathanson, Shorey, Tirone, & Rhatigan, 2012). Cross-sectional studies have been conducted in different parts of the world,

including North America, Colombia, Spain, China, and India, with women who have histories of IPV to measure PTSD symptoms (e.g. Chan, Tiwari, Fong, & Ho, 2010; Gupta et al., 2014; Hebenstreit, Maguen, Koo, DePrince, 2015; Medina, Canaval, Burgos, & Humphreys, 2011). In these studies, researchers have recruited abused women from the community, clinics, shelters, and counseling centers for abused women. Across these studies, a positive relationship has been consistently found between IPV exposure and PTSD symptoms among abused women. Golding (1999) conducted a meta-analysis to look to the prevalence of mental health problems among women who had experienced IPV and found that the 31% to 84.4% (weighted mean 63.8%) of women experienced PTSD and the mean odds ratio relating IPV to PTSD was 3.74. In a community sample of Canadian women who had recently left an abusive partner, 51.6 % had symptoms consistent with PTSD, yet only 7.1% had a formal diagnosis of PTSD (Wuest, et al., 2008); this finding demonstrates the high prevalence of PTSD symptoms even after leaving, but also the lack of recognition of this common health problem within health care settings.

There is evidence of a dose-response relationship, meaning that more severe and persistent IPV is associated with greater levels of PTSD symptoms (e.g. Dichter, Marcus, Wagner, & Bonomi, 2014; Svavarsdóttir, Orlygsdottir, & Gudmundsdottir, 2015; Symes, Maddoux, McFarlane, Nava, & Gilroy, 2014). Moreover, the experience of more than one type of IPV (e.g., physical, sexual, or emotional abuse) has been associated with higher levels of PTSD symptomology (Eshelman & Levendosky, 2012). For example, women who experience only one type of abuse were just over two times as likely to develop PTSD symptoms compared to non-abused women, while women who had

experienced three types of IPV were more than nine times as likely to develop PTSD compared to non-abused women (Houry, Kemball, Rhodes, & Kaslow, 2006). Residual injury related to IPV (Weaver & Resick, 2014), traumatic brain injury (TBI) from IPV, psychological IPV, and sexual IPV (Iverson & Pogoda, 2015) had been significantly related to PTSD symptoms, but women who experienced IPV-related TBI reported significantly higher PTSD symptoms (Iverson & Pogoda, 2015). Abused women's PTSD symptom profiles could be different than in other trauma populations. For example, Hebenstreit et al. (2015) used latent profile analysis and revealed five PTSD symptom profiles (low symptoms, low symptoms with high hypervigilance, intermediate symptoms, intermediate symptoms with high hypervigilance, and high symptoms) that best describe women's PTSD symptoms. This finding shows that there is diversity among women exposed to IPV in terms of reporting PTSD symptoms, because women have different patterns of PTSD based on symptom severity when hypervigilance is the dominant cluster.

Although there is support for the relationships between PTSD and the type and severity of IPV in the literature, the previous studies have a few limitations. For instance, Houry et al. (2006) included only low-income, African American women; their finding might not be generalizable to other populations, because women's socioeconomic status could be associated with PTSD symptoms. In addition, most previous research has not considered the cumulative effects of lifetime trauma events, particularly child abuse, on women's PTSD symptoms (e.g. Basile, Arias, Desai, & Thompson, 2004; Eshelman & Levendosky, 2012; Houry et al., 2006). Also, these studies were mainly conducted in Western countries; PTSD symptoms were only assessed among Arab women in two

studies. Khadra, Wehbe, Fiola, and Skaff (2015) looked to the prevalence of PTSD symptoms among Arab women and found that 97% of women who had experienced physical abuse from their partners also had PTSD symptoms. However, Khadra et al. used the original English version of a PTSD measure but did not translate or adapt it to Arab culture so that it would be more relevant and comprehensible to women. Another study was conducted to assess PTSD symptoms using a 4-item screening tool, the Primary Care PTSD. It was found that IPV was not correlated with PTSD after controlling for political violence (Haj-Yahia & Bargal, 2015). In Saudi Arabia, PTSD has not been studied among women who have experienced wife abuse.

There is evidence that prior trauma, such as child abuse, is a significant predictor of PTSD following another traumatic event (e.g. IPV) in adulthood (Lilly, London, & Bridgett, 2014; Satyanarayana, Chandra, & Vaddiparti, 2015). Women who have experienced both child abuse and IPV reported greater PTSD symptoms than women with experiences of child abuse or IPV alone (Messman-Moore, Long, & Siegfried, 2000). The risk of experiencing PTSD symptoms for women with a history of both childhood and adulthood abuse is 12.4 times greater than among women without an abuse history (Kimerling, Alvarez, Pavao, Kaminski, & Baumrind, 2007). Many studies show a relationship between child abuse experience and PTSD symptoms among women (e.g. Burns, Jackson, & Harding, 2010; Rivera-Vélez, González-Viruet, Martínez-Taboas, & Pérez-Mojica, 2014), with PTSD prevalence rates ranging from 26% to 52% among child abuse survivors (Kessler, 2000; Kessler, Sonnega, Bromet, & Hughes, 1995; Ullman & Brecklin, 2002). There is evidence that child abuse indirectly affects PTSD through IPV (Lilly, London, & Bridgett, 2014).

A few studies conducted in Arab countries have assessed PTSD as a consequence of child abuse among children (Khamis, 2005; Usta & Farver, 2010). However, the effects of violence during childhood have only been examined in one study (Haj-Yahia & Bargal, 2015) which revealed a dose-response relationship between experiencing violence and PTSD symptoms among university students.

How IPV and child abuse lead to PTSD. Neuroscientific evidence suggests that both neuroendocrine dysregulation and neuroanatomical changes in the brain as a result of chronic stress could explain why abuse experiences lead to PTSD symptoms. However, few studies have looked specifically to the physiological changes that cause PTSD symptoms in the context of IPV and child abuse.

Researchers suggest that women's exposure to abuse experiences (IPV and/or child abuse) results in physiological changes. Child abuse and IPV influence women's hypothalamic-pituitary-adrenal (HPA) axis functioning (Carpenter, Shattuck, Tyrka, Geraciotti, & Price, 2011; Johnson, Delahanty, Pinna, 2008; Woods et al., 2005), and result in decreased cortisol levels (Carpenter et al., 2007; Carpenter et al., 2011). Cortisol helps the body cope with the stressor (Shea, Walsh, MacMillanb, & Steiner, 2005) and a low level of cortisol (a consequence of HPA dysfunction) has been found to be a risk factor for PTSD development in different trauma populations (Yehuda & LeDoux, 2007; Yehuda, McFarlane, & Shalev, 1998). Thus, abused women with PTSD were found to have lower plasma cortisol levels than abused women without PTSD or normal healthy controls (Griffin, Resick, & Yehuda, 2005). In contrast, Inslicht et al. (2006) found that women who had experienced IPV, and who had prior or current PTSD, also had higher salivary cortisol levels compared to abused women without PTSD. As well, women with

severe IPV could exhibit more flattened patterns of cortisol (i.e. lower cortisol awakening response, higher midday levels of cortisol, less linear decline in cortisol at midday, and less nonlinear dampening of cortisol levels over the course of the day) (Kim et al., 2015). Therefore, the relationship between changes in cortisol levels and the development of PTSD among IPV survivors not been fully elucidated; further research is still required in this area.

In terms of neuroanatomical and functional changes, the hippocampus, amygdala, and insula, have been found to change in the context of PTSD. A reduction in the volume of hippocampal (a neuronal structure needed for the processing of new information and memory functioning) has been found among women who have experienced IPV and child abuse and also have PTSD symptoms (Bremner et al., 2003; Woon & Hedges, 2008). Yet, other researchers have reported no significant difference in the hippocampal volume between women with IPV history and women without (Fennema-Notestine, Stein, Kennedy, Archibald, & Jernigan, 2002; Flegar et al., 2011) and no significant reduction in hippocampal volume among women with history of child abuse and PTSD (Pederson et al., 2004). Therefore, the effect of these abuse experiences on women's hippocampal volume is not clear. Other factors, such as alcohol dependency and aging, may have impacted the results (Hedges & Woon, 2010). For example, Flegar et al (2011) recruited women dependent on alcohol from a program to change drinking behavior even though there is evidence that the hippocampus is vulnerable to deleterious effects of alcohol use (Medina, Schweinsburg, Cohen-Zion, Nagel, & Tapert, 2007). In addition, some studies did not control for age as a confounding factor (Flegar et al., 2011), even though aging might contribute to hippocampal atrophy (Resnick, Pham, Kraut, Zonderman, &

Davatzikos, 2003). Hyper-activation of the amygdala (responsible for arousal systems as well as initiating and coordinating a stress reaction) and insula (involved in emotions and the regulation of the body's homeostasis) was found among IPV survivors with PTSD (Aupperle et al., 2012; Fonzo et al., 2010; Simmons et al., 2008). The dysfunction of insula leads to a propensity of women to focus on physiological responses to potential triggering events, which is an important symptom of PTSD. Hypo-activation in the prefrontal cortex (which regulates behavior, thought, emotion, calmness, and attention and reality testing) was found to be associated with IPV-related PTSD (Aupperle et al., 2012) and a reduction in prefrontal cortex volume is associated with child abuse (Van Harmelen et al., 2010).

The neuroscience evidence is still inconsistent in terms of disrupted profiles of HPA axis activity and the anatomical and functional of brain areas after abuse experiences that may cause PTSD. Extensive studies are needed to identify the HPA axis and functional and anatomical alterations of abused women's brain while recognizing if these alterations are due to the abuse experiences, a consequence of abuse via PTSD, or due to some other factors. Additional research is also needed to determine if there is a dose-response relationship between the severity of abuse experiences and the level of physiological changes.

Summary. There is consistent evidence that abuse survivors develop PTSD symptoms. Women are twice as likely to develop chronic symptoms of PTSD following trauma exposure than are men (Breslau, 2002; Kessler et al., 1995). A dose-response relationship has been supported through a positive relationships found between the severity and type of IPV and severity of PTSD symptoms. The existing evidence related

to IPV, child abuse, and PTSD is mainly based on research conducted in Western countries. Thus, it is not clear whether Saudi women have similar trauma responses to abuse experiences (child abuse and wife abuse) compared to their Western counterparts.

Depressive Symptoms

Definition. The term depression began to appear in the 19th century to point to a condition of sadness (Paykel, 2008). Psychiatrists viewed depression as psychobiological reactions to stress, as both psychological and organic factors must be considered (Paykel, 2008). Depression is defined in both *The ICD-10 Classification of Mental and Behavioral Disorders* and *Diagnostic and DSM-IV*. Depression is defined by presence of a number of clinical features for longer than two months and characterized by psychotic depression, obvious functional impairment, suicidal ideation, and morbid preoccupation with worthlessness (Paykel, 2008). According to *DSM IV* and 5, meeting criteria for a depression diagnosis requires five of nine symptoms to present during the same 2-week period. One of these symptoms must be *depressed mood or loss of interest or pleasure* (American Psychiatric Association, 2013).

Depression across cultures. There is part of the literature that argues against the cross-cultural applicability of depression (Chentsova-Dutton, Ryder, & Tsai, 2014). Yet, cross-cultural evidence has confirmed the existence of depression in all parts of the world and the universal way in which it is manifested and experienced across cultures (Hamdi, Amin, & Abou-Saleh, 1997; Paykel, 2008). International studies, including a World Health Organization (1983) study, reported that symptoms such as loss of appetite, lack of energy, loss of sexual interest, weight reduction, fatigue, tension and ideas of insufficiency, inadequacy and worthlessness are cross-cultural regular expressions of

depression. In addition, physicians in non-Western countries have been treating depressed individuals with antidepressant medication and supportive therapy, which reinforces biomedical researchers' claim that depression is a universal disease (Kleinman, & Good, 1985). One classic review of the literature (Singer, 1975) showed no differences in the characteristics of depressive symptoms among non-Western and different cultures. As well, a recent study (Haroz et al., 2016) compared the performance of one depression scale across seven low and middle income countries using item response theory analysis. The study found support for the cross-cultural applicability of depression symptoms. Some researchers have debated whether there are variations in the meaning and forms of depressed mood, such as dysphoria, across societies (Kleinman, & Good, 1985). However, Paykel (2008) argues that mood disorders appear to be universal, but need to be recognized by local psychiatrists and other healthcare providers who understand the culture, language, and metaphors used to express mood. For instance, in Zimbabwe, the language lacks a term directly equivalent to depression, and presentations emphasize somatic symptoms (Patel, Abas, Broadhead, Todd, & Reeler, 2001).

Physiological changes in depressed individuals are thought to be the same regardless of different cultural backgrounds. For example, there is evidence that abnormally low levels of serotonin (a neurotransmitter) leads to the development of depressive symptoms in individuals at risk for depression. Reduction in serotonin level is linked to a number of changes, including compromised memory consolidation, altered reward behaviours (e.g. feeding or sexual activity), and diminished responses to positive stimuli (Hasler, 2010; Hasler, Drevets, & Manji, 2004). Abou-Saleh, Karim, and Krymsky (1998) measured biological markers in 33 male and 30 female Arab patients

with *DSM* major depression and showed several recognized biologic markers of depression that are consistent with those obtained in Western populations. This result is consistent with the notion of universal biologic aspects associated with depression.

Prevalence of depression in the general population. The World Health Organization (2004) estimated that depression will be the leading cause of disease burden worldwide by 2030, as the lifetime prevalence of depression is in the range of 10% to 15% (Demyttenaere et al., 2004). In Saudi Arabia, 14.3 % of adolescents (AlBuhairan et al., 2015) and 49.9% of adults (Al-Qadhi, ur Rahman, Ferwana, & Abdulmajeed, 2014) live with depression. However, significant gender differences exist for depression worldwide, since women have twice the lifetime rate of depression, compared to men (Haskell et al., 2010).

Some researchers argue that the significant relationship between female gender and depression could be explained by biological (sex) factors (Burt & Stein, 2002). They suggest that women might be at an increased risk for depression because of sex hormones, dysregulation of the HPA axis (Weiss, Longhurst, & Mature, 1999; Young, 1995), and the level of neurotrophic factors (de Azevedo et al., 2014; Kreinin et al., 2015). The HPA axis in women is more vulnerable to dysregulation as a result of stress exposure which makes women at risk to depression (Weiss et al., 1999). Neurotrophic factor influences the pathophysiology of depression and these levels differ between men and women (Lommatzsch et al., 2005). Disclosure rates of depressive symptoms could also be a factor that explains these differences, as it has been found that men prefer concealment of their depressive condition more than women (Burke, Wang, & Dovidio, 2014).

There is evidence that gender roles are more appropriate for explaining the gender gap in depression (Kuehner, 2003), particularly in societies with traditional gender role expectations (Nazroo, Edwards, & Brown, 1997). Inequities in workload and partnership have been found to predict increased depressive symptoms and account of gender difference in depression (Nolen-Hoeksema, Larson, & Grayson, 1999). Gender roles result in women's exposure to different types of stressors, such as lack of social, physical, and personal resources (Jank, Kim, & Chiriboga, 2011), limited social power, role strain, childhood sexual abuse, and partner violence (Kuehner, 2003). Although a few explanations exist for gender differences in depression, the mechanisms underlying these differences remain unclear.

Depressive symptoms among child abuse and IPV survivors. Women who have experienced IPV are at significant risk of developing depressive symptoms (Devries et al., 2013; Godoy-Ruiz, Toner, Mason, Vidal, & McKenzie, 2015; Ouellet-Morin et al., 2015). A meta-analysis showed that the weighted mean prevalence was 50% for depression across settings (Golding, 1999). The incidence of depressive symptoms among IPV survivors was found to range from 32% to 51.4% (Chuang, Cattoi, Camacho, Dyer, & Weisman, 2012; Edmond, Bowland, & Yu, 2013; Helfrich, Fujiura, & Rutkowski-Kmitta, 2008). IPV survivors are around three times more likely to experience depression than women who have not experienced IPV (Bonomi et al., 2009). Although previous studies have documented the high prevalence of depression among abused women, some studies only looked to one type of abuse (e.g. Nedd, 2001) and other used small samples (e.g. 50 women), resulting in reduced statistical power (Edmond et al., 2013; González-Guarda, Peragallo, Vasquez, Urrutia, & Mitrani, 2009). One study

(Tolman & Rosen, 2001) included only women receiving welfare, while another study included only women enrolled in a health plan providing insurance and health services)(Bonomi et al., 2009). Only Fedovskiy, Higgins, and Paranjape (2008) found no significant association between IPV and depression among American Latino women recruited from a primary care clinical setting. However, the non-significant result could be attributed to the high baseline levels of depressive symptoms in this sample.

Similar to the trend for PTSD, research shows a dose-response relationship between the severity of IPV and depressive symptoms (Ansara & Hindin, 2011; Lacey, Mcpherson, Samuel, Sears, & Head, 2013; Kim-godwin, Maume, & Fox, 2014). Among 1,257 women in primary care settings, the strongest associations between depression and IPV were in women who had experienced severe combined abuse (i.e. physical and emotional abuse or harassment) (Hegarty, Gunn, Chondros, & Small, 2004). Experiencing more than one type of abuse increased the possibility of having depressive symptoms as well (Chen, Rovi, Vega, Jacobs, & Johnson, 2009; Eshelman & Levendosky, 2012). Among Hispanic women, those who experienced sexual abuse in adulthood had the highest risk (OR 42.60) of developing depressive symptoms (Chen et al., 2009), while psychological abuse was identified as the significant predictor of higher levels of depressive symptoms among Black women at U.S. and women at China (Lacey et al., 2013; Wong & Licinio, 2001). These studies suggest the distinct effects of each type of abuse in the context of IPV on women's depressive symptoms, based on the ethnic and cultural background.

There is evidence that prior trauma, such as child abuse, is a significant predictor of depressive symptoms following another traumatic event (e.g. IPV) in adulthood

(Koopman et al., 2007; Salwen, Hymowitz, Vivian, & O'Leary, 2014). Experiencing both child abuse and IPV was associated with a three-fold (Kimerling, Alvarez, Pavao, Kaminski, & Baumrind, 2007) or four to seven-fold risk for reporting symptoms of depression (Ouellet-Morin et al., 2015). In essence, child abuse is associated with an increased risk for depressive symptoms in adulthood (Johnson, Giordano, Longmore, & Manning, 2014; Rohde et al., 2008; Widom, DuMont, & Czaja, 2007). A systematic review and meta-analysis revealed that one-half of global depression is related to self-reported child abuse (Li, D'Arcy, & Meng, 2016). The Adverse Childhood Experiences Study (Chapman et al., 2004) and other studies (e.g. McCarthy-Jones & McCarthy-Jones, 2014; van Dam et al., 2015) found a dose-response relationship between child abuse and depressive symptoms in adulthood. Four-fold increases in the risk of depression in adulthood have been found with multiple child abuse experiences (Felitti et al., 1998). Child sexual abuse increases the odd of experiencing depression by 2.04, while physical abuse increases the odd by 1.49 (Lindert et al., 2014). However, a recent meta-analysis revealed that child psychological abuse is the most strongly associated with depression at adulthood compared with other types of child abuse (Infurna et al., 2016).

In Arab countries, studies showed similar findings to the studies that were conducted in different societies. The prevalence of depression among Arab women who have experienced wife abuse was found to range from 38.7% to 64% (Al-Modallal, 2012a; Hamdan-Mansour, Farhan, Othman, & Yacob, 2010) and 32.7% of the variance in the depression was attributed to wife abuse (Haj-Yahia, 2000). However, some previous studies only measured one aspect of abuse (Maziak & Asfar, 2003), used small samples (e.g. 93) (Hamdan-Mansour et al., 2011), and included women who lived in relatively

marginalized conditions (e.g. refugee camps) without controlling the socioeconomic status in the analysis (Al-Modallal, 2012a). Among Saudi women, the qualitative analysis from a mixed method study in UK revealed that many abused women had feelings of depression. They believed that IPV made them lonely with low mood and loss of interest in life and in some women suicidal thoughts were reported (Alhabib, 2011). In addition, Eldoseri et al. (2014) revealed that experiencing physical wife abuse was 17 times more likely in Saudi women who reported recent intake of antidepressant drugs and 6.6 times more likely in Saudi women who had ever had suicidal thoughts. However, the level and the rate of depressive symptoms were not assessed using well-established measures for depressive measure among Saudi women in the previous studies. Other studies (Al-Faris et al., 2014; Barnawi, 2015) found that violence impacted Saudi women's mental health, but it is not clear if these mental health or psychiatric problems are linked to depressive symptoms. In terms of the long term effects of child abuse, a study in Saudi Arabia found that experiencing adverse events in childhood is associated with depression (OR = 21.2) later in life (Almuneef, Qayad, Aleissa, & Albuhairan, 2014).

How child abuse and IPV lead to depression. A number of mechanisms have been investigated to explain why or how chronic stresses lead to depression, including changes in neuroendocrine functioning (Carnegie et al., 2014; Dedovic, & Ngiam, 2015; Vreeburg et al., 2009; Wei et al., 2015), structural alterations of the brain at the cellular and anatomical levels (Frodl & O'Keane, 2013; MacQueen & Frodl, 2011) and changes in inflammation/immune responses (Miller, Maletic, & Raison, 2009; Young, Bruno, & Pomara, 2014).

In the context of IPV and child abuse, it has been assumed that these experiences have similar effects as chronic stress and causes dysregulation of HPA axis activity (Pinto, Correia-Santos, Costa-Leite, Levendosky, & Jongenelen, 2016; Woods & Gill, 2010). Among abused women with depressive symptoms, higher salivary cortisol level was noted compared to abused women without symptoms (Blasco-Ros, Herbert, & Martinez, 2014; Pinna, Johnson, & Delahanty, 2014). Yet, the association between HPA axis dysfunction as marked by cortisol level and vulnerability to depression among abused women still remains unclear.

The functional and structural changes that result from experiencing abuse and that then cause depression have been explored in a few studies. No significant differences in the hippocampal volume were found between abused and non-abused women in two studies (Fennema-Notestine, Stein, Kennedy, Archibald, & Jernigan, 2002; Flegar et al., 2011). However, these studies have been previously critiqued for their limitations. Hippocampal alterations in depressed individuals were found to be, in part, related to experiencing child abuse (Opel et al., 2014). Individuals with child abuse experiences have smaller hippocampal volumes than participants without child abuse which increases their susceptibility to severe depression (Chaney et al., 2014). A significant reduction in prefrontal cortex (PFC) volume was found among individuals who had experienced emotional child abuse independent of depression status (Van Harmelen et al., 2010). In terms of amygdala alterations as a consequence of child abuse, one study reported a positive correlation between child abuse and amygdala hyper-responsiveness to sad facial expression among depressed individuals (Grant, Cannistraci, Hollon, Gore, & Shelton, 2011), while Dannlowski et al. (2012) found a strong relationship between child abuse

and amygdala hyper-responsiveness to threat-related facial expressions that was independent of depression. These findings suggest that prefrontal cortex atrophy and amygdala hyper-responsiveness could be a consequence of abuse and a risk factor for the onset of depression.

Researchers have also highlighted the role of proinflammatory cytokines in the pathophysiology of depression (Miller, Maletic, & Raison, 2009). These cytokines access the brain and interact with neurotransmitter metabolism, neuroendocrine function, and neural plasticity in ways that are consistent with neuropathologic changes found in depression (Miller et al., 2009). Researchers working with women who have experienced IPV found alterations in women's inflammation and immune functioning as a result of IPV (Out, Hall, Granger, Page, & Woods, 2012; Woods et al., 2005), but this alteration was not examined in relation to depressive symptoms. A relationship has also been found between experiencing child abuse and dysregulation in proinflammatory cytokines in adulthood (Coelho, Viola, Walss-Bass, Brietzke, & Grassi-Oliveira, 2014; Hughes, Carballedo, McLoughlin, Frodl, & Connor, 2013), but the link to depression is not clear. Danese et al. (2008) revealed that depressed individuals with a history of child abuse were more likely to have high levels of inflammation factor (sensitivity C-reactive protein). Yet, the mechanisms explaining how IPV and/or child abuse result in alterations in women's neuroendocrine activity, anatomical brain areas, and inflammation/immune functioning in relation to depressive symptoms have not been well investigated.

Summary. The literature shows how women who have experienced IPV and child abuse are at increased risk of developing depressive symptoms. North American studies support a positive, dose-response relationship between the severity and type of

IPV and depression. A few studies conducted in Arab countries have examined depression as a mental health consequence of wife abuse, but most have only measured physical abuse without considering the effects of psychological and/or sexual abuse.

Co-occurrence of PTSD and Depression

Depression differs from PTSD in terms of physiological symptoms (Yehuda, 1998). While PTSD and depression are seen to be distinct reactions to traumatic events (Chiu et al., 2011; Post, Feeny, Zoellner, & Connell, 2016), these problems occur concurrently in many people who have experienced trauma (O'Donnell, Creamer, & Pattison, 2004). Depression is present in approximately half of all people who develop PTSD (Resick, Nishith, Weaver, Astin, & Feuer, 2002). In the Arab population, the comorbidity of PTSD and depression was estimated at 76.5% among adolescents who were injured during Al-Aqsa intifada (in Palestine) (Khamis, 2005), while 19% of the general population experience co-morbid PTSD and lifetime depression (Madianos, Sarhan, & Koukia, 2011). In the context of IPV, there is support for risk of comorbidity between depression and PTSD and the presence of PTSD without depression is rare (Lagdon, Armour, & Stringer, 2014; Pigeon et al., 2011). Across studies, the prevalence of the comorbidity between depression and PTSD among abused women ranges from 18% - 54.5% (Edmond et al., 2013; Kelly, 2010; Nathanson, Shorey, Tirone, & Rhatigan, 2012; Sabri et al., 2013; Stein & Kennedy, 2001). The variations in the prevalence could be attributed to the severity of abuse and the sample type, because the severity of IPV (Sabri et al., 2013) and psychological abuse (Somberg, 2008) have been found to predict co-occurrence of these disorders. In addition, the co-occurrence of PTSD and depression is associated with both more severe PTSD and depressive symptoms, as compared to

symptoms of PTSD only or depression only (Nixon, Resick, & Nishith, 2004; Taft, Resick, Watkins, & Panuzio, 2009). In the context of trauma, whether the pattern of co-occurrence represents one single construct or two distinct constructs is unclear.

It has been suggested that the overlapping of common symptoms of depression and PTSD (e.g. insomnia, diminished concentration, and anhedonia) could be responsible for their comorbidity (Brady, Killeen, Brewerton, & Lucerini, 2000; Wright et al., 2011). Specifically, a shared negative affect aspect has been found to be a contributor to PTSD and depression co-occurrence (Post et al., 2016; Post, Zoellner, Youngstrom, & Feeny, 2011). However, another body of literature suggests that the overlapping symptoms of depression and PTSD are not the sole contributor to the occurrence of comorbid depression and PTSD (Ford, Elhai, Ruggiero, & Frueh, 2009; Grubaugh, Long, Elhai, Frueh, & Magruder, 2010). In contrast, it has also been argued that the comorbidity of depression with PTSD could be attributed to common causation, as they are outcomes of a common set of risk factors (Stander, Thomsen, & Highfill-McRoy, 2014) or to chronological causation, with depression believed to develop after PTSD (Ginzburg, Eindr & Solomon, 2010), or PTSD developing after depression (Breslau, Davis, Peterson, & Schultz, 2000). Other researchers have argued that co-occurring PTSD and depression is, in fact, a single traumatic stress construct (Elhai et al., 2011; O'Donnell, Creamer, & Pattison, 2004). Therefore, the evidence is still inconclusive in terms of the etiology of the co-occurrence of PTSD and depression and whether they are two distinct constructs or a single construct (Post et al., 2016).

There are, however, distinct biological profiles associated with PTSD versus depression. For example, PTSD has been consistently linked to low levels of cortisol

(Sherin & Nemeroff, 2011; Yehuda & LeDoux, 2007) while elevated cortisol levels have been reported in depression (Adam et al., 2010). In the co-occurrence of PTSD and depression, low cortisol levels have been observed (Oquendo et al., 2003). Among childhood trauma survivors, higher cortisol level was found in individuals with both PTSD and depressive symptoms (Morris, Compas, & Garber, 2012), while lower cortisol levels were found among women who have experienced IPV and who have both PTSD and depressive symptoms (Griffin et al., 2005). However, the inconsistencies in the findings of these studies could be attributed to the timing of measurement (i.e. morning vs evening) and the methods used to measure cortisol (i.e. blood vs saliva). A gap still remains in examining the physiological or biological features of PTSD and depression co-occurrence.

Chronic Pain

Pain is both the sensory and emotional experience of suffering that results from possible and/or actual tissue damage (International Association for the Study of Pain, 2014). Acute pain that is often a useful warning system to the body that these experienced may become chronic as result of alterations in the pain pathway and its hypersensitivity (Basbaum, Bautista, Scherrer, & Julius, 2009). Chronic pain is defined as pain that persists for longer than three to six months or longer than the time for normal healing to happen (Institute of Medicine, 2011). It may be continuous or recurrent and adversely affect individuals' well-being, quality of life, and level of functioning (National Guideline Clearinghouse, 2007). Chronic pain is recognized as a disease itself, in contrast to acute pain which is a symptom of an injury (Riva, Wesselmann, Wirth, Carter-Sowell, & Williams, 2014). Chronic pain is a human universal phenomenon, but the recognition

of pain necessitates cross-cultural understanding as well as training in cross-cultural communication (Wierzbicka, 2012). One study (Riley et al., 2002) showed that race/ethnicity has very little impact on pain sensation intensity. The researchers attributed racial/ethnic differences in pain intensity to delayed access to care, poorer response to treatment, or the mechanism used to cope with chronic pain (Ferreira-Valente, Pais-Ribeiro, & Jensen, 2014; Liao, Henceroth, Lu, & LeRoy, 2016; Meints, Miller, & Hirsh, 2016). However, the literature lacks research that examines cross-cultural differences in chronic pain as a consequence of psychological trauma.

The International Association for the Study of Pain (2010) identified chronic pain as a global problem, as one in five persons suffers from chronic pain. In the U.S., the prevalence of chronic pain in a population based sample was estimated to be 26% (Toblin, Mack, Perveen, & Paulozzi, 2011). In the Canadian population, 18% of women and 14% of men experience chronic pain (Meana, Cho, & DesMeules, 2004). Women report chronic pain more frequently and at more severe levels compared to men (Blyth et al., 2001; Catala et al., 2002; Munce & Stewart, 2007). These gender differences have been explained in varied ways, with a few results highlighting the variations in functioning and pain management behaviors between women and men (El-Shoilisy, Strong, & Meredith, 2015; Greenspan et al., 2007). However, Anrow et al., (2011) found that both genders had similar patterns of functioning and coping with chronic pain. It has also been suggested that gender norms and expectations contribute to these differences as males are expected to tolerate pain, while it is accepted that female express their pain (Alabas, Tashani, Tabasam, & Johnson, 2012; Bernardes & Lima, 2010). In addition, gender differences in chronic pain have been attributed to biological mechanisms,

including genetic and hormonal factors (Aloisi & Bonifazi, 2006; Keogh & Herdenfeldt, 2002).

The etiology of chronic pain is complex and multi-factorial, because physical and psychosocial factors (such as traumatic events or perceived stress associated with an event) play essential roles (Harkness, Macfarlane, Nahit, Silman, & McBeth, 2004). According to the gate control theory of pain (Melzack & Wall, 1965), the experience of pain is influenced by both psychosocial and physiological factors. Using this theory, Engel (1977) introduced the concept of the biopsychosocial model to medicine. Since that time the biopsychosocial perspective has been used to extend evidence about the causes of chronic pain (Gatchel & Maddre, 2004). In the general population, it was found that onset as well as continuation of chronic pain were influenced by social stressors (Chapman, Tuckett, & Song, 2008; Gatchel, Peng, Peters, Fuchs, & Turk, 2007) independent of psychological factors (McBeth et al., 2007). Adverse life events were found to be related to emerging chronic pain (Generaal et al., 2016). A longitudinal study with 2,300 women in the general population revealed some support for the predictive role of psychosocial factors in both onset and experience of constant pain (Thomtén, Soares, & Sundin, 2011). Workplace bullying, for instance, is a potential risk factor for chronic pain (Saastamoinen, Laaksonen, Leino-Arjas, & Lahelma, 2009). In addition, differences in total number of life events experienced were found in people living with chronic pain and controls (Ghosh & Sharma, 2010). Individuals' social resources, such as social support, are negatively linked to chronic pain (Ferreira-Valente et al., 2014). Yet, the processes through which the psychosocial factors cause chronic pain is a gap in the literature.

Chronic pain among child abuse and IPV survivors. The relationship between chronic pain and both child abuse (Brown, Berenson, & Cohen, 2005; Davis, Luecken, & Zautra, 2005; Walsh, Jamieson, MacMillan, & Boyle, 2007) and IPV (Cerulli, Poleshuck, Raimondi, Veale, & Chin, 2012; Humphreys et al., 2011; Tiwari, Fong, Chan, & Ho, 2013; Wuest et al., 2010) is well established. Several large studies have found that the prevalence of chronic pain among abused women ranges from 38% to 94.5% (Campbell et al., 2002; Coker, Smith, Bethea, King, & McKeown, 2000; Sutherland, Bybee, & Sullivan, 2002; Wuest et al., 2008). Women with a history of IPV are more likely to report disability related to chronic pain (Coker, Smith, & Fadden, 2005) and receive three to seven times more pain medication (Lo FoWong, Wester, Mol, Romkens, & Lagro-Janssen, 2007) than those without an abuse history. Among Canadian women who had separated from an abusive partner for an average of 20 months, only 5.5% did not experience chronic pain, whereas 35.3% reported high disability related to chronic pain compared to a national average of 18% (Wuest et al., 2008). These findings suggest that chronic pain may be a long-term negative health consequence of IPV. A meta-analysis revealed that experiencing child abuse increases the likelihood of seeking health care for chronic pain in adulthood (Davis, Luecken, & Zautra, 2005). The Adverse Childhood Experiences Study (Anda, Tietjen, Schulman, Felitti, & Croft, 2010), as well as other studies (Davis, Luecken, & Zautra, 2005; Nicolson et al., 2010) have found a dose–response relationship between child abuse and chronic pain in adulthood.

Various types of pain have been associated with IPV and child abuse experiences, such as pelvic pain (Alizadeh, Ravanshad, Rad, Khamnian, & Azarfar, 2015), migraine and headache (Cripe, Sanchez, Gelaye, Sanchez, & Williams, 2011), back pain (Vives-

Cases et al., 2011), abdominal pain (Leserman & Drossman, 2007; Scheffer Lindgren & Renck, 2008), painful joints (Wuest et al., 2008), and fibromyalgia (Nicolson, Davis, Kruszewski, & Zautra, 2010).

Although a growing body of research links IPV and child abuse to chronic pain, the role of abuse in the development of chronic pain as a long-term health consequence is controversial (Gilbert et al., 2009; Raphael, Chandler, & Ciccone, 2004; Romans & Cohen, 2008). In one prospective study which used court records of child maltreatment history, weak and non-significant relationships were found between verified child abuse and adult pain (Raphael, Widom, & Lange, 2001). However, given that the mean age of participants was mid-to-late 20s, follow up into later life stages of life could have produced different results. Furthermore, the use of court records to measure abuse, rather than more direct approaches, may underestimate the relationship (Swahn et al., 2006). In the few studies in which no relationship has been found between IPV and chronic pain (Chen, Rovi, Vega, Jacobs, & Johnson, 2009; Gass, Stein, Williams, & Seedat, 2010; Yoshihama, Horrocks, & Kamano, 2009) there have been methodological limitations, including the use of very small samples (e.g. 22 abused women) (Himelfarb Hurwitz et al., 2006), and/or unreliable and invalid measures. For example, Gass et al. (2010) used a single question to assess chronic pain among women.

Most of the previous studies of chronic pain among abused women have been conducted with Western women; the relationship between abuse experiences and chronic pain has not been widely explored in Arab women, including among Saudi women. Eldoseri et al. (2014) found that physical wife abuse was twice as likely in women reporting feelings of pain or discomfort. Another study by Al-Faris et al. (2014) asked

Saudi women about the impact of violence on their bodies over the last four months using checklist of questions. The women reported pain (8.1%), chronic fatigue (7.2%), and frequent headaches (4.5%). Alhabib (2011) conducted qualitative interviews with Saudi women living in the UK, who had experienced wife abuse and found that these women reported general body fatigue, limitations in performing their daily activities, chronic headache, migraine, irritable bowel syndrome, and abdominal pain; these women also linked their pain symptoms to their exposure to IPV (Alhabib, 2011). Yet, these pain symptoms were assessed qualitatively not quantitatively using a well-established valid measure.

How child abuse and IPV could lead to chronic pain. One body of literature has linked chronic pain to physical abuse, while another body has viewed psychological stress as a cause of physiological changes that lead to chronic pain. Although chronic pain has usually been identified as somatization, it could also result from old, misdiagnosed, or untreated injuries (Campbell & Soeken, 1999; Cerulli et al., 2012; Wuest et al., 2009). For example, chronic pain related headaches might be an undiagnosed consequence of strangulation (Coker, Smith, Bethea, King, & McKeown, 2000) and/or neurological damage from physical partner violence (Campbell & Soeken, 1999). In addition, injuries could cause neuropathic changes (Woolf & Mannion, 1999). Tissue damage sensitizes the pain transmission pathway leading to a 'pain memory' that lasts after the injury has healed (Meagher, 2004). In addition, untreated acute pain might result in hyper-responsiveness and impairment of pain inhibitory mechanisms (Martelli, Zaster, Bender, & Nicholson, 2004). Psychological abuse experiences can also trigger physiological changes, leading to increased pain among abused women (Kendall-Tackett,

2000), because chronic pain could be understood as a result of a complex biopsychosocial stress process (Chapman, Tuckett, & Song, 2008).

Changes in the hypothalamic-pituitary-adrenal (HPA) axis have been found among abused women with chronic pelvic pain (Heim, Ehlert, Hanker, & Hellhammer, 1998). In addition, in a sample of women with chronic pain (fibromyalgia and osteoarthritis), a dose-response relationship was found between cortisol level and severity of child abuse (Nicolson, Davis, Kruszewski, & Zautra, 2010). Women who have experienced IPV have high pro-inflammatory interferon- γ (IFN- γ) cytokine values (Woods et al., 2005) which are produced by Th1 cells responsible for experiencing pain symptoms (Austin & Moalem-Taylor, 2010; Scully et al., 2010). Only a handful of researchers have investigated pain responses in abused women using neuroimaging studies, producing mixed results. Noll-Hussong et al. (2010) found that women who experienced child abuse had higher activation of the left medial and lateral superior frontal gyrus than women without a history of child abuse. Given that left frontal areas are involved in memory retrieval, these researchers concluded that abused women were much more sensitive in their response to pain. In contrast, in another study conducted with women who had experienced IPV, higher activation of brain regions related to pain using brief thermal heat stimuli was not found in response to experimental pain stimuli (Strigo et al., 2010). Research examining the physiological mechanisms explaining how abuse experiences result in chronic pain remains a significant gap in the literature.

The relationship between chronic pain and PTSD. There is a growing evidence of the co-occurrence of chronic pain and PTSD in different populations (Outcalt et al., 2015; Scioli-Salter et al., 2015) with greater pain and disability found among individuals

with both disorders (Rasmusson & Shalev, 2014). Research has revealed that 50% to 75% of individuals with PTSD symptoms experience chronic pain as well (Bosco, Gallinati, & Clark, 2013; Brennstuhl, Tarquinio, & Montel, 2015; Shipherd et al., 2007). Conversely, the Canadian Community Health Survey revealed much lower rates, where 7.7% of people living with fibromyalgia also had PTSD symptoms, while 46% of individuals with chronic back pain had PTSD symptoms (Sareen et al., 2007).

Wilson et al. (2011) found that women who had experienced IPV were more likely to have co-occurring physical pain and PTSD symptoms. In essence, PTSD symptomology has been found to uniquely predict chronic pain among abused women in some studies (Woods, Hall, Campbell, & Angott, 2008), but not in others (Humphreys, Cooper, & Miaskowski, 2010). There is some empirical support that PTSD mediates the relationship between abuse experience (child abuse and/or IPV) and chronic pain (Campbell, Greeson, Bybee, & Raja, 2008; Lang et al., 2006; Powers et al., 2014), including the relationship between psychological abuse-related IPV and chronic pain among Chinese women (Tiwari, Fong, Chan, & Ho, 2013). Among Canadian women who had left the abusive relationship, PTSD symptoms mediated the relationships between both child abuse and past IPV and current chronic pain (Wuest et al., 2009).

The relationship between chronic pain and depression. In the general population, depression has been identified as a risk factor for health problems, such as chronic pain (Katon, Sullivan, & Walker, 2001; Kirmayer, Robbins, Dworkind, & Yaffe, 1993). Longitudinal studies have noted that depression is a risk factor for the onset of chronic pain and disability-related to pain (Carroll, Cassidy, & Côté, 2004; Gureje, Simon, & Von Korff, 2001). In a review of literature, Bair, Robinson, Katon, and

Kroenke (2003) reported that, on average, 65% of depressed people experience one or more pain complaints. The co-occurrence of depression and chronic pain is called the depression-pain syndrome or the depression-pain dyad (Bair et al., 2003; Blier & Abbott, 2001).

Similar findings have been noted among women who have experienced IPV and/or child abuse. An overview of the literature revealed that depression and chronic pain co-exist among individuals with child abuse history (Arnou, 2004). As well, studies have reinforced that IPV, chronic pain, and depression co-occur (Cerulli et al., 2012; Koopman et al., 2007; Wuest et al., 2008). A dose-response relationship was also found between chronic pain and depression among abused women (Humphreys et al., 2010). In a study of abused women, nearly 20% of those who experienced sexual abuse also experienced substantial depressive symptoms and chronic pain, but depressive symptoms were associated with history of abuse, whereas pain was unrelated to abuse (Poleshuck, Giles, & Tu, 2006). This result might indicate that depression mediates the relationship between abuse and chronic pain, but this hypothesis was not tested by the researchers. Wuest et al (2010) found that depressive symptoms mediate the impacts of both child abuse and assaultive IPV on chronic pain. However, Tiwari et al (2013) found no evidence that depressive symptoms mediated the relationship between IPV and chronic pain among Chinese women. Thus, the mediating role of depressive symptoms in the relationship between abuse and chronic pain needs further study. Whether depressive symptoms result in chronic pain or vice versa still needs further study.

Summary. There is evidence that IPV and child abuse are risk factors for chronic pain. However, the role of abuse experiences, particularly psychological abuse, in

development of pain as a long-term health consequence is still not fully understood. In addition, mental health, including PTSD and depressive symptoms, has been linked to chronic pain in the general population and women who have experienced abuse. While PTSD was found to mediate the relationship between the abuse experiences (child abuse and/or IPV) and chronic pain, the role of depressive symptoms in the relationship between abuse experiences and chronic pain is not studied well in the literature. Moreover, the literature lacks of research that look to the mechanism by which wife abuse and child abuse result in chronic pain among Saudi women, whose culture differs from women in Western countries.

Social Support

In the theoretical literature, there are a number of perspectives on social support and its relationship to health. For example, the supportive actions theory hypothesizes that social support is helpful in promoting coping and reducing the effects of a stressor (Cohen & Hoberman, 1983; Cohen & Mckay, 1984). Appraisal theory also emphasizes that social support could protect persons against the stressful events by leading them to interpret stressful situations less negatively, because how a person interprets conditions (appraisals) is crucial in determining an event's stressfulness (Lazarus, 1966; Lazarus & Folkman, 1984). Social cognition theory views social support based on the perception of support. Thus, if a person has beliefs regarding the supportiveness of some people, the thoughts about social support are formed to fit these existing beliefs (Lakey & Cohen, 2000). Social support theorists argue about the effects of social support on health and whether social support mediates or moderates the effects of stressful events on well-being (Cohen & Wills, 1985). However, the mechanism or the process behind the mediating

effect of social support is inconsistent or unclear in the theoretical literature. Lack of clarity regarding these mechanisms could be attributed to the complexity of the concept.

Defining Social Support

There is a lack of consensus about how to define social support, because it is a complex concept that has been described in terms of social networks, availability of confidants, and meaningful social contact (Ducharme, Stevens, & Rowat, 1994). Social support has been conceptualized as both the social network (i.e. the size, structure, and frequency of contact with the network of people surrounding a person) and functional support, which is additionally categorized as either received or perceived social support (Bates & Toro, 1999). Received social support refers to the actual resources provided by the social network, while perceived social support (from friends or family members) focuses on the subjective perception of support that is available (Barrera, 1986). The distinction between support from family members or friends has been considered imperative, because different populations depend on different sources of support (Procidano & Heller, 1983) and cultural differences could be a key factor on how people utilize support (Kim, Sherman, & Taylor, 2008). For example, Latinos and Asian Americans utilize support mainly from family members to cope with distress (Campos et al., 2008). Moreover, there could be a unique relationship between friend support and psychological stress that is different from the relationships of family support and stress (Horwitz, Reynolds, & Charles, 2015).

A major conceptual issue in the social support literature relates to whether social support is a multidimensional or unidimensional concept (Ducharme, Stevens, & Rowat, 1994). Conceptual and definitional inconsistencies have led to measurement issues. Many

social support scales have been developed, but these measures are not interchangeable since conceptualizations of social support vary widely. Different measures reflect specific theoretical perspectives, with scales measuring social network size, the person's satisfaction with the support, the source of support (e.g. family members, friends), and whether the support is actually provided or perceived to be available if needed (Ducharme et al., 1994).

Social Support and Child Abuse and IPV

It has been proposed that social support mediates the stress–distress connection (Lepore, Evans, & Schneider, 1991), such that higher levels of stress erode social support, resulting in poorer mental health (Taylor, 2012). In terms of child abuse, studies support the relationship between child abuse and women's perception of available social support and sense of attachment with a social network in adulthood (Seeds, Harkness, & Quilty, 2010; Sperry & Widom, 2013), whereas other studies report no relationship between child abuse and social support (Marcenko, Kemp, & Larson, 2000; McLewin & Muller, 2006). Lack of social support has been linked to the development of health problems among women who have experienced child abuse (Schumm, Briggs-Phillips, & Hobfoll, 2006). Researchers have found that social support mediates the relationship between child abuse and symptoms of PTSD (Vranceanu, Hobfoll, & Johnson, 2007) and depression (Sperry & Widom, 2013). Social support was found to fully mediate the relationship between child abuse and general health, as well as somatic complaints during adulthood (Herrenkohl et al., 2016). The level of social support among child abuse survivors influences allostatic load (i.e. cholesterol, C-reactive protein, and creatinine) in

adulthood (Horan & Widom, 2015), which means social support mediates the relationship between child abuse and physical health.

In the context of IPV, exposure to abuse among women weakens their social support. Abused women sometimes distance themselves from their social network due to shame and guilt (Constantino & Bricker, 1997) or, because they are stressed and humiliated, they pull away (LaViolette & Barnett, 2013). Abusive partners have also been found to intentionally isolate women from friends and family members (Refaeli, Levy, Ben-Porat, Dekel, & Itzhaky, 2016). Therefore, women who have experienced IPV often have less access to social support than non-abused women (Katerndahl, Burge, Ferrer, Becho, & Wood, 2013; Montero, Martín-Baena, Escribà-Agüir, Vives-Cases & Ruiz-Pérez, 2015). However, it is still not clear if low social support results in increased vulnerability to IPV or if low social support is caused by IPV. In cross-sectional studies, social support has been associated with fewer symptoms of physical and/or psychological distress among women who have experienced IPV (Bradley, Schwartz, & Kaslow, 2005; Coker et al., 2003). More specifically, social support among abused women has been negatively associated with symptoms of PTSD (Bradley et al., 2005; Samuels-Dennis et al., 2013) and depression (Mburia-Mwalili, Clements-Nolle, Lee, Shadley, & Yang, 2010; Ridings et al., 2016), and positively associated with general health (Coker et al., 2003). A dose-response relationship was found between social support and severity of depressive symptoms among women who have experienced IPV (Dougé, Lehman, & McCall-Hosenfeld, 2014).

Empirical evidence supports the mediating effect of social support on the relationship between IPV and mental health. Tangible support (i.e. financial and practical

help) has been found to mediate the relationship between IPV and PTSD symptoms (Glass, Perrin, Campbell, & Soeken, 2007). Similarly, perceived social support was found to mediate the relationship between IPV and depression over the two-year period (Beeble, Bybee, Sullivan, & Adams, 2009). However, evidence of the mediating effect of social support on the relationship between IPV and women's mental health has not been supported in some studies (e.g. Lee, Pomeroy, & Bohman, 2007). Inconsistencies in findings could be attributed to the use of different conceptualizations and measures of social support across studies. In terms of physical health, researchers have found that social support is negatively related to chronic pain (Hughes et al., 2014; Van der Lugt, Rollman, Naeije, Lobbezoo, & Visscher, 2012) in the general population. However, the relationship between social support and chronic pain among abused women has not been examined. The mediating effect of social support on the relationship between both IPV and child abuse and chronic pain requires further study.

The literature has not distinguished between the family and friend support in relation to women's mental and physical health in the context of IPV. Support from family and friends may affect, or be affected by, IPV in different ways (Agoff, Herrera, & Castro, 2007; Hadeed & El-Bassel, 2006). A recent study revealed that social support from family significantly decreased the prevalence of IPV, while support from friends did not (Wright, 2015). Yet, these differences have not been examined relative to women's health.

In Arab countries, two studies have examined social support among women who have experienced wife abuse and both found negative relationships between perceived social support and experiencing of wife abuse. Al-Modallal (2012b) conducted a cross-

sectional study of refugee women in Jordan and found that abused women, compared to non-abused women, reported lower psychological support from their families, but did not test the relationship between social support and women's health. Another study examining the mental health consequences of wife abuse among Jordanian women found that high levels of depressive symptoms were associated with low levels of social support from family (Hamdan-Mansour et al., 2011). However, the sample in this study was a small (n=93) and the mediating effect of social support was not examined. Among Saudi women who lived in UK, women identified wife abuse as a main factor interfering with their social well-being. These women lost interest in socializing with their friends and isolated themselves from their colleagues. In addition, they perceived lack of social support from family and friends as a factor that influence their exposure to wife abuse and heightened its negative effects (Alhabib, 2011). No quantitative studies have been conducted in Saudi Arabia to examine the relationship between perceived social support and women's health.

Summary. There is some evidence that IPV and child abuse weaken women's social support systems, and that social support exerts both direct and mediating effects on the health of women who have experienced IPV. However, there is still inconsistency about the specific role played by social support and most research has focused on women's mental health without considering their physical health. Additionally, most previous studies have been conducted in Western countries. Therefore, the same effects cannot be assumed in the Saudi cultural context.

Conclusion

Very few studies of the prevalence of wife abuse and child abuse in Saudi Arabia, have been conducted. Existing studies of wife abuse in Saudi Arabia are limited by the use of unvalidated measures, leading to varied prevalence rates and differences in interpretations. A number of researchers developed their own questionnaires without providing information about their psychometric characteristics and failed to identify the time frame for which the abuse was measured. In addition, most of the studies in Saudi Arabia have only focused on physical abuse. In general, the negative effects of IPV and child abuse on women's health are well documented in the literature. Child abuse and IPV are associated with higher PTSD and depressive symptoms, and chronic pain. In addition, there is evidence that social support mediates the relationship between IPV and women's mental health. However, there remains a need to extensively examine the causal pathways which explain how abuse experiences (IPV and child abuse) lead to chronic pain among women who have experienced IPV. Whether depression and PTSD have similar effects on chronic pain has not yet been well addressed. Furthermore, whether social support mediates the relationship between abuse experiences (IPV and child abuse) and chronic pain has not been well examined. Moreover, much of what is known has been derived from studies conducted in Western countries, with very few studies conducted in more diverse contexts, including Saudi context. While these studies provide insights about the harmful impacts of IPV and the role of social support, they are not generalizable to Saudi women. Given that Saudi women's context is unique, the extent to which wife abuse leads to poor mental and physical health outcomes and factors which explain these relationships need further study.

References

- AboulAzm, S., Hashem, W. E., & Elebiary, H., A. (2009). Impact of domestic violence against Saudi Arabian married women on their reproductive health outcomes. *Medical Journal of Cairo University*, 77 (1), 485-494.
- Abou-Saleh, M.T., Karim, L., & Krymsky, M. (1998). The biology of depression in Arab culture. *Nordic Journal of Psychiatry*, 52 (2), 177–182.
- Adam, E. K., Doane, L. D., Zinbarg, R. E., Mineka, S., Craske, M. G., & Griffith, J. W. (2010). Prospective prediction of major depressive disorder from cortisol awakening responses in adolescence. *Psychoneuroendocrinology*, 35(6), 921-931.
- Afifi, Z. E., Al-Muhaideb, N. S., Hadish, N. F., Ismail, F. I., & Al-Qeamy, F. M. (2011). Domestic violence and its impact on married women's health in Eastern Saudi Arabia. *Saudi Medical Journal*, 32, 612–620.
- Agoff, C., Herrera, C., & Castro, R. (2007). The Weakness of Family Ties and Their Perpetuating Effects on Gender Violence A Qualitative Study in Mexico. *Violence against women*, 13(11), 1206-1220.
- Al Eissa, M. & Almuneef, M. (2010). Child Abuse and Neglect in Saudi Arabia: Journey of recognition to implementation of national prevention strategies. *Child Abuse & Neglect*, 34(1), 28–33.
- Alabas, O. A., Tashani, O. A., Tabasam, G., & Johnson, M. I. (2012). Gender role affects experimental pain responses: A systematic review with meta-analysis. *European Journal of Pain (London, England)*, 16(9), 1211.
- Albrithen, A. A. (2006). Alcoholism and domestic violence in Saudi society. (Unpublished doctoral dissertation). University of Liverpool.

- AlBuhairan, F. S., Tamim, H., Al Dubayee, M., AlDhukair, S., Al Shehri, S., Tamimi, W., ... & Al Alwan, I. (2015). Time for an adolescent health surveillance system in Saudi Arabia: findings from “Jeeluna”. *Journal of Adolescent Health, 57*(3), 263-269.
- Alchoui, M. M. (2009). Human resource development in Gulf countries: An analysis of the trends and challenges facing Saudi. *Human Resource Development International, 12* (1), 35–46.
- Al-Dabaan, R., Newton, J.T., & Asimakopoulou, K. (2014). Knowledge, attitudes, and experience of dentists living in Saudi Arabia toward child abuse and neglect. *Saudi Dentist Journal, 26* (3), 79–87.
- Al-Eissa, M. A., AlBuhairan, F. S., Qayad, M., Saleheen, H., Runyan, D., & Almuneef, M. (2015). Determining child maltreatment incidence in Saudi Arabia using the ICAST-CH: A pilot study. *Child Abuse & Neglect, 42*, 174.
- Al-Faris, H., Al-Faris, H., Al-Faris, E., Naghma, N., Jamal, A., AlQuaiz, A. M., ... & Feeley, P. (2013). A history of childhood maltreatment among spouses predicts violence against women. *American Saudi Medicine, 33*(6), 595–600.
- Alhabib, S. (2011). *The Prevalence and Experiences of Intimate Partner Violence among Saudi Women in the UK*. (Unpublished doctoral dissertation). University of Bristol, UK.
- Alizadeh, M., Ravanshad, Y., Rad, B. S., Khamnian, Z., & Azarfar, A. (2015). A Case–Control study on socio-psycho-somatic consequences of intimate partner violence in north-west of Iran. *Journal of Family Violence, 30*(6), 803-806.
doi:10.1007/s10896-015-9722-x

- AlMadani, O., Bamousa, M., Alsaif, D., Kharoshah, M. A. A., & Alsowayigh, K. (2012). Child physical and sexual abuse in Dammam, Saudi Arabia: A descriptive case-series analysis study. *Egyptian Journal of Forensic Sciences*, 2(1), 33-37.
doi:10.1016/j.ejfs.2012.01.001.
- Al-Modallal, H. (2012a). Psychological partner violence and women's vulnerability to depression, stress, and anxiety. *International journal of mental health nursing*, 21(6), 560-566.
- Al-Modallal, H. (2012b). Patterns of Coping with Partner Violence: Experiences of Refugee Women in Jordan. *Public Health Nursing*, 29 (5), 403-411.
- AlMunajjed, M. (2010). Women's Employment in Saudi Arabia: A Major Challenge. *Booz & Company*. Accessed at Januray 2012
from: <http://www.ameinfo.com/228236.html>.
- Almuneef, M. A., Qayad, M., Noor, I. K., Al-Eissa, M. A., AlBuhairan, F. S., Inam, S., & Mikton, C. (2014). Multidimensional model to assess the readiness of Saudi Arabia to implement evidence based child maltreatment prevention programs at a large scale. *Child Abuse & Neglect*, 38 (3), 527-532.
<http://dx.doi.org/10.1016/j.chiabu.2013.08.001>
- Aloisi, A. M., & Bonifazi, M. (2006). Sex hormones, central nervous system and pain. *Hormones and behavior*, 50(1), 1-7.
- Al-Qadhi, W., ur Rahman, S., Ferwana, M. S., & Abdulmajeed, I. A. (2014). Adult depression screening in Saudi primary care: prevalence, instrument and cost. *BMC psychiatry*, 14(1), 1.
- Al-Saif, M. I. (1997). *Introduction to the study of Saudi society*. Riyadh: Al-Khariji.

- Alzahrani, T., A., Abaalkhail, B., A., & Ramadan, I., K. (2016). Prevalence of intimate partner violence and its associated risk factors among Saudi female patients attending the primary healthcare centers in Western Saudi Arabia. *Saudi Medical Journal*, 37 (1), 96-99.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*. Washington, DC: American Psychiatric Association.
- Anda, R., Tietjen, G., Schulman, E., Felitti, V., & Croft, J. (2010). Adverse childhood experiences and frequent headaches in adults. *Headache: The Journal of Head and Face Pain*, 50(9), 1473-1481.
- Ansara, D. L. & Hindin, M. J. (2011). Psychosocial consequences of intimate partner violence for women and men in Canada. *Journal of Interpersonal Violence*, 26 (8), 1628–1645.
- Arnow, B. A. (2004). Relationships between childhood maltreatment, adult health and psychiatric outcomes, and medical utilization. *The Journal of Clinical Psychiatry*, 65, 10-15.
- Arnow, B. A., Blasey, C. M., Constantino, M. J., Robinson, R., Hunkeler, E., Lee, J. . . Hayward, C. (2011). Catastrophizing, depression and pain-related disability. *General Hospital Psychiatry*, 33(2), 150-156.
doi:10.1016/j.genhosppsy.2010.12.008

- Ashy, M. A. (2004). Saudi Arabia. In K. Malley-Morrison (Ed.), *International perspectives on family violence and abuse* (pp. 167-186). Mahwah, NJ: Lawrence Erlbaum.
- Aupperle, R. L., Allard, C. B., Grimes, E. M., Simmons, A. N., Flagan, T., Behrooznia, M., . . . Stein, M. B. (2012). Dorsolateral prefrontal cortex activation during emotional anticipation and neuropsychological performance in posttraumatic stress disorder. *Archives of General Psychiatry, 69*(4), 360-371.
doi:10.1001/archgenpsychiatry.2011.1539
- Austin, P. J., & Moalem-Taylor, G. (2010). The neuro-immune balance in neuropathic pain: involvement of inflammatory immune cells, immune-like glial cells and cytokines. *Journal of neuroimmunology, 229*(1), 26-50.
- Bair, M. J., Robinson, R. L., Katon, W., & Kroenke, K. (2003). Depression and pain comorbidity: A literature review. *Archives of Internal Medicine, 163*(20), 2433-45.
- Barnawi, F. H. (2015). Prevalence and risk factors of domestic violence against women attending a primary care center in Riyadh, Saudi Arabia. *Journal of Interpersonal Violence, 1*–16. doi: 10.1177/0886260515587669
- Barrera, M., Jr. (1986). Distinctions between social support concepts, measures and models. *American Journal of Community Psychology, 14* (4), 413–445.
doi:10.1007/BF00922627
- Basile, K. C., Arias, I., Desai, S., & Thompson, M. P. (2004). The differential association of intimate partner physical, sexual, psychological, and stalking violence and posttraumatic stress symptoms in a nationally representative sample of women.

- Journal of Traumatic Stress*, 17 (5), 413-421. Basbaum, A. I., Bautista, D. M., Scherrer, G., & Julius, D. (2009). Cellular and molecular mechanisms of pain. *Cell*, 139(2), 267-284. doi:10.1016/j.cell.2009.09.028
- Bates, D. S., & Toro, P. (1999). Developing measures to assess social support among homeless and poor people. *Journal of Community Psychology*, 27(2), 137-156.
- Beeble, M. L., Bybee, D., Sullivan, C.M. & Adams, A.E. (2009) Main, mediating, and moderating effects of social support on the well-being of survivors of intimate partner violence across 2 years. *Journal of Consulting and Clinical Psychology*, 77(4), 718–729.
- Bernardes, S. F., & Lima, M. L. (2010). Being less of a man or less of a woman: Perceptions of chronic pain patients' gender identities. *European Journal of Pain*, 14(2), 194-199. doi:10.1016/j.ejpain.2009.04.009.
- Blasco-Ros, C., Herbert, J., & Martinez, M. (2014). Different profiles of mental and physical health and stress hormone response in women victims of intimate partner violence. *Journal of Acute Disease*, 3(4), 303-313.
- Blier, P., & Abbott, F. V. (2001). Putative mechanisms of action of antidepressant drugs in affective and anxiety disorders and pain. *Journal of Psychiatry and Neuroscience*, 26(1), 37-43.
- Blyth, F. M., March, L. M., Brnabic, A. J., Jorm, L. R., Williamson, M., & Cousins, M. J. (2001). Chronic pain in Australia: A prevalence study. *Pain*, 89(2-3), 127-134.
- Bohlaiga, A., Al-Kakhli, B., Al-Mattar, H., Al-Bahrani, I., Al-Lowaim, K., Al-Baqshi, M., & Alnasir, F. (2014). *Journal of General Practice*, 2(2). doi.org/10.4172/2329-9126.1000150.

- Bonomi, A.E., Anderson, M.L., Reid, R.J., Rivara, F.P., Carrell, D., Thompson, R.S. (2009). Medical and psychosocial diagnoses in women with a history of intimate partner violence. *Archive of Internal Medicine, 169*, 1692-1697.
- Bosco, M. A., Gallinati, J. L., & Clark, M. E. (2013). Conceptualizing and treating comorbid chronic pain and PTSD. *Pain research and treatment, 2013*.
- Bradley, R., Schwartz, A. C., & Kaslow, N. J. (2005). Posttraumatic stress disorder symptoms among low-income, African American women with a history of intimate partner violence and suicidal behaviors: Self-esteem, social support, and religious coping. *Journal of Traumatic Stress, 18* (6), 685–696.
- Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *Journal of Clinical Psychiatry, 61*, 22-32.
- Bremner, J. D., Vythilingam, M., Vermetten, E., Southwick, S. M., McGlashan, T., Nazeer, A., . Charney, D. S. (2003). MRI and PET study of deficits in hippocampal structure and function in women with childhood sexual abuse and posttraumatic stress disorder. *The American Journal of Psychiatry, 160*(5), 924-932. doi:10.1176/appi.ajp.160.5.924
- Brennstuhl, M., Tarquinio, C., & Montel, S. (2015). Chronic pain and PTSD: Evolving views on their comorbidity. *Perspectives in Psychiatric Care, 51*(4), 295-304. doi:10.1111/ppc.12093
- Breslau, N. (2002). Gender differences in trauma and posttraumatic stress disorder. *Journal Gender-Specific Medicine, 5*(1), 34-40.

- Breslau, N., Davis, C.G., Peterson, E.L., & Schultz, L.R. (2000). A second look at comorbidity in victims of trauma: The posttraumatic stress disorder-major depression connection. *Biology Psychiatry, 48*, 902–909.
- Brown, J., Berenson, K., & Cohen, P. (2005). Documented and self-reported child abuse and adult pain in a community sample. *Clinical Journal of Pain, 21* (5), 374–77.
- Burke, S. E., Wang, K., & Dovidio, J. F. (2014). Witnessing disclosure of depression: Gender and attachment avoidance moderate interpersonal evaluations. *Journal of Social and Clinical Psychology, 33*(6), 536-559. doi:10.1521/jscp.2014.33.6.536
- Burns, E. E., Jackson, J. L., & Harding, H. G. (2010). Child maltreatment, emotion regulation, and posttraumatic stress: The impact of emotional abuse. *Journal of Aggression, Maltreatment and Trauma, 19*, 801–819.
doi:10.1080/10926771.2010.522947
- Burt, V. K. & Stein, K. (2002). Epidemiology of depression throughout the female lifecycle. *Journal of Clinical Psychiatry, 63*(7), 9–15.
- Caldwell, J. E., Swan, S. C., & Woodbrown, V. D. (2012). Gender differences in intimate partner violence outcomes. *Psychology of Violence, 2*(1), 42.
- Campbell, J. C. (2002). Health consequences of intimate partner violence. *Lancet, 359*(9314), 1331–1337.
- Campbell, J. C., & Soeken, K. L. (1999). Women's response to battering: A test of the model. *Research in Nursing and Health, 22*, 49–58.
- Campbell, J., Jones, A. S., Dienemann, J., Kub, J., Schollenberger, J., O'Campo, P., ... & Wynne, C. (2002). Intimate partner violence and physical health consequences. *Archives of internal medicine, 162*(10), 1157-1163.

- Campbell, R., Greeson, M.R., Bybee, D., & Raja, S. (2008). The co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment: A mediational model of posttraumatic stress disorder and physical health outcomes. *J Consult Clinical Psychology, 76*, 194–207.
- Campos, B., Schetter, C. D., Abdou, C. M., Hobel, C. J., Glynn, L. M., & Sandman, C. A. (2008). Familialism, social support, and stress: Positive implications for pregnant Latinas. *Cultural Diversity and Ethnic Minority Psychology, 14*(2), 155.
- Carnegie, R., Araya, R., Ben-Shlomo, Y., Glover, V., O'Connor, T. G., O'Donnell, K. J., . . . Lewis, G. (2014). Cortisol awakening response and subsequent depression: Prospective longitudinal study. *The British Journal of Psychiatry, 204*(2), 137-143. doi:<http://dx.doi.org/10.1192/bjp.bp.113.126250>.
- Carpenter, L. L., Carvalho, J. P., Tyrka, A. R., Wier, L. M., Mello, A. F., Mello, M. F., ... & Price, L. H. (2007). Decreased adrenocorticotropic hormone and cortisol responses to stress in healthy adults reporting significant childhood maltreatment. *Biological psychiatry, 62*(10), 1080-1087.
- Carpenter, L. L., Shattuck, T. T., Tyrka, A. R., Geraciotti, T. D., Price, L. H. (2011). Effect of childhood physical abuse on cortisol stress response. *Psychopharmacology, 214* (1), 367-375.
- Carroll, L. J., Cassidy, J. D., & Côté, P. (2004). Depression as a risk factor for onset of an episode of troublesome neck and low back pain. *Pain, 107*(1), 134-139.
doi:10.1016/j.pain.2003.10.009

- Catala, E., Reig, E., Artes, M., Aliaga, L., López, J. S., & Segu, J. L. (2002). Prevalence of pain in the Spanish population telephone survey in 5000 homes. *European journal of pain*, 6(2), 133-140.
- Ceballo, R., Ramirez, C., Castillo, M., Caballero, G. A. & Lozoff, B. (2004). Domestic violence and women's health in Chile. *Psychology of Women Quarterly*, 28, 298–308.
- Central Department of Statistics & Information, Kingdom of Saudi Arabia (2015). Available at: <http://www.cdsi.gov.sa/english/>
- Cerulli, C., Poleshuck, E., Raimondi, C., Veale, S., & Chin, N. (2012). 'What Fresh Hell Is This?' Victims of Intimate Partner Violence Describe Their Experiences of Abuse, Pain, and Depression. *Journal Of Family Violence*, 27(8), 773-781. doi:10.1007/s10896-012-9469-6.
- Chan, C., Tiwari, A., Fong, D., & Ho, P. (2010). Post-traumatic stress disorder among Chinese women survivors of intimate partner violence: A review of the literature. *International Journal Of Nursing Studies*, 47(7), 918-925. doi:10.1016/j.ijnurstu.2010.01.003.
- Chaney, A., Carballedo, A., Amico, F., Fagan, A., Skokauskas, N., Meaney, J., & Frodl, T. (2014). Effect of childhood maltreatment on brain structure in adult patients with major depressive disorder and healthy participants. *Journal of psychiatry & neuroscience: JPN*, 39(1), 50.
- Chapman, C. R., Tuckett, R. P., & Song, C. W. (2008). Pain and stress in a systems perspective: Reciprocal neural, endocrine, and immune interactions. *Journal of Pain*, 9(2), 122-45.

- Chen, P. H., Rovi, S., Vega, M., Jacobs, A., & Johnson, M. S. (2009). Relation of domestic violence to health status among Hispanic women. *Journal of Health Care for the Poor and Underserved, 20* (2), 569–582.
- Chentsova-Dutton, Y., Ryder, A., & Tsai, J.L. (2014). Understanding depression across cultural contexts. In I. Gotlib & C. Hammen (Eds.). *Handbook of Depression, 3rd edition* (pp. 337-352). New York, NY: Guilford Press
- Chiu, S., Niles, J. K., Webber, M. P., Zeig-Owens, R., Gustave, J., Lee, R., ... & Prezant, D. J. (2011). Evaluating risk factors and possible mediation effects in posttraumatic depression and posttraumatic stress disorder comorbidity. *Public Health Reports, 201-209*.
- Chuang, C. H., Cattoi, A. L., d, Camacho, F., Dyer, A., & Weisman, C. S. (2012). Longitudinal association of intimate partner violence and depressive symptoms. *Mental Health In Family Medicine, 9*(2), 107-114.
- Clark, J., & DuMont, J. (2003). Intimate partner violence and health: A critique of Canadian prevalence studies. *Canadian Journal of Public Health, 94*(1), 52–58.
- Coelho, R., Viola, T. W., Walss-Bass, C., Brietzke, E., & Grassi-Oliveira, R. (2014). Childhood maltreatment and inflammatory markers: A systematic review. *Acta Psychiatrica Scandinavica, 129*(3), 180-192. doi:10.1111/acps.12217.
- Cohen, S. & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychol. Bull. 98*, 310-357.
- Cohen, S., & Hoberman, H. M. (1983). Positive events and social support as buffers of life change stress. *Journal of Applied Social Psychology, 13*, 99-125.

- Cohen, S., & McKay, G. (1984). Social support, stress, and the buffering hypothesis: A theoretical analysis. In A. Baum, S.E. Taylor, & J.E. Singer (Eds.), *Handbook of psychology and health*. Hillsdale, NJ: Erlbaum.
- Coker, A. L., Smith, P. H., & Fadden, M. K. (2005). Intimate partner violence and disabilities among women attending family practice clinics. *Journal of Women's Health, 14*(9), 829-838.
- Coker, A., Smith, P., Bethea, L., King, M., & McKeown, R. (2000). Physical health consequences of physical and psychological intimate partner violence. *Archives of Family Medicine, 9*(5), 451-457.
- Coker, A., Watkins, K., Smith, P., & Brandt, H. (2003). Social support reduces the impact of partner violence on health: Application of structural equation models. *Preventive Medicine, 37*(3), 259-67.
- Coker, A.L., Hopenhayn, C., DeSimone, C.P., Bush, H.M., & Crofford, L. (2009). Violence against women raises risk of cervical cancer. *Journal of Women's Health, 18*(8), 1179-85.
- Constantino, R. E., & Bricker, P. L. (1997). Social support, stress, and depression among battered women in the judicial setting. *Journal of the American Psychiatric Nurses Association, 3* (3), 81-88.
- Costa, M. F., Mendlowicz, M. V., Vasconcelos, A. G. G., Berger, W., Luz, M. P. d., Figueira, I., & Garcia Rosa, M. L. (2011). Confirmatory factor analysis of posttraumatic stress symptoms in Brazilian primary care patients: An examination of seven alternative models. *Journal of Anxiety Disorders, 25*(7), 950-963.
doi:10.1016/j.janxdis.2011.06.002.

- Counts, D., Brown, J., & Campbell, J. (1992). *Sanctions and sanctuary*. Boulder: Westview Press.
- Creamer, M., Burgess, P.M., & McFarlane, A.C. (2001). Posttraumatic stress disorder: Findings from the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine, 31*(7), 1237–1247.
- Danese, A., Moffitt, T. E., Pariante, C. M., Ambler, A., Poulton, R., & Caspi, A. (2008). Elevated inflammation levels in depressed adults with a history of childhood maltreatment. *Archives of general psychiatry, 65*(4), 409-415.
- Dannowski, U., Stuhrmann, A., Beutelmann, V., Zwanzger, P., Lenzen, T., Grotegerd, D., . . . Kugel, H. (2012). Limbic scars: Long-term consequences of childhood maltreatment revealed by functional and structural magnetic resonance imaging. *Biological Psychiatry, 71*(4), 286-293. doi:10.1016/j.biopsych.2011.10.021
- Davis, D. A., Luecken, L. J., & Zautra, A. J. (2005). Are reports of childhood abuse related to the experience of chronic pain in adulthood?: A meta-analytic review of the literature. *The Clinical journal of pain, 21*(5), 398-405.
- de Azevedo Cardoso, T., Mondin, T. C., Wiener, C. D., Marques, M. B., Fucolo, B. d. Á., Pinheiro, R. T., . . . Osés, J. P. (2014). Neurotrophic factors, clinical features and gender differences in depression. *Neurochemical Research, 39*(8), 1571-1578. doi:10.1007/s11064-014-1349-4.
- de Jong, J. T. V. M. (2005). Commentary: deconstructing critiques on the internationalization of PTSD. *Culture Medicine & Psychiatry, 29*, 361–370.

- Dedovic, K., & Ngiam, J. (2015). The cortisol awakening response and major depression: Examining the evidence. *Neuropsychiatric Disease and Treatment, 11*, 1181–1189.
- Demyttenaere, K., Bruffaerts, R., Posada-Villa, J., Gasquet, I., Kovess, V., Lepine, J., ... & Polidori, G. (2004). Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *Jama, 291*(21), 2581-2590.
- Devries, K. M., J. Y. T. Mak, García-Moreno, C., Petzold, M., Child, J. C., Falder, G.. . Watts, C. H. (2013). The global prevalence of intimate partner violence against women. *Science, 340*(6140), 1527. doi:10.1126/science.1240937
- Dichter, M. E., Marcus, S. C., Wagner, C., & Bonomi, A. E. (2014). Associations Between Psychological, Physical, and Sexual Intimate Partner Violence and Health Outcomes Among Women Veteran VA Patients. *Social Work In Mental Health, 12*(5/6), 411-428 18p. doi:10.1080/15332985.2013.870104.
- Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: A theoretical integration and synthesis of laboratory research. *Psychological Bulletin, 130*, 355–391.
- Dobash, R. P., & Dobash, R. E. (2004). Women’s violence to men in intimate relationships. *British Journal of Criminology, 44*, 324-349.
- Dougé, N., Lehman, E. B., & McCall-Hosenfeld, J. (2014). Social support and employment status modify the effect of intimate partner violence on depression symptom severity in women: Results from the 2006 behavioral risk factor

surveillance system survey. *Women's Health Issues*, 24(4), e425-e434.

doi:<http://dx.doi.org/10.1016/j.whi.2014.03.006>.

- Ducharme, F., Stevens, B., & Rowat, K. (1994). Social support: Conceptual and methodological issues for research in mental health nursing. *Issues Mental Health Nursing*, 15, 373-392.
- Dutton, M. A., Green, B. L., Kaltman, S. I., Roesch, D. M., Zeffiro, T. A., & Krause, E. D. (2006). Intimate partner violence, PTSD, and adverse health outcomes. *Journal of Interpersonal Violence*, 21, 955-968.
- Dyregrov, A., Gupta, L., Gjestad, R., & Raundalen, M. (2002). Is the culture always right? *Traumatology*, 8, 135-145.
- Al-Eissa, M. A., Saleheen, H. N., AlMadani, S., AlBuhairan, F. S., Weber, A., Fluke, J. D., ... & Casillas, K. L. (2016). Determining prevalence of maltreatment among children in the Kingdom of Saudi Arabia. *Child: care, health and development*, 42(4), 565-571.
- Edmond, T., Bowland, S., & Yu, M. (2013). Use of Mental Health Services by Survivors of Intimate Partner Violence. *Social Work In Mental Health*, 11(1), 34-54.
doi:<http://dx.doi.org/10.1080/15332985.2012.734180>.
- Elarousy, W., & Al-Jadaani, M. (2013). Emotional abuse among children: a study in Jeddah, Saudi Arabia. *Eastern Mediterranean Health Journal*, 19(10), 869.
- Eldoseri, H.M., Tufts, K.A., Zhang, Q., & Fish, J.N. (2014). Adverse health effects of spousal violence among women attending Saudi Arabian primary health-care clinics. *Eastern Mediterranean Health Journal*, 20 (11), 717-725.

- Elhai, J. D., de Francisco Carvalho, L., Miguel, F. K., Palmieri, P. A., Primi, R., & Frueh, B. C. (2011). Testing whether posttraumatic stress disorder and major depressive disorder are similar or unique constructs. *Journal of Anxiety Disorders, 25*(3), 404-410.
- El-Shormilisy, N., Strong, J., & Meredith, P. J., (2015). Associations among gender, coping patterns and functioning for individuals with chronic pain: A systematic review. *Pain Research & Management : The Journal of the Canadian Pain Society, 20*(1), 48-55.
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science, 196*, 129–136.
- Eshelman, L. & Levendosky, A. A. P. (2012). Dating violence: Mental health consequences based on type of abuse. *Violence and Victims, 27* (2), 215–228.
- Fageeh, W.MK. (2014). Factors associated with domestic violence: A cross-sectional survey among women in Jeddah, Saudi Arabia. *BMJ Open 4* (e004242), 1-8. doi:10.1136/bmjopen-2013-004242.
- Fedovskiy, K., Higgins, S., & Paranjape, A. (2008). Intimate partner violence: How does it impact major depressive disorder and post traumatic stress disorder among immigrant Latinas? *Journal of Immigrant and Minority Health, 10* (1), 45–51.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., . . . Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine, 14*(4), 245-258. doi:10.1016/S0749-3797(98)00017-8.

- Fennema-Notestine, C., Stein, M. B., Kennedy, C. M., Archibald, S. L., & Jernigan, T. L. (2002). Brain morphometry in female victims of intimate partner violence with and without posttraumatic stress disorder. *Biological Psychiatry*, *52*, 1089–1101.
- Ferreira-Valente, M. A., Pais-Ribeiro, J. L., & Jensen, M. P. (2014). Associations between psychosocial factors and pain intensity, physical functioning, and psychological functioning in patients with chronic pain: A cross-cultural comparison. *The Clinical journal of pain*, *30*(8), 713-723.
- Flegar, S. J., Fouche, J. P., Jordaan, E., Marais, S., Spottiswoode, B., Stein, D. J., & Vythilingum, B. (2011). The neural correlates of intimate partner violence in women. *African Journal of Psychiatry (Johannesbg)*, *14* (4), 310–314.
- Fonzo, G.A., Simmons, A.N., Thorp, S.R., Norman, S. B., Paulus, M.B., & Stein, M.B. (2010). Exaggerated and disconnected insular-amygdalar blood oxygenation level-dependent response to threat-related emotional faces in women with intimate partner violence posttraumatic stress disorder. *Biology Psychiatry*, *68*, 433-441.
- Ford, J. D., Elhai, J. D., Ruggiero, K. J., & Frueh, B. C. (2009). Refining the posttraumatic stress disorder diagnosis: evaluation of symptom criteria with the National Survey of Adolescents. *Journal of Clinical Psychiatry*, *70* (2), 748–755.
doi:10.4088/JCP.08m04692
- Ford-Gilboe, M., Varcoe, C., Wuest, J., & Merritt-Gray, M. (2010). Intimate partner violence and nursing practice. In J. Humphreys, & J. C. Campbell (Eds.) *Family Violence and Nursing Practice*. Springer Publishing Company.
- Friedman, L.J. (2000). *Identities architect*. Harvard University Press, Cambridge.

- Frodl, T., & O'Keane, V. (2013). How does the brain deal with cumulative stress? A review with focus on developmental stress, HPA axis function and hippocampal structure in humans. *Neurobiology of disease*, *52*, 24-37.
- Gatchel, R. J., Peng, Y. B., Peters, M. L., Fuchs, P. N., & Turk, D. C. (2007). The biopsychosocial approach to chronic pain: Scientific advances and future directions. *Psychological Bulletin*, *133*(4), 581-624. doi:10.1037/0033-2909.133.4.581
- Generaal, E., Vogelzangs, N., Macfarlane, G. J., Geenen, R., Smit, J. H., de Geus, E. J., ... & Dekker, J. (2016). Biological stress systems, adverse life events and the onset of chronic multisite musculoskeletal pain: A 6-year cohort study. *Annals of the rheumatic diseases*, annrheumdis-2014.
- Ghosh, S. N., & Sharma, T. (2010). Life events stress and chronic pain. *Psychological Studies*, *55*(1), 46-51. doi:10.1007/s12646-010-0005-6
- Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *The Lancet*, *373*(9657), 68-81. doi:10.1016/S0140-6736(08)61706-7.
- Ginzburg, K., Ein-Dor, T., & Solomon, Z. (2010). Comorbidity of posttraumatic stress disorder, anxiety and depression: a 20-year longitudinal study of war veterans. *Journal of affective disorders*, *123*(1), 249-257.
- Glass, N., Perrin, N., Campbell, J. C., & Soeken, K. (2007). The protective role of tangible support on posttraumatic stress disorder symptoms in urban women survivors of violence. *Research in Nursing and Health*, *30*, 558-568.

- Godoy-Ruiz, P., Toner, B., Mason, R., Vidal, C., & McKenzie, K. (2015). Intimate partner violence and depression among Latin American women in Toronto. *Journal of Immigrant and Minority Health, 17*(6), 1771-1780.
doi:10.1007/s10903-014-0145-1
- Golding, J.M. (1999). Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence, 14* (2), 99-132.
doi: 10.1023/A:1022079418229.
- González-Guarda, R., Peragallo, N., Vasquez, E., Urrutia, M., & Mitrani, V. (2009). Intimate partner violence, depression, and resource availability among a community sample of Hispanic women. *Issues In Mental Health Nursing, 30*(4), 227-236. doi:10.1080/01612840802701109.
- Good, B., J., & Hinton, D., E. (2016). Introduction Culture, trauma, and PTSD. In D. E. Hinton and B. J. Good (Ed.). *Culture and PTSD: Trauma in Global and Historical Perspective* (pp.3). Philadelphia: University of Pennsylvania.
- Grant, M.M., Cannistraci, C., Hollon, S.D., Gore, J.C., & Shelton, R.C. (2011). Childhood trauma history differentiates amygdala response to sad faces within MDD. *Journal of Psychiatric Research, 45*, 886–895.
- Greenspan, J. D., Craft, R. M., LeResche, L., Arendt-Nielsen, L., Berkley, K. J., Fillingim, R. B., & Consensus Working Group of the Sex, Gender, and Pain SIG of the IASP. (2007). Studying sex and gender differences in pain and analgesia: A consensus report. *Pain, 132*, S26-S45. doi:10.1016/j.pain.2007.10.014

- Griffin, M.G., Resick, P.A., & Yehuda, R. (2005). Enhanced cortisol suppression following dexamethasone administration in domestic violence survivors. *American Journal Psychiatry, 162*, 1192–1199.
- Grubaugh, A. L., Long, M. E., Elhai, J. D., Frueh, B. C., & Magruder, K. M. (2010). An examination of the construct validity of posttraumatic stress disorder with veterans using a revised criterion set. *Behaviour Research and Therapy, 48*(9), 909-914.
- Gupta, J., Falb, K. L., Carliner, H., Hossain, M., Kpebo, D., & Annan, J. (2014). Associations between exposure to intimate partner violence, armed conflict, and probable PTSD among women in rural côte d'ivoire. *PLoS One, 9*(5) doi:<http://dx.doi.org/10.1371/journal.pone.0096300>.
- Gureje, O., Simon, G. E., & Von Korff, M. (2001). A cross-national study of the course of persistent pain in primary care. *Pain, 92*(1), 195-200. doi:10.1016/S0304-3959(00)00483-8
- Hadeed, L. F., & El-Bassel, N. (2006). Social support among Afro-Trinidadian women experiencing intimate partner violence. *Violence against women, 12*(8), 740-760.
- Haj-Yahia, M. (2000). Wife Abuse and Battering in the Sociocultural Context of Arab Society. *Family Process, 39*(2), 237.
- Haj-Yahia, M. M., & Bargal, D. (2015). Exposure to family violence, perceived psychological adjustment of parents, and the development of post-traumatic stress symptoms among Palestinian university students. *Journal of Interpersonal Violence, 30*(16), 2928. doi:10.1177/0886260514554288.

- Hamdan-Mansour, A. M., Constantino, R. E., Farrell, M., Doswell, W., Gallagher, M. E., Safadi, R., & Banimustafa, R. (2011). Evaluating the mental health of Jordanian women in relationships with intimate partner abuse. *Issues In Mental Health Nursing, 32*, 614-623.
- Hamdan-Mansour, A., Farhan, N., & Othman, E., Yacob, M. (2010). Knowledge and practices of critical care nurses caring for patients with delirium in Jordan. *Journal of Continuing Education in Nursing, 4* (12), 571-576.
- Hamdi, E., Amin, Y., & Abou-Saleh, M.T. (1997). Performance of the Hamilton Depression Rating Scale in depressed patients in the United Arab Emirates. *Acta Psychiatr Scand, 96* (6), 416-423.
- Harkness, E. F., Macfarlane, G. J., Nahit, E., Silman, A. J., & McBeth, J. (2004). Mechanical injury and psychosocial factors in the work place predict the onset of widespread body pain: a two-year prospective study among cohorts of newly employed workers. *Arthritis & Rheumatism, 50*(5), 1655-1664.
- Haroz, E. E., Bolton, P., Gross, A., Chan, K. S., Michalopoulos, L., & Bass, J. (2016). Depression symptoms across cultures: An IRT analysis of standard depression symptoms using data from eight countries. *Social psychiatry and psychiatric epidemiology, 1*-11.
- Haskell, L., & Randall, M. (2009). Disrupted attachments: A social context complex trauma framework and the lives of aboriginal peoples in Canada. *Journal of Aboriginal Health, 5*(3), 48.
- Haskell, S.G., Gordon, K.S., Mattocks, K., Duggal, M., Erdos, J., Justice, A. & Brandt, C.A. (2010). Gender differences in rates of depression, PTSD, pain, obesity, and

- military sexual trauma among Connecticut war veterans of Iraq and Afghanistan. *Journal of Womens Health (Larchmont)*, 19, 267 – 271.
- Hasler, G. (2010). Pathophysiology of depression: Do we have any solid evidence of interest to clinicians? *World Psychiatry*, 9(3), 155–161.
- Hasler, G., Drevets, W.C., & Manji, H.K. (2004). Discovering endophenotypes for major depression. *Neuropsychopharmacology*, 29, 1765–1781.
- Hebenstreit, C. L., Maguen, S., Koo, K. H., & DePrince, A. P. (2015). Latent profiles of PTSD symptoms in women exposed to intimate partner violence. *Journal of Affective Disorders*, 180, 122-128. doi:10.1016/j.jad.2015.03.047
- Hedges, D. W., & Woon, F. L. (2010). Alcohol use and hippocampal volume deficits in adults with posttraumatic stress disorder: A meta-analysis. *Biological Psychology*, 84 (2), 163–168.
- Hegarty, K., Gunn, J., Chondros, P., & Small, R. (2004) Association between depression and abuse by partners of women attending general practice: Descriptive, cross sectional survey. *BMJ*, 328(7440), 621-624.
- Heim, C., Ehler, U., Hanker, J.P., & Hellhammer, D.H. (1998). Abuse-related posttraumatic stress disorder and alterations of the hypothalamic-pituitary-adrenal axis in women with chronic pelvic pain. *Psychosomatic Medicine*, 60 (3), 309–318.
- Helfrich, C. A., Fujiura, G. T., & Rutkowski-Kmitta, V. (2008). Mental health disorders and functioning of women in domestic violence shelters. *Journal of Interpersonal Violence*, 23 (4), 437–453.

- Herman, J., L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress, 5*(3), 377–391. doi: 10.1002/jts.2490050305.
- Herrenkohl, T. I., Jung, H., Klika, J. B., Mason, W. A., Brown, E. C., Leeb, R. T., & Herrenkohl, R. C. (2016). Mediating and moderating effects of social support in the study of child abuse and adult physical and mental health. *American Journal of Orthopsychiatry, 86*(5), 573-583.
- Hollifield, M., Warner, T. D., Lian, N., Krakow, B., Jenkins, J. H., Kesler, J. . . Westermeyer, J. (2002). Measuring trauma and health status in refugees: A critical review. *Jama, 288*(5), 611-621. doi:10.1001/jama.288.5.611.
- Horwitz, B. N., Reynolds, C. A., & Charles, S. T. (2015). Understanding associations among family support, friend support, and psychological distress. *Personal Relationships, 22*(1), 79-91. Retrieved from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/1671637744?accountid=15115>
- Houry, D., Kembell, R., Rhodes, K. V., & Kaslow, N. J. (2006). Intimate partner violence and mental health symptoms in African American female ED patients. *American Journal of Emergency Medicine, 24* (4), 444–450.
- Hughes, M. M., Carballedo, A., McLoughlin, D. M., Frodl, T., & Connor, T. J. (2013). 111. Childhood trauma and depression are associated with a dysregulated inflammatory profile. *Brain, Behavior, and Immunity, 32*, e32.
- Hughes, S., Jaremka, L. M., Alfano, C. M., Glaser, R., Povoski, S. P., Lipari, A. M., ... & Malarkey, W. B. (2014). Social support predicts inflammation, pain, and

depressive symptoms: Longitudinal relationships among breast cancer survivors. *Psychoneuroendocrinology*, 42, 38-44.

Humphreys, J., Cooper, B., & Miaskowski, C. (2010). Differences in depression, Posttraumatic Stress Disorder, and lifetime trauma exposure in formerly abused women with mild versus moderate to severe chronic pain. *Journal Of Interpersonal Violence*, 25(12), 2316-2338.

Hussey, J. M., Chang, J. J., & Kotch, J. B. (2006). Child maltreatment in the United States: Prevalence, risk factors, and adolescent health consequences. *Pediatrics*, 118(3), 933-942. doi:10.1542/peds.2005-2452

Index Mundi (2013). *Saudi Arabia - Rural population*. Retrieved from: <http://www.indexmundi.com/facts/saudi-arabia/rural-population>.

Index Mundi (2016). *Saudi Arabia Age structure*. Retrieved from: http://www.indexmundi.com/saudi_arabia/age_structure.html

Infurna, M. R., Reichl, C., Parzer, P., Schimmenti, A., Bifulco, A., & Kaess, M. (2016). Associations between depression and specific childhood experiences of abuse and neglect: A meta-analysis. *Journal of Affective Disorders*, 190, 47-55. doi:10.1016/j.jad.2015.09.006

Inslicht, S. S., Marmar, C. R., Neylan, T. C., Metzler, T. J., Hart, S. L., Otte, C., . Baum, A. (2006). Increased cortisol in women with intimate partner violence-related posttraumatic stress disorder. *Psychoneuroendocrinology*, 31(7), 825.

Inslicht, S. S., Richards, A., Madden, E., Rao, M. N., O'donovan, A., Talbot, L. S.,... Neylan, T. C. (2013). Sex differences in neurosteroid and hormonal responses to

metyrapone in posttraumatic stress disorder. *Psychopharmacology*, 231(17), 3581-95. doi:<http://dx.doi.org/10.1007/s00213-014-3621-3>.

Institute of Medicine (2011). *Relieving pain in America A Blueprint for Transforming Prevention, Care, Education, and Research*. Washington.

International Association for the Study of Pain (2014). IASP Taxonomy. Retrieved from: <http://www.iasp-pain.org/Taxonomy>.

Iverson, K. M., & Pogoda, T. K. (2015). Traumatic brain injury among women Veterans: An invisible wound of intimate partner violence. *Medical Care*, 53, 112-119.

Jank, Y. Kim, G., & Chiriboga, D. A. (2011). Gender differences in depressive symptoms among older Korean American immigrants. *Social Work in Public Health*, 26 (1), 96–109. doi: 10.1080/10911350902987003.

Johnson, D.M., Delahanty, D.L., Pinna, K. (2008). The cortisol awakening response as a function of PTSD severity and abuse chronicity in sheltered battered women. *Journal of Anxiety Disorder*, 22 (5), 793—800.

Johnson, W. L., Giordano, P. C., Longmore, M. A., & Manning, W. D. (2014). Intimate partner violence and depressive symptoms during adolescence and young adulthood. *Journal of Health and Social Behavior*, 55(1), 39-55. doi:<http://dx.doi.org/10.1177/0022146513520430>.

Katerndahl, D., Burge, S., Ferrer, R., Becho, J., & Wood, R. (2013). Differences in social network structure and support among women in violent relationships. *Journal of interpersonal violence*, 28(9), 1948-1964.

- Katon, W., Sullivan, M., & Walker, E. (2001). Medical symptoms without identified pathology: Relationship to psychiatric disorders, childhood and adult trauma, and personality traits. *Annals of Internal Medicine*, *13*(49), 17- 925.
- Kelly, U. A. (2010). Symptoms of PTSD and major depression in Latinas who have experienced intimate partner violence. *Issues in Mental Health Nursing*, *31*(2), 119-127.
- Kendall-Tackett, K. A. (2000). Physiological correlates of childhood abuse: chronic hyperarousal in PTSD, depression, and irritable bowel syndrome. *Child Abuse & Neglect*, *24*(6), 799-810.
- Keogh, E., & Herdenfeldt, M. (2002). Gender, coping and the perception of pain. *Pain*, *97*(3), 195-201.
- Kessler, R. C. Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archive General Psychiatry*, *52*, 1048-1060.
- Kessler, R.C. (2000). Posttraumatic stress disorder: The burden to the individual and to society. *Journal of Clinical Psychiatry*, *61*(suppl 5), 4—12.
- Khadra, C., Wehbe, N., Lachance Fiola, J., Skaff, W., & Nehmé, M. (2015). Symptoms of post-traumatic stress disorder among battered women in Lebanon: An exploratory study. *Journal of Interpersonal Violence*, *30*(2), 295-313.
doi:10.1177/0886260514534774.
- Khamis, V. (2005). Post-traumatic stress disorder among school age Palestinian children. *Child Abuse & Neglect*, *29*, 81–95.

- Kienzler, H. (2008). Debating war-trauma and post-traumatic stress disorder (PTSD) in an interdisciplinary arena, *Social Science & Medicine*, *67*, 218–227.
- Kim, H. K., Tiberio, S. S., Capaldi, D. M., Shortt, J. W., Squires, E. C., & Snodgrass, J. J. (2015). Intimate partner violence and diurnal cortisol patterns in couples. *Psychoneuroendocrinology*, *51*, 35-46. doi:10.1016/j.psyneuen.2014.09.013.
- Kim, H. S., Sherman, D. K., & Taylor, S. E. (2008). Culture and social support. *American Psychologist*, *63*(6), 518.
- Kimerling, R., Alvarez, J., Pavao, J., Kaminski, A., & Baumrind, N. (2007). Epidemiology and consequences of women's revictimization. *Women's Health Issues*, *17*, 101–106.
- Kim-godwin, Y., Maume, M. O., & Fox, J. A. (2014). Depression, stress, and intimate partner violence among Latino migrant and seasonal farmworkers in rural southeastern North Carolina. *Journal of Immigrant and Minority Health*, *16*(6), 1217-1224. doi:http://dx.doi.org/10.1007/s10903-014-0007-x
- Kirmayer, L. J., Robbins J. M., Dworkind M., & Yaffe M. J. (1993). Somatization and the recognition of depression and anxiety in primary care. *American Journal of Psychiatry*, *150*, 734- 741.
- Kleinman, A., & Good, B. (1985). *Culture and depression: Studies in the anthropology and cross-cultural psychiatry of affect and disorder*. Berkeley: University of California Press.
- Koopman, C., Ismailji, T., Palesh, O., Gore-Felton, C., Narayanan, A., Saltzman, K. M., ... & McGarvey, E. L. (2007). Relationships of depression to child and adult abuse

- and bodily pain among women who have experienced intimate partner violence. *Journal of Interpersonal Violence*, 22(4), 438-455.
- Kreinin, A., Lisson, S., Neshet, E., Schneider, J., Bergman, J., Farhat, K., . . . Pinhasov, A. (2015). Blood BDNF level is gender specific in severe depression. *PLoS One*, 10(5). doi:<http://dx.doi.org/10.1371/journal.pone.0127643>.
- Kuehner, C. (2003). Gender differences in unipolar depression: an update of epidemiological findings and possible explanations. *Acta Psychiatrica Scandinavica*, 108(3), 163-174.
- Lacey, K. K., McPherson, M. D., Samuel, P. S., Powell Sears, K., & Head, D. (2013). The impact of different types of intimate partner violence on the mental and physical health of women in different ethnic groups. *Journal of Interpersonal Violence*, 28(2), 359-385. doi:10.1177/0886260512454743
- Lagdon, S., Armour, C., & Stringer, M. (2014). Adult experience of mental health outcomes as a result of intimate partner violence victimization: A systematic review. *European journal of psychotraumatology*, 5.
- Lakey, B., & Cohen, S. (2000) Social support theory and measurement. In S., Cohen, L.G., Underwood, & B.H., Gottlieb, (Eds). *Social support measurement and intervention: A guide for health and social scientists*. New York, Oxford University Press. pp. 29–52.
- Lang, A.J., Laffaye, C., Satz, L.E., McQuaid, J.R., Malcarne, V.L., Dresselhaus, T.R., & Stein, M.B. (2006). Relationships among childhood maltreatment, PTSD, and health in female veterans in primary care. *Child Abuse Neglect*, 30, 1281–1292.

- LaViolette, A. D., & Barnett, O. W. (2013). *It could happen to anyone: Why battered women stay*. SAGE Publications, Incorporated.
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.
- Le Renard, A. (2015). *A Society of Young Women: Opportunities of Place, Power, and Reform in Saudi Arabia*. Stanford University Press. Stanford: California.
- Lee, J., Pomeroy, E. C., & Bohman, T. M. (2007). Intimate partner violence and psychological health in a sample of Asian and Caucasian women: The roles of social support and coping. *Journal of Family Violence, 22* (8), 709-720.
- Lepore, S. J., Evans, G. W., & Schneider, M. L. (1991). Dynamic role of social support in the link between chronic stress and psychological distress. *Journal of Personality and Social Psychology, 61* (6), 899-909.
- Li, M., D'Arcy, C., & Meng, X. (2016). Maltreatment in childhood substantially increases the risk of adult depression and anxiety in prospective cohort studies: Systematic review, meta-analysis, and proportional attributable fractions. *Psychological Medicine, 46*(4), 717-730. doi:<http://dx.doi.org/10.1017/S0033291715002743>.
- Liao, K. Y. H., Henceroth, M., Lu, Q., & LeRoy, A. (2016). Cultural differences in pain experience among four ethnic groups: A qualitative pilot study. *Journal of Behavioral Health, 5*(2), 75-81.
- Lilly, M. M., London, M. J., & Bridgett, D. J. (2014). Using SEM to examine emotion regulation and revictimization in predicting PTSD symptoms among childhood

- abuse survivors. *Psychological Trauma: Theory, Research, Practice, and Policy*, 6(6), 644-651. doi:<http://dx.doi.org/10.1037/a0036460>.
- Lin, J. E., Neylan, T. C., Epel, E., & O'Donovan, A. (2016). Associations of childhood adversity and adulthood trauma with C-reactive protein: A cross-sectional population-based study. *Brain, Behavior, and Immunity*, 53, 105.
- Lindert, J., von Ehrenstein, O. S., Grashow, R., Gal, G., Braehler, E., & Weisskopf, M. G. (2014). Sexual and physical abuse in childhood is associated with depression and anxiety over the life course: Systematic review and meta-analysis. *International Journal of Public Health*, 59(2), 359-372. doi:<http://dx.doi.org/10.1007/s00038-013-0519-5>
- MacQueen, G., & Frodl, T. (2011). The hippocampus in major depression: Evidence for the convergence of the bench and bedside in psychiatric research? *Molecular psychiatry*, 16(3), 252-264.
- Madianos, M. G., Sarhan, A. L., & Koukia, E. (2011). Posttraumatic stress disorders comorbid with major depression in West Bank, Palestine: A general population cross sectional study. *The European Journal of Psychiatry*, 25(1), 19-31.
- Marcenko, M. O., Kemp, S. P., & Larson, N. C. (2000). Childhood experiences of abuse, later substance use, and parenting outcomes among low-income mothers. *The American Journal of Orthopsychiatry*, 70(3), 316-326.
- Marsella, A. J. (2010). Ethnocultural aspects of PTSD: An Overview of concepts, issues, and treatments. *Traumatology*, 16(4) 17-26.
- Martelli, M. F., Zasler, N. D., Bender, M. C., & Nicholson, K. (2004). Psychological, neuropsychological, and medical considerations in assessment and management

of pain. *Journal of Head Trauma Rehabilitation*, 19(1), 10-28.

doi:10.1097/00001199-200401000-00003

Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences*, 37, 1401e1415.

Maziak, W., & Asfar, T. (2003). Physical abuse in low-income women in Aleppo, Syria. *Health Care for Women International*, 24(4), 313-326.

Mburia-Mwalili, A., Clements-Nolle, K., Lee, W., Shadley, M., & Yang, W. (2010). Intimate partner violence and depression in a population-based sample of women: Can social support help? *Journal of Interpersonal Violence*, 25(12), 2258-2278.

McBeth, J., Silman, A. J., Gupta, A., Chiu, Y. H., Ray, D., Morriss, R., ... & Macfarlane, G. J. (2007). Moderation of psychosocial risk factors through dysfunction of the hypothalamic–pituitary–adrenal stress axis in the onset of chronic widespread musculoskeletal pain: Findings of a population-based prospective cohort study. *Arthritis & Rheumatism*, 56(1), 360-371.

McCarthy-Jones, S., & McCarthy-Jones, R. (2014). Body mass index and anxiety/depression as mediators of the effects of child sexual and physical abuse on physical health disorders in women. *Child Abuse & Neglect*, 38(12), 2007-2020. doi:<http://dx.doi.org/10.1016/j.chiabu.2014.10.012>.

McLewin, L., & Muller, R. (2006). Attachment and social support in the prediction of psychopathology among young adults with and without a history of physical maltreatment. *Child Abuse and Neglect*, 30, 171–191.

- McNally, R. J. (2004). Conceptual problems with the DSM-IV criteria for posttraumatic stress disorder. In G. M. Rosen (Ed.), *Posttraumatic stress disorder: Issues and controversies*. Chichester, England: John Wiley & Sons.
- Meagher, M. W. (2004). Links between chronic pain and traumatic family violence: Biopsychosocial pathways and clinical implications. In K. Kendall-Tackett (Ed.), *Health consequences of abuse in the family: A clinical guide for evidence-based practice*. Washington, DC: American Psychological Association.
- Meana, M., Cho, R., & DesMeules, M. (2004). Chronic pain: The extra burden on Canadian women. *BMC Womens Health*, 4(Suppl 1), S17-S17. doi:10.1186/1472-6874-4-S1-S17
- Medina, K.L., Schweinsburg, A.D., Cohen-Zion, M., Nagel, B.J., & Tapert, S.F. (2007). Effects of alcohol and combined marijuana and alcohol use during adolescence on hippocampal volume and asymmetry. *Neurotoxicology Teratology*, 29(1), 141-152.
- Medina, N., T. Canaval, Burgos, & Humphreys, J. (2011). Contribution of intimate partner violence exposure, other traumatic events and posttraumatic stress disorder to chronic pain and depressive symptoms [Spanish]. *Investigacion & Educacion En Enfermeria*, 29(2), 174-186.
- Meints, S. M., Miller, M. M., & Hirsh, A. T. (2016). Differences in pain coping between black and white Americans: A meta-analysis. *The Journal of Pain*, 17(6), 642-653.
- Melzack, R., & Wall, P. D. (1965). Pain mechanisms: A new theory. *Science*, 50, 971-979.

- Messman-Moore, T. L., Long, P. J., Siegfried, N. J. (2000). The revictimization of child sexual abuse survivors: An examination of the adjustment of college women with child sexual abuse, adult sexual assault, and adult physical abuse. *Child Maltreatment, 5*, 18–27.
- Miller, A., Maletic, V., & Raison, C.L. (2009). Inflammation and its discontents: The role of cytokines in the pathophysiology of major depression. *Biol Psych, 65*, 732-741.
- Ministry of Health, Kingdom of Saudi Arabia (2010). *Health Year Book*. Retrived from www.moh.gov.sa
- Mobaraki, A. E., & Söderfeldt, B. (2010). Gender inequity in Saudi Arabia and its role in public health. *East Mediterranean Health Journal, 16* (1), 113- 118.
- Mogaddam, M., Kamal, I., Merdad, L., & Alamoudi, N. (2016). Knowledge, attitudes, and behaviors of dentists regarding child physical abuse in jeddah, Saudi Arabia. *Child Abuse & Neglect, 54*, 43-56. doi:10.1016/j.chiabu.2016.02.004.
- Montero, I., Martín-Baena, D., Escribà-Agüir, V., Vives-Cases, C., & Ruiz-Pérez, I. (2015). Factors associated with the cessation of intimate partner violence in women attending primary care in Spain. *Journal of Family Violence, 30*(4), 453-460. doi:10.1007/s10896-015-9684-z
- Morris, M. C., Compas, B. E., & Garber, J. (2012). Relations among posttraumatic stress disorder, comorbid major depression, and HPA function: A systematic review and meta-analysis. *Clinical psychology review, 32*(4), 301-315.
- Munce, S. E., & Stewart, D. E. (2007). Gender differences in depression and chronic pain conditions in a national epidemiologic survey. *Psychosomatics, 48*(5), 394-399.

- Nathanson, A. M., Shorey, R. C., Tirone, V., & Rhatigan, D. L. (2012). The prevalence of mental health disorders in a community sample of female victims of intimate partner violence. *Partner Abuse, 3*(1), 59-75. doi:10.1891/1946-6560.3.1.59
- National Center for PTSD (2013). Understanding research on the epidemiology of trauma and PTSD. *PTSD research quarterly, 24* (2-3), ISSN: 1050-1835
- National Family Safety Program. (2010). *Efforts of the National Family Safety Program, Kingdom of Saudi Arabia*. Retrieved from <http://www.ngha.med.sa/English/PatientsCorner/Articles/Pages/Efforts%20of%20the%20National%20Family%20Safety%20Program.aspx>
- National Guideline Clearinghouse. (2007). *Guidelines for the assessment and management of chronic pain*, www.guideline.gov
- Nayback, A. M. (2009). Posttraumatic stress: a concept analysis. *Archives of Psychiatric Nursing, 23*(3), 210- 219.
- Nazroo, J.Y., Edwards, A.C., & Brown, G.W. (1997). Gender differences in the onset of depression following a shared life event: A study of couples. *Psychological Medicine, 27*(1), 9-19. doi:10.1017/S0033291796004187
- Nedd, D. (2001). Self-reported health status and depression of battered Black women. *ABNF Journal, 12*(2), 32-35.
- Nichter, M. (2010). Idioms of distress revisited. *Culture, Medicine and Psychiatry, 34*(2), 401-416.
- Nicolas, G., Wheatley, A., & Guillaume, C. (2015). Does one trauma fit all? Exploring the relevance of PTSD across cultures. *International Journal of Culture and Mental Health, 8*(1), 34-45. doi:10.1080/17542863.2014.892519

- Nicolson, N. A., Davis, M. C., Kruszewski, D., & Zautra, A. J. (2010). Childhood maltreatment and diurnal cortisol patterns in women with chronic pain. *Psychosomatic Medicine, 72*(5), 471-480.
doi:<http://dx.doi.org/10.1097/PSY.0b013e3181d9a104>
- Nixon, R. D., Resick, P. A., & Nishith, P. (2004). An exploration of comorbid depression among female victims of intimate partner violence with posttraumatic stress disorder. *Journal of affective disorders, 82*(2), 315-320.
- Nolen-Hoeksema, S., Larson, J., Grayson, C. (1999). Explaining the gender difference in depressive symptoms. *Journal of Personality and Social Psychology, 77*, 1061–1072.
- Noll-Hussong, M., Otti, A., Laeer, L., Wohlschlaeger, A., Zimmer, C., Lahmann, C., ... & Guendel, H. (2010). Aftermath of sexual abuse history on adult patients suffering from chronic functional pain syndromes: an fMRI pilot study. *Journal of psychosomatic research, 68*(5), 483-487.
- Norris, F. H., Perilla, J. L., Ibañez, G. E., & Murphy, A. D. (2001). Sex differences in symptoms of posttraumatic stress: Does culture play a role? *Journal of Traumatic Stress, 14*(1), 7-28. doi:10.1023/A:1007851413867
- Nqweni, Z. C., & Van Rooyen, K. (2012). Culture and posttraumatic stress disorder (PTSD): A proposed conceptual framework. *South African Journal of Psychology, 42*(1), 51-60.13
- O'Donnell, M. L., Creamer, M., & Pattison, P. (2004). Posttraumatic stress disorder and depression following trauma: understanding comorbidity. *American Journal of Psychiatry, 161*(8), 1390-1396.

- Olf, M., Langeland, W., Draijer, N., & Gersons, B. P. R. (2007). Gender differences in posttraumatic stress disorder. *Psychological Bulletin*, *133* (2), 183– 204.
- Opel, N., Redlich, R., Zwanzger, P., Grotegerd, D., Arolt, V., Heindel, W., ... & Dannlowski, U. (2014). Hippocampal Atrophy in Major Depression: a Function of Childhood Maltreatment Rather than Diagnosis?. *Neuropsychopharmacology*, *39*(12), 2723-2731.
- Oquendo, M. A., Echavarria, G., Galfalvy, H. C., Grunebaum, M. F., Burke, A., Barrera, A., ... & Mann, J. J. (2003). Lower cortisol levels in depressed patients with comorbid post-traumatic stress disorder. *Neuropsychopharmacology*, *28*(3), 591-598. doi:10.1038/sj.npp.1300050
- Ouellet-Morin, I., Fisher, H. L., York-Smith, M., Fincham-Campbell, S., Moffitt, T. E., & Arseneault, L. (2015). Intimate partner violence and new-onset depression: A longitudinal study of women's childhood and adult histories of abuse. *Depression and Anxiety*, *32*(5), 316-324. doi:10.1002/da.22347.
- Out, D., Hall, R. J., Granger, D. A., Page, G. G., & Woods, S. J. (2012). Assessing salivary C-reactive protein: Longitudinal associations with systemic inflammation and cardiovascular disease risk in women exposed to intimate partner violence. *Brain, Behavior, and Immunity*, *26*(4), 543-551. doi:10.1016/j.bbi.2012.01.019
- Outcalt, S. D., Kroenke, K., Krebs, E. E., Chumbler, N. R., Wu, J., Yu, Z., & Bair, M. J. (2015). Chronic pain and comorbid mental health conditions: Independent associations of posttraumatic stress disorder and depression with pain, disability, and quality of life. *Journal of Behavioral Medicine*, *38*(3), 535-543. doi:10.1007/s10865-015-9628-3

- Outlaw, M. (2009). No one type of intimate partner abuse: Exploring physical and non-physical abuse among intimate partners. *Journal of Family Violence, 24*, 263-272.
- Patel, V., Abas, M., Broadhead, J., Todd, C., & Reeler, A. (2001). Depression in developing countries: Lessons from Zimbabwe. *BMJ, 322*, 482-484.
- Patel, V., Flisher, A.J., Nikapota, A., & Malhotra, S. (2008). Promoting child and adolescent mental health in low and middle income countries. *Journal of Child Psychology & Psychiatry, 49*(3), 313–334. doi: 10.1111/j.1469-7610.2007.01824.x.
- Paykel, E. S. (2008). Basic concepts of depression. *Dialogues in Clinical Neuroscience, 10*(3), 279–289.
- Pederson, C.L., Maurer, S.H., Kaminski, P.L., Zander, K. A., Peters, C.M., Stokes-Crowe, L. A., & Osborn, R.E. (2004). Hippocampal volume and memory performance in a community-based sample of women with posttraumatic stress disorder secondary to child abuse. *Journal of Trauma Stress, 17*, 37–40.
- Peirce, J. M., Newton, T. L., Buckley, T. C., & Keane, T. M. (2002). Gender and psychophysiology of PTSD. In R. Kimerling, P. C. Ouimette, & J. Wolfe (Eds.), *Gender and PTSD* (pp. 177–204). New York: Guilford Press.
- Pico-Alfonso, M. A., Garcia-Linares, I. M., Celda-Navarro, N., Blasco-Ros, C., Echeburúa, E., & Martinez, M. (2006). The impact of physical, psychological, and sexual intimate male partner violence on women's mental health: Depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. *Journal of Women's Health, 15* (5), 599–611.

- Pigeon, W. R., Cerulli, C., Richards, H., He, H., Perlis, M., & Caine, E. (2011). Sleep disturbances and their association with mental health among women exposed to intimate partner violence. *Journal of women's health, 20*(12), 1923-1929
- Pinna, K. L., Johnson, D. M., & Delahanty, D. L. (2014). PTSD, comorbid depression, and the cortisol waking response in victims of intimate partner violence: Preliminary evidence. *Anxiety, Stress, & Coping, 27*(3), 253-269.
- Pinto, R. J., Correia-Santos, P., Costa-Leite, J., Levendosky, A. A., & Jongenelen, I. (2016). Cortisol awakening response among women exposed to intimate partner violence. *Psychoneuroendocrinology, 74*, 57-64.
doi:10.1016/j.psyneuen.2016.08.024
- Plichta, S.B. (2004). Intimate partner violence and physical health consequences: Policy and practice implications. *Journal of Interpersonal Violence, 19*(11), 1296–1323.
- Poleshuck, E. L., Giles, D. E., & Tu, X. (2006). Pain and depressive symptoms among financially disadvantaged women's health patients. *Journal of Women's Health, 15*(2), 182-193. doi:10.1089/jwh.2006.15.182
- Post, L. M., Feeny, N. C., Zoellner, L. A., & Connell, A. M. (2016). Post-traumatic stress disorder and depression co-occurrence: Structural relations among disorder constructs and trait and symptom dimensions. *Psychology and Psychotherapy: Theory, Research and Practice, 89*(4), 418-434.
- Post, L. M., Zoellner, L. A., Youngstrom, E., & Feeny, N. C. (2011). Understanding the relationship between co-occurring PTSD and MDD: Symptom severity and affect. *Journal of anxiety disorders, 25*(8), 1123-1130.

Powers, A., Fani, N., Pallos, A., Stevens, J., Ressler, K. J., & Bradley, B. (2014).

Childhood abuse and the experience of pain in adulthood: The mediating effects of PTSD and emotion dysregulation on pain levels and pain-related functional impairment. *Psychosomatics*, 55(5), 491-499. doi:10.1016/j.psych.2013.10.004

Procidano, M. E., & Heller, K. (1983). Measures of perceived social support from friends and from family: Three validation studies. *American journal of community psychology*, 11(1), 1-24.

Quandl (2011). *Age at First Marriage - Female By Country*. Retrieved

from <http://www.quandl.com/society/age-at-first-marriage-female-by-country>

Rachana, C., Suraiya, K., Hisham, A., Abdulaziz, A., & Hai, A. (2002). Prevalence and complications of physical violence during pregnancy. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 103(1), 26-29.

Raphael, K. G., Chandler, H. K., & Ciccone, D. S. (2004). Is childhood abuse a risk factor for chronic pain in adulthood?. *Current pain and headache reports*, 8(2), 99-110.

Raphael, K. G., Widom, C. S., & Lange, G. (2001). Childhood victimization and pain in adulthood: a prospective investigation. *Pain*, 92(1), 283-293.

Rasmusson, A.M. & Shalev, A.Y. (2014) Integrating the neuroendocrinology, neurochemistry and neuroimmunology of PTSD to date and the challenges ahead. In: Friedman MJ, Keane TM and Resick PA (eds) *Handbook of PTSD: Science and Practice*. New York: The Guilford Press, pp. 275–299.

Rees, S., Silove, D., Chey, T., Ivancic, L., Steel, Z., Creamer, M., & Forbes, D. (2011).

Lifetime prevalence of gender-based violence in women and the relationship with

mental disorders and psychosocial function. *Journal of American Medicine Association*, 306(5), 513–521

- Refaeli, T., Levy, D., Ben-Porat, A., Dekel, R., & Itzhaky, H. (2016). Personal and environmental predictors of depression among victims of intimate partner violence: Comparison of immigrant and israeli-born women. *Journal of Interpersonal Violence*, 1-25. doi:10.1177/0886260516651624
- Resick, P. A., Nishith, P., Weaver, T. L., Astin, M. C., & Feuer, C. A. (2002). A comparison of cognitive-processing therapy with prolonged exposure and a waiting condition for the treatment of chronic posttraumatic stress disorder in female rape victims. *Journal of consulting and clinical psychology*, 70(4), 867.
- Resnick, S. M., Pham, D. L., Kraut, M. A., Zonderman, A. B., & Davatzikos, C. (2003). Longitudinal magnetic resonance imaging studies of older adults: A shrinking brain. *The Journal of Neuroscience*, 23, 3295–3301.
- Ridings, L. E., Beasley, L. O., Bohora, S. B., Daer, J. L., Owora, A., & Silovsky, J. (2016). Longitudinal investigation of depression, intimate partner violence, and supports among vulnerable families. *Journal of interpersonal violence*, 0886260516639262.
- Riley, J. L., Gilbert, G. H., & Heft, M. W. (2002). Race/ethnic differences in health care use for orofacial pain among older adults. *Pain*, 100(1), 119-130.
- Riva, P., Wesselmann, E. D., Wirth, J. H., Carter-Sowell, A. R., & Williams, K. D. (2014). When pain does not heal: The common antecedents and consequences of chronic social and physical pain. *Basic and Applied Social Psychology*, 36(4), 329-346.

- Rivera-Vélez, G. M., González-Viruet, M., Martínez-Taboas, A., & Pérez-Mojica, D. (2014). Post-Traumatic Stress Disorder, dissociation, and neuropsychological performance in Latina Victims of childhood sexual abuse. *Journal of Child Sexual Abuse, 23*(1), 55-73 19p. doi:10.1080/10538712.2014.864746.
- Rohde, P., Ichikawa, L., Simon, G. E., Ludman, E. J., Linde, J. A., Jeffery, R. W., & Operskalski, B. H (2008). Associations of child sexual and physical abuse with obesity and depression in middle-aged women. *Child Abuse & Neglect, 32*(9), 878-887.
- Saastamoinen, P., Laaksonen, M., Leino-Arjas, P., & Lahelma, E. (2009). Psychosocial risk factors of pain among employees. *European Journal of Pain, 13*(1), 102-108.
- Sabri, B., Bolyard, R., McFadgion, A. L., Stockman, J. K., Lucea, M. B., Callwood, G. B., ... & Campbell, J. C. (2013). Intimate partner violence, depression, PTSD, and use of mental health resources among ethnically diverse Black women. *Social work in health care, 52*(4), 351-369.
- Salwen, J. K., Hymowitz, G. F., Vivian, D., & O'Leary, K. D. (2014). Childhood abuse, adult interpersonal abuse, and depression in individuals with extreme obesity. *Child abuse & neglect, 38*(3), 425-433.
- Samuels-Dennis, J., Bailey, A., Killian, K. Ray, S. (2013). The mediating effects of empowerment, interpersonal conflict, and social Support on the violence–PTSD process among single mothers. *Canadian Journal of Community Mental Health, 32* (1), 109- 124.
- Sareen, J., Cox, B. J., Stein, M. B., Afifi, T. O., Fleet, C., & Asmundson, G. J. G. (2007). Physical and mental comorbidity, disability, and suicidal behavior associated with

posttraumatic stress disorder in a large community sample. *Psychosomatic Medicine*, 69(3), 242-248. doi:10.1097/PSY.0b013e31803146d8

Satyanarayana, V. A., Chandra, P. S., & Vaddiparti, K. (2015). Mental health consequences of violence against women and girls. *Current Opinion in Psychiatry*, 28(5), 350-356.
doi:<http://dx.doi.org/10.1097/YCO.0000000000000182>.

Saudi Gazette (2015). *More Women than Men in Saudi Universities*, Aays Ministry.

Retrieved from:

<http://english.alarabiya.net/en/perspective/features/2015/05/28/More-women-than-men-in-Saudi-universities-says-ministry.html>.

Schore, A. N. (2003). *Affect dysregulation and the repair of the self*. New York: Norton.

Schumm, J.A., Briggs-Phillips, M., & Hobfoll, S.E. (2006). Cumulative interpersonal traumas and social support as risk and resiliency factors in predicting PTSD and depression among inner-city women. *Journal of Traumatic Stress*, 19 (6), 825–836.

Scioli-Salter, E. R., Forman, D. E., Otis, J. D., Gregor, K., Valovski, I., & Rasmusson, A. M. (2015). The shared neuroanatomy and neurobiology of comorbid chronic pain and PTSD: Therapeutic implications. *The Clinical Journal of Pain*, 31(4), 363-374. doi:10.1097/AJP.0000000000000115

Scully, P., McKernan, D. P., Keohane, J., Groeger, D., Shanahan, F., Dinan, T. G., & Quigley, E. M. (2010). Plasma cytokine profiles in females with irritable bowel syndrome and extra-intestinal co-morbidity. *The American journal of gastroenterology*, 105(10), 2235-2243.

- Seeds, P.M., Harkness, K.L., & Quilty, L.C. (2010). Parental maltreatment, bullying, and adolescent depression: Evidence for the mediating role of perceived social support. *Journal of Clinical Child Adolescent Psychology, 39*, 681-692.
- Shea, A., Walsh, C., MacMillan, H., & Steiner, M. (2005). Child maltreatment and HPA axis dysregulation: Relationship to major depressive disorder and post traumatic stress disorder in females. *Psychoneuroendocrinology, 30*(2), 162-178.
doi:10.1016/j.psyneuen.2004.07.001
- Sherin, J. E., & Nemeroff, C. B. (2011). Post-traumatic stress disorder: the neurobiological impact of psychological trauma. *Dialogues Clin Neurosci, 13*(3), 263-278.
- Shipherd, J. C., Keyes, M., Jovanovic, T., Ready, D. J., Baltzell, D., Worley, V.. .
Duncan, E. (2007). Veterans seeking treatment for posttraumatic stress disorder: What about comorbid chronic pain? *Journal of Rehabilitation Research and Development, 44*(2), 153.
- Simmons, A. N., Paulus, M. P., Thorp, S. R., Matthews, S. C., Norman, S. B., & Stein, M. B. (2008). Functional activation and neural networks in women with posttraumatic stress disorder related to intimate partner violence. *Biological Psychiatry, 64*(8), 681-690. doi:10.1016/j.biopsych.2008.05.027
- Singer, K. (1975). Depressive disorders from a transcultural perspective. *Social Science & Medicine, 9*(6), 289-301.
- Somberg, R. J. (2008). *Predicting comorbid PTSD & depression over time among victims of intimate partner violence*. Available from ProQuest Dissertations & Theses Global: Health & Medicine; ProQuest Dissertations & Theses Global: Social

Sciences. (230713469). Retrieved

from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/230713469?accountid=15115>.

- Sperry, D.M., & Widom, C.S. (2013). Child abuse and neglect, social support, and psychopathology in adulthood: a prospective investigation. *Child Abuse and Neglect*, 37 (6), 415-425. DOI: 10.1016/j.chiabu.2013.02.006.
- Stander, V. A., Thomsen, C. J., & Highfill-McRoy, R. M. (2014). Etiology of depression comorbidity in combat-related PTSD: a review of the literature. *Clinical psychology review*, 34(2), 87-98.
- Strauchler, O., McCloskey, K., Malloy, K., Sitaker, M., Grigsby N., & Gillig, P. (2004). Humiliation, manipulation, and control: Evidence of centrality in domestic violence against an adult partner. *Journal of Family Violence*, 19, 339-354.
- Strigo, I.A., Simmons, A.N., Matthews, S.C., Grimes, E.M., Allard, C.B., Reinhardt, L.E., Paulus, M.P., & Stein, M.B. (2010). Neural correlates of altered pain response in women with posttraumatic stress disorder from intimate partner violence. *Biology of Psychiatry*, 68(5), 442-450.
- Stein, M. B., & Kennedy, C. (2001). Major depressive and post-traumatic stress disorder comorbidity in female victims of intimate partner violence. *Journal of affective disorders*, 66(2), 133-138.
- Summerfield, D. (2004). 12 Cross-cultural Perspectives on the Medicalization of Human Suffering. *Issues and Controversies*, 233.

- Svavarsdóttir, E. K., Orlygsdóttir, B., & Gudmundsdóttir, B. (2015). Reaching out to women who are victims of intimate partner violence. *Perspectives In Psychiatric Care, 51*(3), 190-201 12p. doi:10.1111/ppc.12080.
- Symes, L., Maddoux, J., McFarlane, J., Nava, A., & Gilroy, H. (2014). Physical and sexual intimate partner violence, women's health and children's behavioural functioning: entry analysis of a seven-year prospective study. *Journal Of Clinical Nursing, 23*(19/20), 2909-2918 10p. doi:10.1111/jocn.12542.
- Taft, C. T., Resick, P. A., Watkins, L. E., & Panuzio, J. (2009). An investigation of posttraumatic stress disorder and depressive symptomatology among female victims of interpersonal trauma. *Journal of Family Violence, 24*(6), 407-415.
- Taibah, M. & Jamjoom, M. (2014). Saudi Arabia: The need for a coherent national strategy for human capital development. In Y. Wang (Ed.) *Education policy reform trends in G20 members*. Dordrecht: Springer.
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review, 6*, 2–30.
- Tashkandi, A. A. & Rasheed, P. (2009). Wife abuse: a hidden problem. A study among Saudi women attending PHC centers. *Eastern Mediterranean Health Journal, 15* (5), 1242- 1253.
- Taylor, S. E. (2012). Social support: A review. In A. Baum, T. A. Revenson, & J. Singer (Eds.), *The handbook of health psychology*, Taylor & Francis Group. New York.
- The International Association for the Study of Pain (2010). *Desirable Characteristics of National Pain Strategies*. Retrieved from: <http://www.iasp->

pain.org/files/Content/NavigationMenu/Advocacy/InternationalPainSummit/2010
Program/Program_09162010.pdf

- Thomtén, J., Soares, J. J., & Sundin, Ö. (2011). The role of psychosocial factors in the course of pain—a 1-year follow-up study among women living in Sweden. *Archives of women's mental health, 14*(6), 493-503.
- Tiwari, A., Fong, D. Y. T., Chan, C., & Ho, P. (2013). Factors mediating the relationship between intimate partner violence and chronic pain in Chinese women. *Journal of Interpersonal Violence, 28*(5), 1067-1087. doi:
<http://dx.doi.org/10.1177/0886260512459380>
- Tjaden, P., & Thoennes, N. (2000). *Extent, nature, and consequences of intimate partner violence: Findings from the National Violence Against Women Survey*. National Institute of Justice and the Center for Disease control and Prevention.
- Toblin, R. L., Mack, K. A., Perveen, G., & Paulozzi, L. J. (2011). A population-based survey of chronic pain and its treatment with prescription drugs. *Pain, 152*(6), 1249-1255. doi:10.1016/j.pain.2010.12.036.
- Tolin, D. F., & Foa, E. B. (2006). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychological Bulletin, 132*(6), 959-992. doi:10.1037/0033-2909.132.6.959
- Tolman, R. M., & Rosen, D. (2001). Domestic violence in the lives of women receiving welfare: Mental health, substance dependence and economic wellbeing. *Violence Against Women, 7*(2), 141-158.

- Ullman, S.E. & Brecklin, L.R. (2002). Sexual assault history, PTSD, and mental health service seeking in a national sample of women. *Journal of Community Psychology, 30*, 261—279.
- UNESCO Institute for Statistics (2011). *Education (all levels) Profile - Saudi Arabia*. Retrieved from: http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=121&IF_Language=eng&BR_Country=6820
- United Nations Development Program (2014). Saudi women challenges and successes. Retrieved from: http://www.sa.undp.org/content/saudi_arabia/en/home/presscenter/articles/2014/03/09/saudi-women-challenges-and-success.html.
- United Nations Development Programme (2013). *The Rise of the South: Human Progress in a Diverse World. Human Development Report 2013*. New York, USA.
- Usta, J., & Farver, J. (2010). Child sexual abuse in Lebanon during war and peace. *Child: Care, Health and Development, 36*(3), 361-368. doi:10.1111/j.1365-2214.2010.01082.x
- Van Dam, D.S., van Nierop, M., Viechtbauer, W., Velthorst, E., van Winkel, R., Bruggeman, R., . . . Wiersma, D. (2015). Childhood abuse and neglect in relation to the presence and persistence of psychotic and depressive symptomatology. *Psychological Medicine, 45*(7), 1363-1377. doi:<http://dx.doi.org/10.1017/S0033291714001561>.
- van der Lugt, C.M., Rollman, A., Naeije, M., Lobbezoo, F., Visscher, C.M.(2012). Social support in chronic pain: Development and preliminary psychometric assessment

of a new instrument. *Journal Oral Rehabilitation*, 39 (4), 270-276. doi:
10.1111/j.1365-2842.2011.02269.x.

- Van Harmelen, A., van Tol, M., van der Wee, Nic J.A, Veltman, D. J., Aleman, A., Spinhoven, P.. . Elzinga, B. M. (2010). Reduced medial prefrontal cortex volume in adults reporting childhood emotional maltreatment. *Biological Psychiatry*, 68(9), 832-838. doi:10.1016/j.biopsych.2010.06.011
- Villamor, A., & de Adana, E. S. (2015). Gender differences in post-traumatic stress disorder. *Psychopathology in women: Incorporating gender perspective into descriptive psychopathology*. (pp. 587-609) Springer International Publishing, Cham. doi:http://dx.doi.org/10.1007/978-3-319-05870-2_25
- Vives-Cases, C., Ruiz-Cantero, M., Escribà-Agüir, V., & Miralles, J. (2011). The effect of intimate partner violence and other forms of violence against women on health. *Journal Of Public Health*, 33(1), 15-21. doi:10.1093/pubmed/fdq101.
- Vranceanu, A., Hobfoll, S. E., & Johnson, R. J. (2007). Child multi-type maltreatment and associated depression and PTSD symptoms: The role of social support and stress. *Child Abuse & Neglect*, 31(1), 71–84.
- Vreeburg, S. A., Hoogendijk, W. J. G., van Pelt, J., DeRijk, R. H., Verhagen, J. C. M., van Dyck, R.. . Penninx, Brenda W. J. H. (2009). Major depressive disorder and hypothalamic-pituitary-adrenal axis activity: Results from a large cohort study. *Archives of General Psychiatry*, 66(6), 617-626.
doi:10.1001/archgenpsychiatry.2009.50

- Wade, D., Fletcher, S., Carty, J., & Creamer, M. (2015). Posttraumatic stress disorder in women. In D. Castle & K. Abel (Eds.), *Mood and Anxiety in Women*. Cambridge University Press.
- Walker, J. L., Carey, P. D., Mohr, N., Stein, D. J., & Seedat, S. (2004). Gender differences in the prevalence of childhood sexual abuse and in the development of pediatric PTSD. *Archives of Women's Mental Health, 7*, 111–121.
- Walsh, C., Jamieson, E., MacMillan, H., & Boyle, M. (2007). Child abuse and chronic pain in a community survey of women. *Journal of Interpersonal Violence, 22*, 1536–1554.
- Weathers, F. W., Marx, B. P., Friedman, M. J., & Schnurr, P. P. (2014). Posttraumatic stress disorder in DSM-5: New criteria, new measures, and implications for assessment. *Psychological Injury and Law, 7*(2), 93-107. doi:10.1007/s12207-014-9191-1
- Weaver, T. L. & Resick, P. A. (2014). Injury dimensions in female victims of intimate partner violence: Expanding the examination of associations with symptoms of posttraumatic stress disorder. *Psychological Trauma: Theory, Research, Practice, and Policy, 6*(6), 683-690.
- Wegman, H. L., & Stetler, C. (2009). A meta-analytic review of the effects of childhood abuse on medical outcomes in adulthood. *Psychosomatic Medicine, 71*(8), 805-812. doi:10.1097/PSY.0b013e3181bb2b46
- Wegman, H. L., & Stetler, C. (2009). A meta-analytic review of the effects of childhood abuse on medical outcomes in adulthood. *Psychosomatic Medicine, 71*(8), 805-812. doi:10.1097/PSY.0b013e3181bb2b46.

- Wei, J., Sun, G., Zhao, L., Yang, X., Liu, X., Lin, D., ... & Ma, X. (2015). Analysis of hair cortisol level in first-episodic and recurrent female patients with depression compared to healthy controls. *Journal of affective disorders, 175*, 299-302.
- Weiss, E.L., Longhurst, J.G., & Mature, C.M. (1999). Childhood sexual abuse as a risk factor for depression in women: Psychosocial and neurobiological correlates. *American Journal of Psychiatry, 156*, 816–828.
- Widom, C. S., DuMont, K., & Czaja, S. J. (2007). A prospective investigation of major depressive disorder and comorbidity in abused and neglected children grown up. *Archives of General Psychiatry, 64*(1), 49-56. doi:10.1001/archpsyc.64.1.49
- Wierzbicka, A. (2012). Is pain a human universal? A cross-linguistic and cross-cultural perspective on pain. *Emotion Review, 4*(3), 307-317.
- Wilson, J. P. (2007). The lens of culture: Theoretical and Conceptual Perspectives in the Assessment of Psychological Trauma and PTSD. In J. P. Wilson and C. S. Tang (Eds.). *Cross-Cultural Assessment of Psychological Trauma and PTSD* (pp. 3-30). New York: Springer Science and Business Media.
- Wilson, J.S., Messing, J.T., Patchell, B., & Campbell, J.C. (2011). Factors related to posttraumatic symptoms in women experiencing police-involved intimate partner violence. *Advances in Nursing Science, 34*(3), E14–E28.
- Wong, M. & Licinio, J. (2001). Research and treatment approaches to depression. *Nature Reviews Neuroscience, 2*(5), 343-351. doi:10.1038/35072566
- Woods, S. J., Hall, R. J., Campbell, J. C., & Angott, D. M. (2008). Physical health and posttraumatic stress disorder symptoms in women experiencing intimate partner violence. *Journal of Midwifery & Women's Health, 53*(6), 538-546.

- Woods, S. J., Wineman, N. M., Page, G. G., Hall, R. J., Alexander, T. S., & Campbell, J. C. (2005). Predicting immune status in women from PTSD and childhood and adult violence. *ANS. Advances in Nursing Science*, 28(4), 306.
- Woods, S.J., & Gill, J. (2010). Family violence: Long-term health consequences of trauma. In J. Humphreys, & J. C. Campbell (Eds.) *Family Violence and Nursing Practice*. Springer Publishing Company.
- Woolf, C.J. & Mannion, R.J. (1999) Neuropathic pain: Etiology, symptoms, mechanisms, and management. *Lancet*, 353, 1959–1964.
- Woon, F. L., & Hedges, D. W. (2008). Hippocampal and amygdala volumes in children and adults with childhood maltreatment-related posttraumatic stress disorder: A meta-analysis. *Hippocampus*, 18(8), 729-736.
doi:<http://dx.doi.org/10.1002/hipo.20437>.
- World Health Organization (2004). *The economic dimensions of interpersonal violence*. Geneva: WHO.
- World Health Organization (2005). *WHO multi-country study on women's health and domestic violence: Report of initial results on prevalence, health outcomes and women's responses*. Geneva: WHO.
- World Health Organization (2006). *Country Cooperation Strategy for WHO and Saudi Arabia 2006–2011*. Geneva: WHO.
- Wright, E. M. (2015). The relationship between social support and intimate partner violence in neighborhood context. *Crime and Delinquency*, 61(10), 1333.
Retrieved from <https://www.lib.uwo.ca/cgi->

bin/ezpauthn.cgi?url=http://search.proquest.com/docview/1758942534?accountid=15115

- Wright, K. M., Britt, T.W., Bliese, P. D., Adler, A.B., Picchioni, D., & Moore, D. (2011).
Insomnia as predictor versus outcome of PTSD and depression among Iraq
combat veterans. *Journal of Clinical Psychology, 67*(12), 1240–1258.
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Varcoe, C., Lent, B., Wilk, P., &
Campbell, J. (2009). Abuse-related injury and symptoms of posttraumatic stress
disorder as mechanisms of chronic pain in survivors of intimate partner violence.
Pain Medicine, 10(4), 739-747.
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Wilk, P., Campbell, J. C., Lent, B., ... &
Smye, V. (2010). Pathways of chronic pain in survivors of intimate partner
violence. *Journal of Women's Health, 19*(9), 1665-1674.
- Wuest, J., Merritt-Gray, M., Ford-Gilboe, M., Lent, B., Varcoe, C., & Campbell, J. C.
(2008). Chronic pain in women survivors of intimate partner violence. *Journal of
Pain, 9*(11), 1049-1057.
- Yehuda, R. (1998). Psychoneuroendocrinology of post-traumatic stress disorder.
Psychiatric Clinics of North America, 21(2), 359-379.
- Yehuda, R., & LeDoux, J. (2007). Response variation following trauma: A translational
neuroscience approach to understanding PTSD. *Neuron, 56*(1), 19-32.
doi:10.1016/j.neuron.2007.09.006
- Yehuda, R., McFarlane, A.C., & Shalev, A.Y. (1998). Predicting the development of
posttraumatic stress disorder from the acute response to a traumatic event. *Biol.
Psychiatry, 44*, 1305–1313.

- Young, E.A. (1995). The role of gonadal steroids in hypothalamic-pituitary- adrenal axis regulation. *Critical Review Neurobiology*, 9, 371–381.
- Young, J. J., Bruno, D., & Pomara, N. (2014). A review of the relationship between proinflammatory cytokines and major depressive disorder. *Journal of affective disorders*, 169, 15-20.
- Zlotnick, C., Johnson, D. M., & Kohn, R. (2006). Intimate partner violence and long-term psychosocial functioning in a national sample of American women. *Journal of Interpersonal Violence*, 21, 262-275.
- Zuhur, S. (2011). *Middle East in Focus Saudi Arabia*. ABC-CLIO, LLC: California, USA.

CHAPTER THREE

ARTICLE ONE

FACTORS MEDIATING THE IMPACTS OF CHILD ABUSE AND INTIMATE PARTNER VIOLENCE ON CHRONIC PAIN AMONG SAUDI WOMEN

Intimate Partner Violence (IPV) has received increasing recognition as a significant public health problem and a fundamental violation of women's rights (World Health Organization, 2013). Defined as a pattern of physical, emotional, and/or sexual abuse by an intimate partner in the context of coercive control (Tjaden & Thoennes, 2000), IPV has been linked to an extensive array of health problems, including traumatic brain injury, poor immune functioning, migraines, fatigue, post-traumatic stress disorder, anxiety, and depression (Campbell, 2002; Dillon, Hussain, Loxton, & Rahman, 2013; Wong & Mellor, 2014). Abused women make more health care system visits than women in the general population (Ford-Gilboe, Varcoe, Noh et al., 2015; Plichta, 2007), resulting in increased costs (Varcoe et al., 2011).

Evidence has highlighted the relationship between chronic pain and both IPV (Humphreys, Cooper, & Miaskowski, 2011; Tiwari, Fong, Chan, & Ho, 2013; Wuest et al., 2008) and child abuse (Anda, Tietjen, Schulman, Felitti, & Croft, 2010). It has also found that abused women experience disability related to chronic pain (Coker, Smith, & Fadden, 2005; Wuest et al., 2008), which negatively impacts women's ability to work, sustain an independent life, and care for themselves and their children. While the literature suggests that chronic pain is a negative and often disabling health consequence of IPV and child abuse, the pathways that explain the impact of abuse on chronic pain are still poorly understood. In addition, social support plays a role in recovering from

traumatic experiences (Herman, 1992), but whether it mediates the impact of abuse on chronic pain has not previously examined.

Research on the health consequences of IPV has contributed significantly to scientific evidence, yet this research has been carried out mainly in North America and other developed countries and thus, may not be generalizable to Saudi women. The socio-cultural context which shapes child abuse, IPV (wife abuse) and women's health in Saudi Arabia (SA) is different than in North America, and these differences could lead to different health outcomes for women. Saudi society has a patriarchal ideology that is linked to gender inequality and wife abuse is viewed as a private matter. The lifetime prevalence of wife abuse in Saudi Arabia has been estimated at 57.7% (Tashkandi & Rasheed, 2009). However, there is still a lack of knowledge about how wife abuse leads to health outcomes that are not directly related to injuries, but, rather, arise from living under conditions of chronic stress. A few studies suggest that Saudi women who have experienced wife abuse are more likely than other women to report health problems including poor health functioning (Al-Faris et al., 2014; Bohlaiga et al., 2014), chronic pain (Afifi et al., 2011), fatigue (Alhabib, 2011), chronic disease (Barnawi, 2015), and depression (Eldoseri, Tufts, Zhang & Fish 2014). Still, the frequency and severity of these health problems have not been assessed using well-established measures and the mechanism by which abuse leads to these health issues have not been tested. This evidence is needed to increase recognition of IPV as a public health matter that needs action on multiple levels. Absence of accurate understanding about wife abuse and its outcomes in the Saudi context might lead to policies and services that undermine women's safety and health.

Thus, the aim of this study was to enhance understanding about the health consequences of wife and child abuse among Saudi women by testing a theoretical model examining the mechanisms through which severity of both wife and child abuse result in chronic pain severity, with a specific focus on the mediating roles of mental health (post-traumatic stress disorder and depressive symptoms) and social support.

Review of Literature

Chronic pain is defined as pain that persists for three to six months or longer than the time for normal healing process (Institute of Medicine, 2011). For individuals, chronic pain results in a range of emotional and behavioral changes (Dima, Gillanders, & Power, 2013), depletes emotional reserves (Snelgrove, & Liossi, 2013), causes low quality of life (Gormsen, Rosenberg, Bach, & Jensen, 2010), impacts interpersonal and family functioning (Kowal, Wilson, McWilliams, Péloquin, & Duong, 2012), and decreases productivity (Gangapersad, Brouwer, Kurilsky, Willis, & Shaw, 2010). At the system level, chronic pain is costly as a result of healthcare utilization (Gaskin, & Richard, 2012; Pasquale et al., 2014).

Origins of Chronic Pain

Since the introduction of the gate control theory of pain, which assumes that the experience of pain is affected by both psychosocial and physiological factors (Engel, 1977), chronic pain has been understood as a result of a complex biopsychosocial process (Chapman, Tuckett, & Song, 2008; Gatchel, Peng, Peters, Fuchs, & Turk, 2007). The biopsychosocial model describes pain as the dynamic interplay among physiologic, psychological, and social factors that leads to persistent pain (Gatchel, 2004). The onset and continuation of chronic pain could be caused by psychosocial factors, including

events such as trauma or reactions to an event such as stress perception (Harkness, Macfarlane, Nahit, Silman, & McBeth, 2004; Thomtén, Soares, & Sundin, 2011). For instance, adverse life events (Ghosh & Sharma, 2010) and workplace bullying (Saastamoinen, Laaksonen, Leino-Arjas, & Lahelma, 2009) are related to the emergence of chronic pain. An individual's resources, such as social support, are inversely associated with chronic pain (Ferreira-Valente, Pais-Ribeiro, & Jensen, 2014). Thus, the biopsychosocial approach in clinical practice offers a significant avenue for chronic pain management (Gatchel, McGeary, McGeary, & Lippe, 2014).

Exposure to chronic stressors or trauma results in prolonged activation of the stress system leading to allostatic load, which is the cost being paid by the body when it adapts to adverse and constant stressors (McEwen, 2000). A possible consequence of allostatic load is dysfunction of hypothalamic-pituitary-adrenal (HPA) axis (Vachon-Presseau et al., 2013) which induces alterations in cortisol level (Hannibal & Bishop, 2014) and pro-inflammatory cytokine levels (Padgett & Glaser, 2003; Totsch et al., 2015). Abnormal cortisol levels cause deficiency of tissue repair, impairment in immune system, atrophy of muscle tissue, and excessive inflammation, causing a condition of chronic pain (McBeth et al., 2005; McEwen, 2001). Exposure to chronic stress might also dysregulate descending modulatory systems responsible for inhibiting incoming pain (Fields, 2000). Chronic stress, additionally, triggers changes in brain areas, including in the prefrontal cortex and hippocampus, which directs the individual's attention to pain (Przekop, 2015) and causes changes in pain perception (Mutso et al., 2012).

Chronic Pain among IPV and Child Abuse Survivors

The relationship between chronic pain and IPV has been established in the literature. Several studies have found that the prevalence of chronic pain among women who have experienced IPV ranges from 38% to 94.5% (Campbell et al., 2002; Coker, Smith, Bethea, King, & McKeown, 2000; Sutherland et al., 2002; Wuest et al., 2008). Disability related to chronic pain is also a prevalent issue among abused women (Coker et al., 2005). For example, in a sample of Canadian women (Wuest et al., 2008), 35.3% of abused women experienced high disability related to chronic pain, compared to a national average of 18%. As well, child abuse has been linked to chronic pain in adulthood (Walsh, Jamieson, MacMillan, & Boyle, 2007) and a dose–response relationship between child abuse and chronic pain has been found (Anda et al., 2010; Nicolson, Davis, Kruszewski, & Zautra, 2010).

Similar to other stressors or trauma, chronic pain in abused women could be a result of a biopsychosocial response to abuse. First, chronic pain could stem from neuropathic alterations associated with abuse related-injuries (Woolf & Mannion, 1999). Second, psychological abuse experiences trigger physiological changes in abused women, such as HPA axis dysfunction (Heim, Ehlert, Hanker, & Hellhammer, 1998), abnormal levels of cortisol (Nicolson, Davis, Kruszewski, & Zautra, 2010), and alterations in pro-inflammatory cytokine levels (Woods et al., 2005). These physiological changes result in chronic pain (Heim et al., 1998; Nicolson et al., 2010).

Mediators of the Relationship between Abuse and Chronic Pain

In general, depression has been identified as a risk factor for the onset of chronic pain and disability-related to pain (Carroll, Cassidy, & Côté, 2004; Bair, Robinson,

Katon, & Kroenke, 2003). Among women who have experienced IPV and/or child abuse, depression and chronic pain often co-exist (Cerulli, Poleshuck, Raimondi, Veale, & Chin, 2012; Koopman et al., 2007; Wuest et al., 2008), and more severe chronic pain is associated with greater depressive symptoms (Humphreys et al., 2011). While the role of depressive symptoms in mediating the impact of abuse on chronic pain has been examined, research findings are inconsistent. Wuest et al. (2010) found that depressive symptoms significantly mediated the relationships between both child abuse and IPV and chronic pain among Canadian women, whereas Tiwari et al (2013) found no evidence that depressive symptoms mediated the relationship between IPV and chronic pain among Chinese women.

Research has also documented the co-occurrence of chronic pain and posttraumatic stress disorder (PTSD) in different populations (Outcalt et al., 2015; Scioli-Salter et al., 2015). Similarly, among IPV survivors, PTSD symptoms often co-occur with chronic pain (Wilson et al., 2011), and uniquely predict chronic pain (Woods, Hall, Campbell, & Angott, 2008). Moreover, there is evidence that PTSD mediates the relationship between abuse experience (child abuse and/or IPV) and chronic pain (Campbell, Greeson, Bybee, & Raja, 2008; Lang et al., 2006; Powers et al., 2014; Tiwari, Fong, Chan, & Ho, 2013; Wuest et al., 2009).

Although PTSD and depression often co-occur in many people who have experienced trauma (Lagdon, Armour, & Stringer, 2014; O'Donnell, Creamer, & Pattison, 2004; Pigeon et al., 2011), they are generally considered to be distinct reactions to traumatic events (Chiu et al., 2011; Madianos, Sarhan, & Koukia, 2011; Post, Feeny, Zoellner, & Connell, 2016). It has been argued that the comorbidity of depression with

PTSD could be attributed to common causation (i.e. outcomes of a common set of risk factors) (Stander, Thomsen, Highfill-McRoy, 2014). Another body of literature suggests that the overlapping symptoms of depression and PTSD (e.g. insomnia, diminished concentration, and anhedonia) could account for the comorbidity (Brady, Killeen, Brewerton, & Lucerini, 2000; Wright et al., 2011). Specifically, a negative emotionality trait in both PTSD and depression could be a contributor to the co-occurrence (Post et al., 2016; Post et al., 2011). Other researchers have argued that co-occurring PTSD and depression is a single traumatic stress construct (Elhai et al., 2011; O'Donnell, Creamer, & Pattison, 2004).

In spite of the overlap among PTSD and depressive symptoms, there are distinct biological profiles associated with PTSD versus depression (Yehuda, 1998). For example, PTSD has been consistently linked to low levels of cortisol (Sherin & Nemeroff, 2011; Yehuda & LeDoux, 2007), whereas elevated cortisol levels have been reported in depression (Adam et al., 2010). Since cortisol is anti-inflammatory and immunosuppressant (McEwen, 2003), the low level of cortisol in PTSD results in inflammation and chronic pain (Papadopoulos & Cleare, 2012; Riva, Mork, Westgaard, Ro, & Lundberg, 2010; Wingenfeld et al., 2008). Depression is associated with changes in prefrontal cortex volume (Kong et al., 2013) and hippocampus (Kiy et al., 2011), which both result in emotional and cognitive aspects of pain (Bushnell, Čeko, & Low, 2013; Covey et al., 2000). Further investigation is still needed to assess the pathways by which depressive symptoms as well as PTSD symptoms mediate the relationship between abuse and chronic pain. Research is also needed to tease out the differences between

depressive and PTSD symptoms in terms of their mediation effects between the severity of abuse experiences and chronic pain.

Social Support

The health of abused women is shaped by their resources, including perceptions of social support from family members and/or friends (Barrera, 1986). The distinction between family members' support and friends' support is important, because there is evidence that they function differently and various populations depend on diverse sources of support (Kim, Sherman, & Taylor, 2008; Procidano & Heller, 1983).

The experience of IPV decreases women's social support, because abusers intentionally isolate women (Refaeli, Levy, Ben-Porat, Dekel, & Itzhaky, 2016) and women may distance themselves from their social networks due to the feeling of shame, humiliation, and guilt (Constantino & Bricker, 1997; LaViolette & Barnett, 2013). Family members and friends might help in different ways, such as providing emotional support, shelter, resources, and connections with formal resources (Ford-Gilboe, Varcoe, Wuest, & Merritt-Gray, 2010). Women's perceptions of social support have been negatively associated with a wide range of health problems, including symptoms of PTSD (Bradley, Schwartz, & Kaslow, 2005; Samuels-Dennis, Bailey, Killian, Ray, 2013) and depression (Chuang, Cattoi, Camacho, Dyer, & Weisman, 2012; Ridings et al., 2016). In the context of child abuse, a negative relationship between child abuse and perceived social support in adulthood has been supported (Horan & Widom, 2015; Seeds, Harkness, & Quilty, 2010). Lack of social support as a result of child abuse has also been linked to the development of health problems among women (Schumm, Briggs-Phillips, & Hobfoll, 2006).

Furthermore, social support mediates the relationship between severity of abuse and health problems, such that higher levels of abuse erodes social support, resulting in poorer health. Specifically, social support has been found to mediate the relationship between abuse experiences and symptoms of PTSD (Glass, Perrin, Campbell, & Soeken, 2007; Vranceanu, Hobfoll, & Johnson, 2007), depression (Beeble, Bybee, Sullivan, & Adams, 2009; Sperry & Widom, 2013), somatic complaints (Herrenkohl et al., 2016), and general mental and physical health (Ford-Gilboe et al., 2009). However, some studies have failed to find support for mediation (Guruge et al., 2012; Lee, Pomeroy, & Bohman, 2007). The role of social support in mediating the impact of abuse on chronic pain has not been examined.

Therefore, this study addresses the need to better understand the relationships among severity of wife abuse (IPV), child abuse, perceived social support, PTSD symptoms, depressive symptoms, and chronic pain severity by testing a conceptual model which explains how abuse severity leads to chronic pain among Saudi women. The study has the potential to enhance the understanding of the distinct role of both PTSD and depressive symptoms in mediating the impact of abuse on chronic pain. The knowledge from this study is essential for recognizing how Saudi women respond to the abuse experiences in comparison to women in Western countries. Most importantly, study findings could shed light on essential windows of opportunity for interventions to diminish the effects of abuse on women's chronic pain.

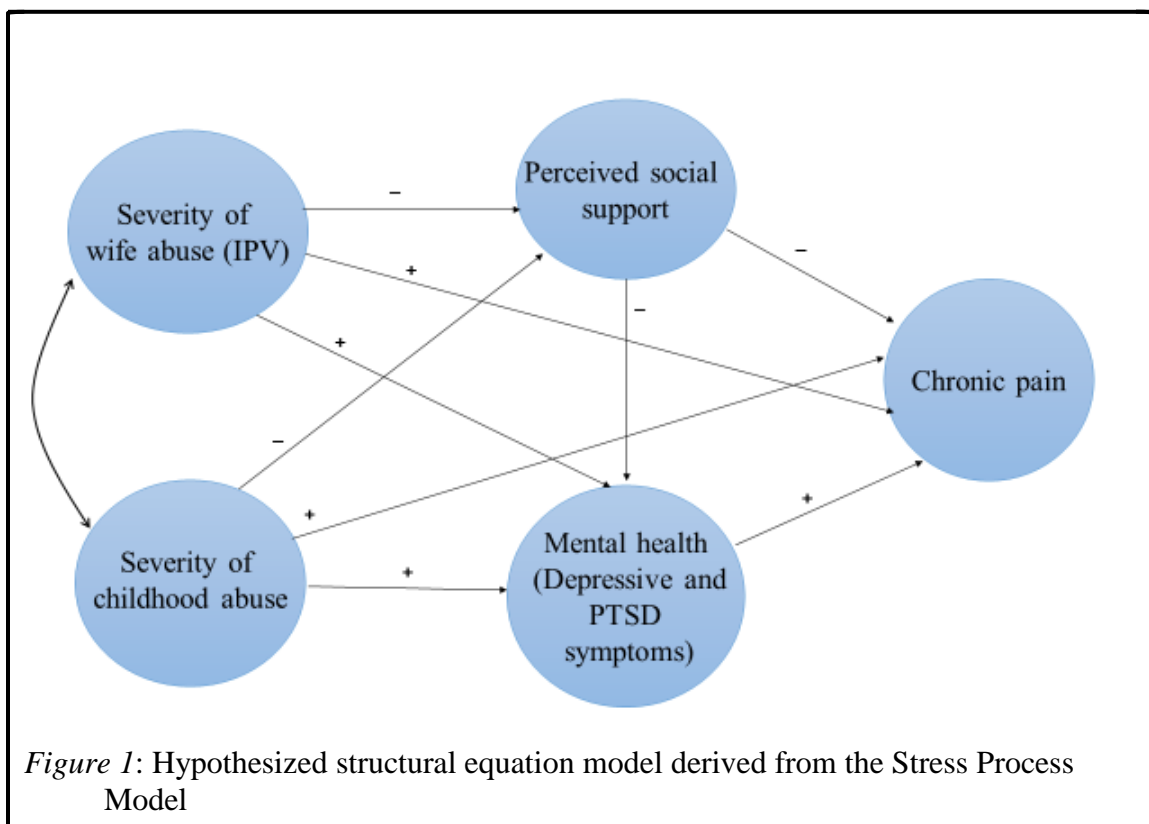
Theoretical and Hypothesized Model

The conceptual model underlying this study is based on the Stress Process Model (SPM), which addresses how chronic stress impacts health and factors that mediate this

process (Pearlin, Menaghan, Lieberman, & Mullan, 1981). SPM includes three core concepts: stressors, stress mediators, and health outcomes. A stressor is an enduring or recurrent problem that originates in the person's life and social context, such as interpersonal conflict (Pearlin, 1989; 1995). Stress mediators are resources that increase or decrease as a result of exposure to stressors and, in turn, exert effects on individual health (Pearlin, 1999; Pearlin et al., 1989). Outcomes in the SPM are conceptualized as the manifestations of the impact of the stressor on individual health (Pearlin, 1989; Pearlin et al., 1997).

The conceptualized model that explains the impacts of child abuse and IPV on chronic pain was hypothesized (Figure 1). In the model, severity of both wife abuse and child abuse would exert a direct positive effect on women's mental health problems (PTSD and depressive symptoms) and chronic pain severity and a negative effect on perceived social support. Perceived family support would exert a direct negative effect on women's mental health problems (PTSD and depressive symptoms) and chronic pain severity and also mediate the relationships between both severity of wife abuse and child abuse and women's health outcomes, such that more severe wife abuse and child abuse decrease women's perceived family support leading to more health problems.

Furthermore, mental health (PTSD and depressive symptoms) would mediate the relationships between severity of child abuse and wife abuse and chronic pain severity. Since PTSD and depressive symptoms are different reactions to traumatic events, the conceptual model was analyzed two times with a different mental health variable. In model 1, mental health is operationalized as PTSD symptoms, while in model 2, mental health is operationalized as depressive symptoms.



Method

Design

A cross-sectional, predictive study was conducted to test the hypothesized models (Figure 1) among Saudi women. The cross-sectional approach is appropriate as a first step in model testing. The predictive design is appropriate to determine the impact of abuse exposure on Saudi women, because it helps to develop and test a model, where information from one or more predictors can be used to predict the phenomena of interest (Pedhazur & Pedhazur-Schmelkin, 1991).

Setting

Nine primary health care centers served as the study sites. Eight of these centers were operated by the Ministry of Health (MOH) and serve Saudi nationals and non-Saudis in different parts of Dammam, the capital of the Eastern Province. One center,

located in the capital city Riyadh, was operated by the Ministry of the National Guard Health Affairs (MNGHA) and served military personnel and their dependents, Saudi and non-Saudi employees and dependents of the MNGHA and its affiliated university, King Saud bin Abdulaziz University for Health Sciences, and research center, the King Abdullah International Medical Research Center. These centers provide free curative, preventive, promotive and rehabilitation services including maternal and child health, immunizations, management of chronic diseases (e.g. hypertension and diabetes), provision of essential drugs, and health education. Most centers have dental clinics, X-ray equipment, and on site laboratories.

Sample

A convenience sample of 299 married Saudi women, who were between the ages of 18 and 64 years, and had experienced wife abuse in the past 12 months was recruited between June and August 2015 as they presented for health care for themselves or for their children. Women were asked by the staff if they were interested in participating in a women's health study. Those who agreed to participate were screened for eligibility by the researcher in a private room. Exposure to wife abuse was confirmed using the Arabic version of the *Abuse Assessment Screen* (AAS; Parker & McFarlane, 1991) which included four items capturing physical abuse, forced sex, fear of partner, and experiences of coercive control. At least one affirmative response on the AAS items was considered positive for wife abuse. The PHC centers were gender segregated, but if husbands were waiting outside, women were considered ineligible in order to avoid increasing their risk of harm or conflict with their husbands. Women's children over the age of two were not allowed to attend the interview, because at this age, their cognitive abilities would allow

them to understand the nature of the discussion. They also can form short complete sentences with 2 to 4 words and most of the time their speech can be understood by others (Centers for Disease Control and Prevention, 2014).

The sample size was based on the use of structural equation modeling (SEM) for the statistical analysis. According to Kline (2011), 200 is the minimum sample size to test simple models using SEM, with more complex models requiring larger samples to produce stable estimate and, therefore, more accurate results (Ullman, 2006). In order to reach this number, 774 women were screened for wife abuse and 311 (40.2%) of those screened had a positive result. Non-eligible women were thanked for their interest in the study. Six of 311 women who screened positive for abuse were not willing to participate, resulting in 305 (98% of those eligible) women who agreed to participate. Eligible women were provided with a verbal description of the study, invited to participate, and asked to sign the consent. Six cases were excluded from the study, as four cases had missing data ranging from 20.7% to 71.4% on main variables and two cases answered 'never' to all items on the measure of abuse used in this study, despite having screened positive for IPV based on the AAS. Thus, the total sample for the study was 299.

In terms of the sample's demographic characteristics (Table 1), the mean age of participants was 36.1 years ($SD= 10.20$, range 18–64). Although all women screened positive for wife abuse, only 31.4% of women reported that they believed that their husbands were abusive. The vast majority of women (92.3%) were mothers. Women's educational backgrounds varied; 10.7% were unable to read and write, 30.1% had completed elementary school, 29.1% had completed high school, and 21.4% had earned a university/college degree. Only 22.7% of women were employed and the mean of their

personal income was 1,702 Saudi Riyal (SR) (\$589 Canadian) per month ($SD= 3,522$ SR). Women's total household monthly incomes ranged from 0 to 53,000 SR (\$0 to \$18,550 Canadian) per month with a mean 9,455 SR (\$3,309 Canadian) ($SD= SR 7,324$). However, 5.6% of women did not know their husband's income.

Table 1: *Profile of Demographic Characteristics of the Sample (N=299).*

Characteristics	Range	Mean	SD	% (n)
Age	18-64	36.1	10.20	-
Years of Marriage	0.08- 45	15.0	11.227	-
Polygamous Marriages	-	-	-	18.7 (56)
Mothers	-	-	-	92.3 (276)
Number of children	0-14	4.23	3.021	-
Duration of wife abuse (Years)	0.08-45	11.4	9.985	-
Believed Husbands Abusive	-	-	-	31.8 (95)
Unable to read and write	-	-	-	10.7 (32)
Formal Education				
Elementary school	-	-	-	30.1 (90)
High school	-	-	-	29.1 (87)
Diploma	-	-	-	2.7 (8)
University degree	-	-	-	21.4 (64)
Monthly total household income (SR) ¹	0-53,000	9,455	7,324	-
Monthly women's income (SR) ²	0-23,000	1,702	3,522	-
Employed	-	-	-	22.7 (68)

¹ Monthly total household income in CAD (range: 0-18,550; mean: 3,309; SD: 2,563).

² Monthly women's income in CAD (range: 0-8,050; mean: 595; SD: 1,232).

Study Procedures

Women who were eligible and interested in participating signed a written consent before data collection began. The consent was read to illiterate women and they were

asked to provide a thumb print to indicate consent. Data were collected using structured interviews (SI) in Arabic by the researcher and seven Research Assistants (RAs) who received standardized training in all study protocols to promote consistency in the data collection process and to reduce risks to women's safety. The SIs consisted of standardized self-reported measures and survey questions designed to elicit information about women's experiences of wife abuse, health, resources, and demographic characteristics. The interviews took, on average, 20 to 40 minutes to complete and were conducted in a private room at the primary health care center. During and at the end of the interview, a debriefing was conducted with each woman using a standard protocol (Appendix L). Safety guidelines (Appendix K) were also used to guide the interactions with women. Each woman received a gift certificate of 50 SR (\$16 Canadian) from a local grocery store as a token of appreciation.

Ethics approval was obtained from the Research Ethics Board at Western University and Institutional Review Board (IRB) for both Ministry of Health and King Abdullah International Medical Research Center (KAIMRC) /MNGHA in Saudi Arabia prior to recruitment.

Measurement

Data were collected using six established self-report measures, each of which has good evidence of reliability and validity, along with survey questions to gather demographic information. All measures were originally created and tested by English; for the purpose of the study, Arabic versions of each scale were used.

Wife abuse (IPV) severity. In this study, a 27-item Arabic version of the Composite Abuse Scale (see Chapter Five) was used to measure Severity of Wife Abuse.

The Original 30-item Composite Abuse Scale is a self-report measure of IPV experiences among women developed by Hegarty and Colleagues (Hegarty, Bush, & Sheehan, 2005). On the CAS, women are asked to rate how often in the past 12 months they experienced abusive actions on a 6-point likert scale (ranging from 0 = *never* to 5 = *daily*). The total CAS score can be computed by summing responses on the 30 items, where a score of 7 or higher has been used as the criterion for exposure to IPV. The CAS can also be used to compute scores for four dimensions of abuse: Severe Combined Abuse, Emotional Abuse, Physical Abuse, and Harassment (Hegarty, Sheehan, & Schonfeld, 1999). The CAS was originally validated (Hegarty et al., 1999) and psychometrically tested with a clinical population of 1836 general practice patients (Hegarty et al., 2005). The CAS has been used to identify IPV among clinical populations in different countries, such as Australia (Gartland, Hemphill, Hegarty, & Brown, 2011), Canada (MacMillan et al., 2009), Russia (Lokhmatkina, Kuznetsova, & Feder, 2010), and the Netherlands (Prosman, Jansen, Lo Fo Wong, & Lagro-Janssen, 2011). Among the previous studies, the CAS has demonstrated internal reliability, with a Cronbach's alpha of .90 or more for each sub-scale (Hegarty et al., 1999; Hegarty et al., 2005).

The Arabic version of the CAS was adapted and translated from the English version using a multi-method approach and initially tested with 718 Saudi women living in the UK, although reliability and validity were not reported (Alhabib, Feder, & Horwood, 2013). The Arabic CAS retains the same format as the original CAS, and includes 29 of 30 items; one sexual abuse item (*puts foreign objects in my vagina*) was removed because it was seen as inappropriate to the culture and intrusive for Saudi women (Alhabib et al., 2013). In this study, we examined the factor structure of Arabic

CAS using confirmatory factor analysis (CFA) and exploratory factor analysis (EFA), and estimated its reliability, in order to determine whether it was appropriate for our use. As reported elsewhere (see Chapter Five for more details), our results from the CFA did not support the original four-factor structure (i.e. severe combined abuse, physical abuse, emotional abuse, and harassment) proposed by Hegarty. Subsequently, results of an EFA revealed that the item pool reliably distinguished four different types of abuse (physical abuse, verbal abuse, sexual abuse and controlling behavior). Based on EFA results and theoretical considerations, two items were dropped from the scale leaving 27 items. Internal consistency reliability of the total score was .903, with subscales demonstrating excellent to good internal consistency ($\alpha = .78$ to $.91$). Based on these results, the manifest variable severity of wife abuse was measured in this study using the total score on the Arabic CAS.

Severity of child abuse. The Arabic version of the Childhood Trauma Questionnaire (CTQ; Al-Zahrani, 2003) was used in this study to measure severity of child abuse. The CTQ (Bernstein & Fink, 1998) is a 28-item self-report measure that provides brief screening for histories of abuse along five dimensions (i.e. emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect). Participants are asked to indicate the frequency with which each event was experienced on a 5-point likert scale (1 = *never true*, 3 = *sometimes*, 5 = *very often true*). On each subscale, scores range from 5 to 25 with higher scores indicating greater severity. Cut-off scores for CTQ can be used to classify the abuse as “none to minimal,” “low to moderate,” “moderate to severe,” and “severe to extreme”. The original 28-item CTQ was tested and validated with a sample of 1,978 adults and adolescents (Bernstein et al. 2003).

The CTQ has demonstrated strong reliability among adults with substance abuse problems, adolescent psychiatric inpatients (Bernstein & Stein, 1998), African American patients at public urban hospitals (Heim et al., 2009), street youth (Forde, Baron, Scher, & Stein, 2012), and women exposed to IPV (Lang, Stein, Kennedy, & Foy, 2004; Wuest et al., 2009). Among these samples, Cronbach's alpha was excellent for each of the abuse subscales: physical abuse (.81 to .99), emotional abuse (.83 to .98), and sexual abuse (.93 to .95) (Bernstein & Fink, 1998; Forde et al., 2012; Heim et al., 2009; Lang et al., 2004; Wuest et al., 2009).

The CTQ was translated into the Arabic language and pilot tested with a sample of 40 Arab graduate students living in Great Britain (Al-Zahrani, 2003). As a result of pilot testing, Al-Zahrani changed the five items related to sexual abuse to one indirect question about sexual abuse. This Arabic version has been used in one Saudi population study (Al-Zahrani, 2003), and with university students in Egypt (Mansour et al., 2010), and adolescents who attended a drug dependence clinic at a neuropsychiatry center (El-Sawy & Abd Elhay, 2011). However, the previous studies suggest that it is reliable measure without reporting the Cronbach's alpha values. Since sexual abuse is still an important indicator of severity of child abuse, these five items were included in the current study after translating them to Arabic using an integrated method to produce a linguistic and cultural translation (Sidani, Guruge, Miranda, Ford-Gilboe, & Varcoe, 2010). A three-step process was followed: a) assessing conceptual equivalence of concepts, b) forward translation of items from English to Arabic, and, c) testing the items for comprehension and cultural validity with the target population. A pilot study (Appendix A) was conducted to test the full scale with a sample of 30 Arab immigrant

women living in Canada. In the pilot study, Cronbach's alpha was 0.87 for emotional abuse, 0.92 for physical abuse, and 0.92 for sexual abuse. In this current study, Cronbach's alpha was 0.78 for emotional abuse, 0.85 for physical abuse, and 0.85 for sexual abuse. The latent variable severity of child abuse was constructed using total scores for three subscales (physical, emotional, and sexual abuse) from the CTQ.

PTSD symptoms. The PTSD Checklist-Civilian version (PCL-C; Weathers, Litz, Huska, & Keane, 1994) was used to measure PTSD symptoms after translating it to Arabic and evaluating its psychometric properties in preparation for this study (See Chapter Four). The PCL-C is a 17-item self-report rating scale that corresponds to the three *DSM-IV* symptom clusters of re-experiencing, avoidance/numbing, and hyperarousal. Respondents are asked how much they have been bothered by each PTSD symptom in the past month on a 5-point severity scale (ranging from 1= *not at all* to 5= *extremely*). Responses to all items are summed to yield a continuous measure of PTSD symptom severity (range 17-85); subscale scores for each cluster of PTSD symptoms can be computed using the same method. The most common screening cut-point used to determine the presence of PTSD is a score of 35 (Harrington & Newman, 2007). Weathers et al. (1993) provided initial psychometric data on the PCL including convergent validity, test-retest reliability, and internal consistency. It is now the most commonly utilized and extensively validated PTSD instrument (McDonald & Calhoun, 2010; Wilkins, Lang & Norman, 2011). It has proven suitable for use in varied populations of people who have experienced trauma, including women with substance use disorders (Harrington & Newman, 2007), adults with child abuse experiences (Balsam, Lehavot, Beadnell, & Circo, 2010), and women who have experienced IPV

(Kelly, 2010). All reported Cronbach's alphas coefficients are above 0.75 for the total score.

For this study, an Arabic version of the PCL-C was developed using the approach previously described and pilot testing with a sample of 30 Arab women (Appendix A). In the pilot study, the Cronbach's alpha was 0.96 for the total scale, 0.94 for re-experiencing, 0.88 for avoidance, and 0.84 for hyperarousal. To determine if the Arabic PCL-C was suitable to use in the current study, its reliability was estimated and its validity (concurrent and construct validity) was also assessed (see Chapter Four for more details). As reported elsewhere, the Cronbach's alpha was 0.89 for the total score, 0.81 for re-experiencing, 0.76 for avoidance, and 0.76 for hyperarousal, suggesting adequate internal consistency and concurrent validity was supported. However, the CFA did not replicate the three-factor structure of DSM-IV (reexperiencing, avoidance/emotional numbing, and hyperarousal) but supported a five-factor Dysphoric Arousal model (Elhai et al., 2011) – reexperiencing, avoidance, numbing, dysphoric arousal, and anxious arousal (see Chapter Four for more details). Thus, the manifest variable PTSD symptoms was measured using the total the PCL-C score.

Depressive symptoms. The Arabic version of 20-item Center for Epidemiologic Studies-Depression (CESD) Scale (Ghubash, Daradkeh, Al Naseri, Al Bloushi, & Al Daheri, 2000) was used. The CESD (Comstock & Helsing, 1976; Radloff, 1977) is a self-report scale designed to measure depressive symptoms in the general population and reflects the DSM-IV criteria for depression. It asks respondents to rate the frequency of symptoms in the past week on a 4-point likert scale ranging from *rarely or none* (1) to *most of the time* (4). The standard cut-off point that has typically been recommended for

presence of depression is 16 (Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). The CESD's reliability, content validity, criterion validity, construct validity were initially assessed using household interview surveys and in psychiatric settings. The validity and factor structure were similar across various demographic characteristics (Radloff, 1977; Radloff & Locke, 1986). The CESD is among the most widely used self-report measures of depressive symptoms (Van Dam, & Earleywine, 2011). It has established reliability and validity with different populations, including female survivors of IPV (Ford-Gilboe et al., 2009; Jarvis, Gordon, & Novaco, 2005) and low-income women attending primary care clinics (Thomas, Jones, Scarinci, Mehan, & Brantley, 2001) ($\alpha = 0.74$ to 0.95).

The Arabic version of CESD which was used in this study was translated into Arabic using a forward and back-translation process by Ghubash et al. (2000). Keeping the original format and response options, the reliability and validity of the Arabic CESD were assessed in a sample of 450 women from United Arab Emirates (Ghubash et al., 2000). The internal consistency reliability coefficient was 0.88. Kazarian and Taher (2010) also assessed the Arabic version of the CESD with a community sample of 435 men and women from Lebanon and found the internal consistency was 0.84. In the current study, the Cronbach's alpha was 0.86. The manifest variable of depressive symptoms was measured using the total CESD score.

Chronic pain. To measure chronic pain severity, the 7-item Chronic Pain Grade (CPG) scale (Von Korff, Ormel, Keefe & Dworkin, 1992) was used after translating it to Arabic (Appendix A). The CPG scale measures chronic pain in the past six months. Participants were asked to rate their current pain intensity, the worst pain intensity, and

average pain intensity in past 6 months on a scale from 0 (*no pain*) to 10 (*pain as bad as it could be*). Participants also rated pain-related interference with daily activities, change in ability to take part in activities, and change in ability to work on a scale from 0 to 10. Disability days were measured by self-report of number of days lost from usual activities as a result of pain in the previous 6 months. Using standard scoring, the pain intensity score (0–100) was calculated by multiplying the mean of the three intensity items by 10. Similarly, the pain disability score (0–100) was calculated by multiplying the mean of the three disability items by 10. Four grades of chronic pain can also be computed using the total number of disability points and pain intensity scores: Grade 0 (pain free); Grade I (low disability, low intensity); Grade II (low disability, high intensity); Grade III (high disability, moderately limiting); Grade IV (high disability, severely limiting). The CPG has demonstrated strong reliability and validity among primary care patients experiencing back pain (n=1213) and headache (n=779) (Von Korff et al.), in the general population (Mallen, Peat, Thomas, & Croft, 2005), and among women who have experienced IPV (Tiwari et al., 2013; Wuest et al., 2009). Among these samples, Cronbach's alpha has ranged from .81 to 0.84 for the pain intensity and from 0.89 to 0.93 for the pain disability, indicating good to excellent internal consistency.

Like the PCL-C, an Arabic version of the CPG scale was developed through cultural adaptation and translation of the scale, and pilot testing using the same approach (Appendix A). Cronbach's alpha in the pilot test was 0.93 for pain intensity and 0.97 for pain disability. In the current study, internal consistency was 0.87 for the pain intensity scale and 0.96 for the pain disability scale, suggesting adequate internal consistency. In this analysis, the latent variable chronic pain was constructed using the pain intensity and

pain-related disability scores to capture the severity of chronic pain. Pain intensity alone does not differentiate higher levels of pain; pain-related disability is as important as intensity in identifying the highest levels of chronic pain (Von Korff et al., 1992).

Perceived family support. The Arabic version of family support subscale of the Multidimensional Scale of Perceived Social Support (Ramaswamy, Aroian, & Templin, 2009) was used to measure perceived family support. The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item summated rating scale that measures of the adequacy of perceived social support from family (4 items), friends (4 items) and a significant other (4 items). All items are rated on a 7-point scale (ranging from 1= *very strongly disagree* to 7= *very strongly agree*). Items are summed to produce total and subscale scores, where higher scores indicate greater perceived adequacy of social support. Originally, the reliability and construct validity were assessed with a sample of 275 male and female university students (Zimet et al., 1988) and Cronbach's alphas of 0.88, 0.91, 0.87, and 0.87 for total score, significant other subscale, family subscale, and friend subscale, respectively. There is also evidence of reliability and validity for the MSPSS in different samples, including Russian immigrants (Ponizovsky & Ritsner, 2004) and women who have experienced IPV (Bradley, Schwart, & Kaslow, 2005). Among the previous samples, the MSPSS has demonstrated excellent internal consistency, with alpha ranges from 0.86 to 0.94 for the total and 0.61 to 0.95 for the subscales (Bradley et al., 2005; Canty-Mitchell & Zimet, 2000; Edward et al., 2004).

The Arabic version of MSPSS was created by Ramaswamy et al. (2009) using forward and backward translation. The Arabic version uses a 3-point rating scale

(*disagree, neutral, agree*) instead of 7-point rating scale, because the researchers and the cultural experts agreed that Arabs are less likely to use middle response categories when presented with this many options. Reliability and validity of the scale was assessed with a sample of Arab immigrant women in US (Aroian, Templin, & Ramaswamy, 2010). The internal consistency reliability was acceptable (all Cronbach's alpha were ≥ 0.73). In this current study, the internal consistency of the family support subscale was 0.85. Only perceived family support was use in this analysis, because support from family works differently than support from friends (Procidano & Heller, 1983). In Arab culture, family relationships are seen to be of greater importance than relationships with friends (Carolan, Bagherinia, Juhari, Himelright, & Mouton-Sanders, 2000; Haj-Yahia, 1994). Arab women are likely to turn to their family (e.g. mothers or sisters) when they experiencing marital issues (Pines & Zaidman, 2003). In Saudi society, family is the main provider of social support (Harb, 2015).

Analysis

Structural equation modeling (SEM) was used to simultaneously test the hypothesized model. SEM is an advanced regression technique that examines the set of variables in a theorized model to determine if the model is consistent with the data obtained from the sample (Byrne, 2001). It estimates the relationships between the observed and latent variables (the measurement model), including both direct and indirect, or mediating, effects (Kline, 2011).

Prior to the main analysis, the data were inspected to identify the extent and magnitude of missing data. Missing data occurred at a low frequency across all scales (range from 0% to 0.7%). Little's test (Little, 1988) was conducted in SPSS to assess the

pattern of missing data. Since the p-value for Little's test was not significant, the assumption of data missing completely at random (MCAR) was confirmed. Therefore, missing values on scales were imputed using the woman's average score on that scale. This approach is appropriate because people are usually internally consistent across a set of items that form a scale; furthermore, this strategy allowed all cases to be retained for analysis (Polit, 2010).

A histogram for each study variable was inspected to assess the normality. Descriptive statistics were also computed for all manifest variables and indicators of latent variables (Table 2), including skewness and kurtosis in order to assess normality of the distributions. According to Kline (2011), the data is non-normal if the skewness index (SI) > 3 and kurtosis index (KI) > 10 . Univariate distributions were inspected and showed that the multivariate normality were not met. The correlations among the variables were inspected and suggested no evidence of multicollinearity (Table 3).

Using MPLUS version 7 (Muthen & Muthen, 2012), the robust maximum likelihood (RML) method was used to correct the standard errors for some non-normality in the data. In the analysis, severity of child abuse and severity of wife abuse were allowed to be correlated. Scaling for each of the latent variables was achieved by assigning a metric to one of the indicators (reference indicator). The analysis was run twice with different indicators of mental health problems in each model PTSD symptoms in Model 1 and depressive symptoms in Model 2, because PTSD and depressive symptoms are distinct reactions to traumatic events and they might have different mediating roles. Various indices were used to determine if the model fit the data thereby supporting the plausibility of the proposed relationships (Kline, 2011). The fit indices

used were root-mean-squared error of approximation (RMSEA), standardized root mean squared residual (SRMR), comparative fit index (CFI), Tucker–Lewis Index (TLI), and chi-squared. The critical values for assessing model fit are CFI and TLI= .90 indicating adequate fit and $\geq .95$ indicating of excellent fit; and RMSEA =.08 indicating adequate fit and $\leq .06$ indicating excellent fit (Hu & Bentler, 1999).

Table 2: *Descriptive statistics for manifest variables assumptions and indicators of latent variables (N = 299)*

Variable	Measure	Mean	SD	Range	Sk	Ku	%Above cut score ¹
Severity of wife abuse	CAS	26.44	19.69	1-127	1.42	2.64	88.3% ²
Severity of child abuse	CTQ-emotional	9.18	4.48	5-25	1.20	0.88	45.5% (low to severe)
	CTQ-physical	7.48	4.08	5-25	2.12	4.48	30.4% (low to severe)
	CTQ-sexual	6.85	3.59	5-25	2.67	7.76	38.5% (low to severe)
Perceived family support	MSPSS-family	8.45	2.82	4-12	-0.27	-1.22	-
PTSD symptoms	PCL-C	46.72	15.50	17-82	0.05	-0.75	75.6%
Depressive symptoms	CESD	27.63	13.15	0-60	0.18	-0.68	78.6%
Chronic pain severity	CPG_intensity	52.39	27.62	0-100	-0.41	-0.61	48.2% (high disability) ³
	CPG_disability	41.74	31.80	0-100	0.125	-1.16	

¹ Provided for scales where cut scores have been developed.

² A cut-off total score of 7 was used, although this may conservatively underestimate IPV as 27 items were included on the Arabic CAS versus 30 on the original scale.

³ Pain grade 3 or 4, consistent with high disability chronic pain

CAS= Composite Abuse Scale; CTQ = Childhood Trauma Questionnaire; MSPSS = Multidimensional Scale of Perceived Social Support; PCL-C= PTSD checklist-Civilian version; CESD= Center for Epidemiologic Studies-Depression; CPG = Chronic Pain Grade; Sk =Skewness Index; Ku =Kurtosis Index.

Table 3: *Pearson Correlation among Measured Variables*

Measured Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. CAS	1.00								
2. CTQ-emotional	0.186	1.00							
3. CTQ-physical	0.241	0.629	1.00						
4. CTQ-sexual	0.117	0.270	0.399	1.00					
5. MSPSS-family	-0.273	-0.143	-0.284	-0.152	1.00				
6. PCL-C	0.449	0.360	0.288	0.130	-0.280	1.00			
7. CESD	0.509	0.277	0.274	0.104	-0.369	0.748	1.00		
8. CPG_intensity	0.260	0.176	0.168	0.004	-0.136	0.466	0.461	1.00	
9. CPG_disability	0.268	0.109	0.212	0.116	-0.171	0.430	0.459	0.667	1.00

CAS= Composite Abuse Scale; CTQ = Childhood Trauma Questionnaire; MSPSS = Multidimensional Scale of Perceived Social Support; PCL-C= PTSD Checklist-Civilian version; CESD= Center for Epidemiologic Studies-Depression; CPG = Chronic Pain Grade.

Chi-squared tests the discrepancies between the population covariance and those predicted by the hypothesized model. Thus, the non-significant test means that the model is consistent with the covariance data, but is highly dependent on sample size (Kline, 2011). Modification indices that were theoretically reasonable and greater than four in value were assessed. Standardized path coefficients (β) were used to enable comparisons within models whereas unstandardized coefficients (B) were also utilized in order to compare the strength of paths across the models (Kline, 2011). The standardized path coefficients specify the “pure” associations between the variables, controlling for other variables in the model.

Results

Measurement Model

Standardized factor loadings for the latent measures (child abuse and chronic pain) were statistically significant and of substantial magnitude (0.411–0.965) (see Figure

2 and 3), providing support for the measurement model. There were no unreasonable parameter estimates, such as negative variances or correlations greater than one, and all appeared to be in the expected range of values.

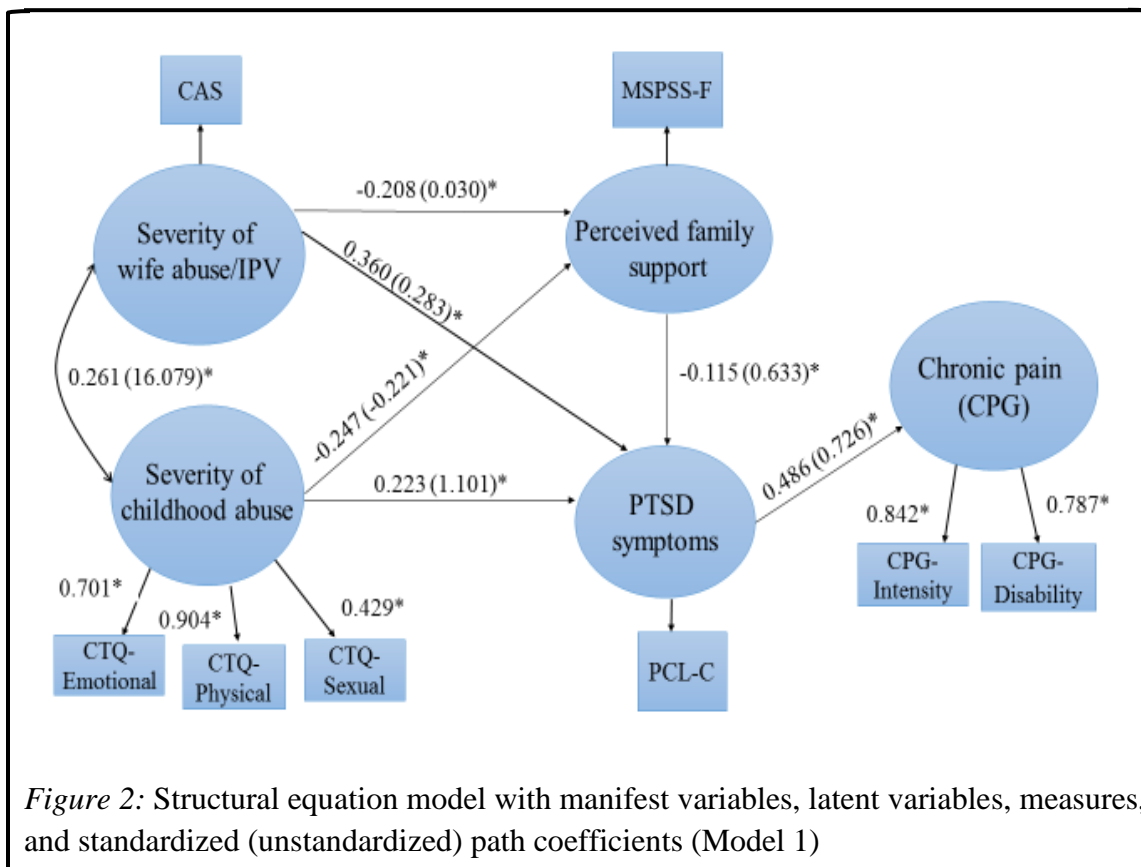
Model Fit

From SEM, Model 1 (using PTSD symptoms) was found to adequately fit the data, $\chi^2(13, N = 299) = 37.581$ ($P=0.003$), CFI = 0.957, TLI = 0.907, RMSEA = 0.080 (90% CI: .051–.110), SRMR= 0.027. Model 2 (using depressive symptoms) was an excellent fit with the data, $\chi^2(13, N = 299) = 22.653$ ($P=0.046$), CFI = 0.983, TLI = 0.964, RMSEA = 0.050 (90% CI: .007–.083), SRMR= 0.022. The modification indices for both models were below 4 and theoretically unreasonable. Therefore, both proposed models accounted adequately for the observed co-variances among the variables, supporting the decision to retain the models without modification.

Direct versus Indirect Effects of Wife Abuse and Child Abuse

Model 1 accounted for 27.2% of the variance in PTSD symptoms and 31.6% of the variance in chronic pain severity. Standardized regression coefficients (β) and unstandardized coefficients (B) for each path are shown in Figure 2 and Table 4. Both wife abuse severity ($\beta = 0.360$, $P < 0.05$) and child abuse severity ($\beta = 0.223$, $P < 0.05$) had a significant positive direct effect on PTSD symptoms. Wife abuse severity as well as child abuse severity did not exert direct significant effect on chronic pain, but PTSD symptoms was a significant mediator of the effects of both wife abuse severity ($\beta = 0.175$, $P < 0.05$) and child abuse severity ($\beta = 0.108$, $P < 0.05$) on chronic pain. In addition, the direct negative effects of both wife abuse severity ($\beta = -0.208$, $P < 0.05$) and child abuse severity ($\beta = -0.247$, $P < 0.05$) on perceived family support were observed,

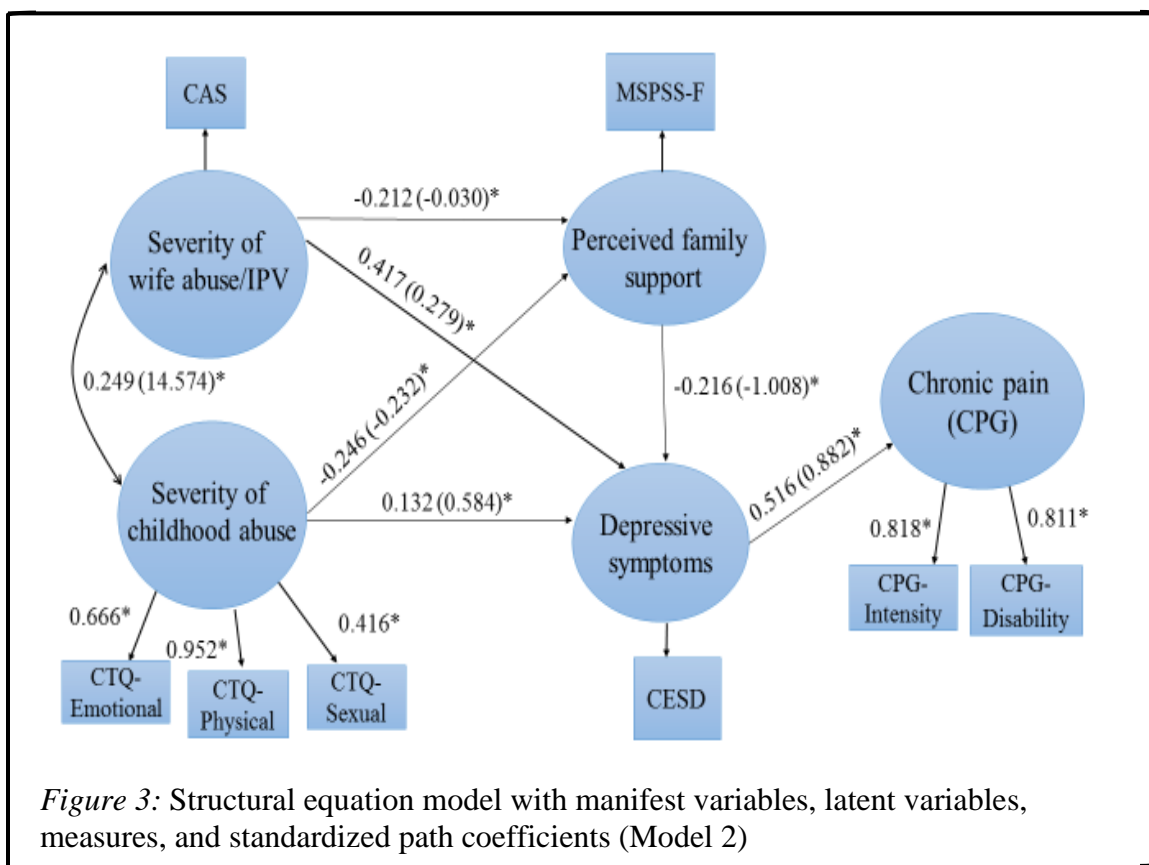
and perceived family support had a significant negative direct effect on PTSD symptoms ($\beta = -0.115, P < 0.05$). Yet, perceived family support was not a significant mediator of the effects of either wife abuse or child abuse on PTSD symptoms or chronic pain.



* $P < 0.05$. CPG = Chronic Pain Grade; CTQ = Childhood Trauma Questionnaire; IPV = intimate partner violence; MSPSS-F = Multidimensional Scale of Perceived Social Support-Family subscale; PTSD = posttraumatic stress disorder; PCL-C = PTSD Checklist Civilian version.

Model 2 accounted for 33.2% of the variance in depressive symptoms and 32.4% of the variance in chronic pain severity. Standardized and unstandardized coefficients for each path are shown in Figure 3 and Table 5. Both wife abuse severity ($\beta = 0.417, P < 0.05$) and child abuse severity ($\beta = 0.132, P < 0.05$) had a significant positive direct effect on depressive symptoms. In addition, depressive symptoms was a significant mediator of the effects of both wife abuse severity ($\beta = 0.216, P < 0.05$) and child abuse severity ($\beta =$

0.068, $P < 0.05$) on chronic pain. While perceived family support had a significant negative direct effect on depressive symptoms ($\beta = -0.216$, $P < 0.05$), it was a significant mediator of the effects of both wife abuse ($\beta = 0.046$, $P < 0.05$) and child abuse ($\beta = 0.053$, $P < 0.05$) on depressive symptoms.



* $P < 0.05$. CPG = Chronic Pain Grade; CTQ = Childhood Trauma Questionnaire; IPV = intimate partner violence; MSPSS-F= Multidimensional Scale of Perceived Social Support-Family subscale; CESD= Center for Epidemiologic Studies-Depression.

Comparing Model 1 and Model 2

In comparing the two models, PTSD and depressive symptoms operate in similar ways as mediators, but with different magnitude. Both PTSD ($B = 0.206$, $P < 0.05$) and depressive symptoms ($B = 0.426$, $P < 0.05$) were significant mediators of the effects of wife abuse severity on chronic pain severity, but depressive symptoms had a stronger mediating effect than PTSD symptoms. Similarly, PTSD ($B = 0.800$, $P < 0.05$) and

Table 4: *Effect estimates for Model 1*

Structural paths	Unstandardized coefficients	Standardized coefficients	SE	Critical ratio	P-Value
Direct effects					
Wife abuse → PTSD symptoms	0.283	0.360	0.045	7.922	0.000*
Wife abuse → Perceived support	-0.030	-0.208	0.063	-3.334	0.001*
Wife abuse → Chronic pain	0.123	0.105	0.061	1.707	0.088
Child abuse → PTSD symptoms	1.101	0.223	0.075	2.961	0.003*
Child abuse → Perceived support	-0.221	-0.247	0.063	-3.921	0.000*
Child abuse → Chronic pain	0.411	0.056	0.071	0.785	0.432
Perceived support → PTSD symptom	-0.633	-0.115	0.054	-2.122	0.034*
Perceived support → Chronic pain	-0.060	-0.007	0.059	-0.123	0.902
PTSD symptoms → Chronic pain	0.726	0.486	0.064	7.592	0.000*
Indirect effects					
Wife abuse → Chronic pain	0.206	0.175	0.032	5.457	0.000*
Child abuse → Chronic pain	0.888	0.108	0.040	2.704	0.004*
Wife abuse → PTSD symptoms	0.019	0.024	0.014	1.758	0.079
Child abuse → PTSD symptoms	0.140	0.028	0.015	1.834	0.067

* $P < 0.05$

Table 5: *Effect estimates for Model 2*

Structural paths	Unstandardized coefficients	Standardized coefficients	SE	Critical ratio	P-Value
Direct effects					
Wife abuse → Depressive symptoms	0.279	0.417	0.049	8.526	0.000*
Wife abuse → Perceived support	-0.030	-0.212	0.062	-3.394	0.001*
Wife abuse → Chronic pain	0.078	0.069	0.064	1.069	0.285
Child abuse → Depressive symptoms	0.584	0.132	0.060	2.223	0.026*
Child abuse → Perceived support	-0.232	-0.246	0.059	-4.192	0.000*
Child abuse → Chronic pain	0.704	0.093	0.067	1.393	0.164
Perceived support → Depressive symptom	-1.008	-0.216	0.052	-4.121	0.000*
Perceived support → Chronic pain	-0.472	-0.059	0.061	-0.976	0.329
Depressive symptoms → Chronic pain	0.882	0.516	0.065	7.918	0.000*
Indirect effects					
Wife abuse → Chronic pain	0.246	0.216	0.039	5.575	0.000*
Child abuse → Chronic pain	0.515	0.068	0.032	2.130	0.033*
Wife abuse → Depressive symptoms	0.031	0.046	0.018	2.608	0.009*
Child abuse → Depressive symptoms	0.234	0.053	0.019	2.844	0.004*

* $P < 0.05$

depressive symptoms ($B = 0.515, P < 0.05$) mediated the relationship between child abuse severity and chronic pain severity, yet PTSD symptoms had stronger mediating effect than depressive symptoms. Both PTSD and depressive symptoms exerted almost a similar magnitude of direct effects on chronic pain ($B = 0.726; B = 0.882$, respectively), although the effect of depressive symptoms was slightly stronger.

Discussion

To our knowledge, this is the first study assessing whether PTSD and depressive symptoms function in a different or similar way as mediators in context of IPV. As well, it provides the first evidence on the mechanisms by which abuse leads to chronic pain in understudied population (i.e. Saudi women). The study has important findings. Both PTSD and depressive symptoms fully mediated the effects of wife abuse (IPV) severity and child abuse severity on chronic pain in similar ways. Perceived family support partially mediated the relationship between abuse severity and depressive symptoms, but did not mediate the effect of abuse on PTSD symptoms. Lifetime abuse (wife abuse and child abuse) is an important contributor to Saudi women's mental health symptoms, and subsequently to chronic pain.

The study sheds light on the necessity of understanding the relationships among the severity of abuse, mental health, and chronic pain in clinical settings. Assessing for abuse experiences as well as identifying and treating PTSD and depression are crucial to decrease the likelihood of experiencing chronic pain among wife abuse (IPV) and child abuse survivors. The study suggests that abuse severity impacts women's mental health which, in turn, leads to chronic pain, a finding that supports the interaction among physiologic, psychological, and social factors in the production of chronic pain. These

findings highlight the interconnection between mind and body and the need to consider this interconnection in the clinical practice.

The finding that PTSD and depressive symptoms *mediated* the relationship between abuse severity and chronic pain is consistent with the existing literature. Among various populations, both PTSD (Pacella, Hruska, & Delahanty, 2013; Scioli-Salter et al., 2015) and depression (Katon, Sullivan, & Walker, 2001) are strongly associated with chronic pain and function as mediators of the association between trauma and pain (de Civita, Bernatsky, & Dobkin, 2004; Power et al., 2014; Smith et al., 2011). Among IPV survivors, chronic pain is associated with depressive symptoms (Humphreys, Cooper, & Miaskowski, 2010) and PTSD symptoms (Wuest et al., 2008). In addition, PTSD symptoms (Wuest et al., 2009; Wuest et al., 2010; Tiwari et al., 2013) and depressive symptoms (Wuest et al., 2010) mediate the impact of IPV and child abuse on chronic pain. The relationship of PTSD and depression with chronic pain could be explained by neuro-hormones, neurotransmitters, and inflammatory changes as well as brain alterations that are involved in PTSD and depression which also play role in pain pathophysiology (Sachs-Ericsson, Kendall-Tackett, & Hernandez, 2007; Scioli-Salter et al., 2015). Thus, there is an agreement between this finding and the literature with two exceptions. Tiwari et al. did not find a mediating effect of depressive symptoms and Humphreys et al. found that only depression, not PTSD, predicted chronic pain, although neither study included child abuse in their analyses. Including cumulative experiences of abuse, such as child abuse with IPV in the multivariate analysis might provide a more complex understanding of the actual pathway explaining how women develop health outcomes as a consequence of experience of abuse (Campbell et al., 2008).

This current study contributes to the body of the literature by assessing whether PTSD and depressive symptoms operate in different or similar ways. While both PTSD and depressive symptoms are separate reactions to traumatic events (Madianos et al., 2011; Post et al., 2016), the present study shows that they mediate this relationship in similar ways but with different magnitudes. Depressive symptoms was a stronger mediator of the impact of wife abuse on chronic pain than was PTSD symptoms. In contrast, PTSD symptoms had stronger mediating effect on the relationship between child abuse severity and chronic pain than depressive symptoms. These findings are noteworthy because they begin to disentangle the extent to which PTSD and depressive symptoms separately influence chronic pain among survivors of child abuse and IPV. The study highlights the independent effects of PTSD and depressive symptoms on the experience of chronic pain, which contradicts the common assumption that PTSD and depressive symptoms are single traumatic stress construct (Elhai et al., 2011; O'Donnell et al., 2004). In the current sample, 74.2% of women had symptoms consistent with both PTSD and depression based on the cut-scores for PTSD and depression measures. It is probable that the comorbidity of PTSD and depression may explain why PTSD and depressive symptoms operate in a similar way.

The findings that IPV severity as well as child abuse severity have significant direct effects on PTSD and depressive symptoms is consistent with abundant evidence (e.g. Golding, 1999; Burns, Jackson, & Harding, 2010). However, this study's findings make a unique contribution, because the majority of previous studies are at the descriptive level, did not assess the pathways between abuse and mental health, and included only one abuse experiences (IPV or child abuse). Furthermore, the study extends

the evidence to be inclusive of Saudi women, a population for whom the health consequences of abuse have not been previously studied.

In this study, perceived family support mediated the relationship between abuse and depressive symptoms, but did not mediate the effect of abuse on PTSD symptoms. This finding reinforces the idea that women's social resources are crucial in managing their depressive symptoms. It also suggests that different mechanisms may underlie the direct and indirect impacts of abuse on PTSD symptoms versus depressive symptoms. Specifically, perceived family support is central in depressive symptoms, but not in PTSD symptoms. This could be explained by the fact that PTSD symptoms are linked directly to trauma severity (Feder et al., 2013; Gold et al., 2000), while depressive symptoms can be linked to social resources (Lakey & Orehek, 2011). Moreover, PTSD symptoms often go unrecognized by family members and health care providers (Bonugli, Brackley, Williams, & lesser, 2010), whereas depressive symptoms are better recognized by as a legitimate health issue, resulting in more likelihood that family will offer help and support. For example, 51.6% of Canadian women who left abusive partners had symptoms consistent with PTSD but only 7.1% had a diagnosis (Wuest et al., 2008).

In addition, the findings showed that the effect of wife abuse is stronger on women's mental health (PTSD and depressive symptoms) in comparison with child abuse effects. This finding is congruent with the evidence that shows how child abuse results in an intense inflammatory response (Gouin, Glaser, Malarkey, Beversdorf, & Kiecolt-Glaser, 2012) and hyperactivity of the central nervous system when subsequent stress occurs in adulthood, leading to neurobiological vulnerability for the development of stress-related psychiatric disorders in adulthood (Heim et al., 2000). It emphasizes the

importance of including child abuse when studying the health outcomes of IPV, since women often experience cumulative abuse (Davies et al., 2015; Scott-Storey, 2011). The relative and unique impact of each abuse experience (IPV and child abuse) could be used to refine treatment interventions for abuse survivors. In addition, the current study findings offer further support for how both distal and proximal abuse experiences could to enduring long-term health issues.

In this current sample, 75.6% and 78.6% of women has symptoms above the cut-off scores for PTSD and depression measures, respectively. In addition, 48.2% of women had high disability related to chronic pain. These findings confirm the high prevalence of mental health and chronic pain issues among Saudi abused women. Since there is an absence of appropriate understandings of wife abuse and its health consequences in Saudi public discourse, documenting the physical and mental health outcomes of it is important. The study findings contribute to recognizing that gender-based violence is a public health issue. Therefore, the finding underscores the importance of case-finding (asking only women with symptoms) for wife abuse in the Saudi health care system. As recommended by World Health Organization (2013), identification of women who have experienced IPV could be achieved by using a case-finding approach which suggests that women who are suspected to be victims of abuse are assessed. Health care professions in Saudi Arabia require an understanding of the link between abuse experience and mental and physical health problems to avoid ineffective treatment. If physicians identify abuse survivors and provide them with suitable care, it might help to improve women's quality of life. Psychological support such as counselling needs to be provided in the health care settings. The finding also holds salient implications for services and policies directed at

improving Saudi women's health. In addition, intervention programs should be appropriately designed to improve Saudi women's health by increasing women social support and reducing the negative impacts of abuse. Social service providers also need to be aware that abused women might experience mental and physical health issues.

Interpreting the present results should be considered in light of some limitations. This study is limited by reliance on retrospective self-reports of child abuse and wife abuse experiences. Yet, self-report measures are often subject to social desirability and people are more likely to minimize their abuse experiences rather than make them up (Brewin, Andrews, & Gotlib, 1993; Heim, Newport, Mletzko, Miller, & Nemeroff, 2008). Thus, it is possible that women experienced more severe abuse than reported, particularly in the Saudi context where wife abuse is a taboo issue. Given the present sample size and the complexity of the model, a few essential factors, including women's demographic characteristics, personal resources, medications and/or current medical conditions which might influence health outcomes were not controlled for and/or included in the tested model. In the future, a model that integrates biophysical measures needs to be developed and tested. For example, the inclusion of cortisol that is an important biomarker for PTSD (Yehuda et al., 2009) and depression (Plenis, Konieczna, Olędzka, Kowalski, & Bączek, 2011) would benefit future research. As well, measuring pro-inflammatory cytokine and prostaglandin synthesis could provide objective evidence of experiencing pain because they both influence inflammation (Ricciotti & FitzGerald, 2011) and the sensitivity of pain receptors (Bai et al., 2014; Kirkby Shaw, Rausch-Derra, & Rhodes, 2016). In addition, the cross-sectional study design limits the ability to infer causation to statistical prediction; longitudinal models are needed to more fully test these

and other models. Yet, asking about severity of IPV history strengthens the evidence for causal associations between abuse and health outcomes. Although a convenience sampling was used, women were recruited from nine primary health cares which are located in different neighborhood with diverse socioeconomic status, allowing for greater generalizability of the study findings.

Conclusion

The current study provides evidence through multivariate analysis that both PTSD and depressive symptoms mediate the impacts of wife abuse (IPV) severity and child abuse severity on chronic pain severity. PTSD and depressive symptoms operate independently as mediators, but in similar ways and with different magnitudes. In addition, perceived family support mediated the relationship between abuse severity and depressive symptoms. These findings underscore the importance of attending to lifetime abuse and depressive and PTSD symptoms, as well as women's social resources, in chronic pain management and treatment.

References

- Adam, E. K., Doane, L. D., Zinbarg, R. E., Mineka, S., Craske, M. G., & Griffith, J. W. (2010). Prospective prediction of major depressive disorder from cortisol awakening responses in adolescence. *Psychoneuroendocrinology*, *35*(6), 921-931.
- Afifi, Z.E., Al-Muhaideb, N.S., Hadish, N.F., Ismail, F.I., & Al-Qeamy, F.M. (2011). Domestic violence and its impact on married women's health in Eastern Saudi Arabia. *Saudi Medical Journal*, *32*, 612-620.
- Al-Faris, H., Al-Faris, H., Al-Faris, E., Nagma, N., Jamal, A., AlQuaiz, A. M., ... & Feeley, P. (2013). A history of childhood maltreatment among spouses predicts violence against women. *American Saudi Medicine*, *33*(6), 595-600.
- Alhabib, S. (2011). *The Prevalence and Experiences of Intimate Partner Violence among Saudi Women in the UK*. (Unpublished doctoral dissertation). University of Bristol, UK.
- Alhabib, S., Feder, G., & Horwood, J. (2013). English to Arabic translation of the composite abuse scale (CAS): A multi-method approach. *PLoS One*, *8*(9) doi:<http://dx.doi.org/10.1371/journal.pone.0075244>.
- Al-Zahrani, A. H. (2003). *Child Abuse & Neglect Its Forms, Causes and Consequences In The Kingdom of Saudi Arabia*. (Unpublished doctoral dissertation). The Edinburgh University.
- Anda, R., Tietjen, G., Schulman, E., Felitti, V., & Croft, J. (2010). Adverse childhood experiences and frequent headaches in adults. *Headache: The Journal of Head and Face Pain*, *50*(9), 1473-1481.

- Aroian, K., Templin, T. N., & Ramaswamy, V. (2010). Adaptation and psychometric evaluation of the Multidimensional Scale of Perceived Social Support for Arab immigrant women. *Health care for women international, 31*(2), 153-169.
- Bai, Y. M., Chiou, W. F., Su, T. P., Li, C. T., & Chen, M. H. (2014). Pro-inflammatory cytokine associated with somatic and pain symptoms in depression. *Journal of affective disorders, 155*, 28-34.
- Bair, M. J., Robinson, R. L., Katon, W., & Kroenke, K. (2003). Depression and pain comorbidity: A literature review. *Archives of Internal Medicine, 163*(20), 2433-45.
- Balsam, K. F., Levahot, K., Beadnell, B., & Circo, E. (2010). Childhood abuse and mental health indicators among ethnically diverse lesbian, gay, and bisexual adults. *Journal of Consulting and Clinical Psychology, 78* (4), 459–468.
- Barnawi, F. H. (2015). Prevalence and risk factors of domestic violence against women attending a primary care center in Riyadh, Saudi Arabia. *Journal of Interpersonal Violence, 1*–16. doi: 10.1177/0886260515587669.
- Barrera, M., Jr. (1986). Distinctions between social support concepts, measures and models. *American Journal of Community Psychology, 14*, 413–445.
DOI:10.1007/BF00922627
- Beeble, M.L., Bybee, D., Sullivan, C.M., & Adams, A.E. (2009) Main, mediating, and moderating effects of social support on the well-being of survivors of intimate partner violence across 2 years. *Journal of Consulting and Clinical Psychology, 77*(4), 718–729.

- Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., ... & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child abuse & neglect, 27*(2), 169-190.
- Bernstein, D., & Fink, L. (1998). *Childhood Trauma Questionnaire: A Retrospective Self-Report*. New York: The Psychological Corporation.
- Bohlaiga, A., Al-Kakhli, B., Al-Mattar, H., Al-Bahrani, I., Al-Lowaim, K., Al-Baqshi, M., & Alnasir, F. (2014). *Journal of General Practice, 2*(2).
doi.org/10.4172/2329-9126.1000150.
- Bradley, R., Schwartz, A. C., & Kaslow, N. J. (2005). Posttraumatic stress disorder symptoms among low-income, African American women with a history of intimate partner violence and suicidal behaviors: Self-esteem, social support, and religious coping. *Journal of Traumatic Stress, 18* (6), 685–696.
- Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *Journal of Clinical Psychiatry, 61*, 22-32.
- Brewin, C.R., Andrews, B., & Gotlib, I.H. (1993). Psychopathology and early experience: A reappraisal of retrospective reports. *Psychology Bull, 113* (1), 82-98.
- Burns, E. E., Jackson, J. L., & Harding, H. G. (2010). Child maltreatment, emotion regulation, and posttraumatic stress: The impact of emotional abuse. *Journal of Aggression, Maltreatment & Trauma, 19*(8), 801-819.
- Bushnell, M. C., Čeko, M., & Low, L. A. (2013). Cognitive and emotional control of pain and its disruption in chronic pain. *Nature Reviews Neuroscience, 14*(7), 502-511.

- Byrne, B.M. (2001). *Structural Equation Modeling with AMOS. Basic Concepts, Applications, and Programming*. Mahwah: Lawrence Erlbaum Associates.
- Campbell, J. C. (2002). Health consequences of intimate partner violence. *Lancet*, 359(9314), 1331–1337.
- Campbell, J., Jones, A. S., Dienemann, J., Kub, J., Schollenberger, J., O'Campo, P., ... & Wynne, C. (2002). Intimate partner violence and physical health consequences. *Archives of internal medicine*, 162(10), 1157-1163.
- Campbell, R., Greeson, M. R., Bybee, D., & Raja, S. (2008). The co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment: a mediational model of posttraumatic stress disorder and physical health outcomes. *Journal of consulting and clinical psychology*, 76(2), 194.
- Canty-Mitchell, J., & Zimet, G. D. (2000). Psychometric properties of the Multidimensional Scale of Perceived Social Support in urban adolescents. *American Journal of Community Psychology*, 28(3), 391–400.
- Carolan, M. T., Bagherinia, G., Juhari, R., Himelright, J., & Mouton-Sanders, M. (2000). Contemporary Muslim families: Research and practice. *Contemporary Family Therapy*, 22(1), 67-79.
- Carroll, L. J., Cassidy, J. D., & Côté, P. (2004). Depression as a risk factor for onset of an episode of troublesome neck and low back pain. *Pain*, 107(1), 134-139.
doi:10.1016/j.pain.2003.10.009
- Cerulli, C., Poleshuck, E., Raimondi, C., Veale, S., & Chin, N. (2012). 'What Fresh Hell Is This?' Victims of Intimate Partner Violence Describe Their Experiences of

Abuse, Pain, and Depression. *Journal Of Family Violence*, 27(8), 773-781.
doi:10.1007/s10896-012-9469-6.

- Chapman, C. R., Tuckett, R. P., & Song, C. W. (2008). Pain and stress in a systems perspective: reciprocal neural, endocrine, and immune interactions. *The Journal of Pain*, 9(2), 122-145.
- Chiu, S., Niles, J. K., Webber, M. P., Zeig-Owens, R., Gustave, J., Lee, R., ... & Prezant, D. J. (2011). Evaluating risk factors and possible mediation effects in posttraumatic depression and posttraumatic stress disorder comorbidity. *Public Health Reports*, 126(2), 201-209.
- Chuang, C. H., Cattoi, A. L., d, Camacho, F., Dyer, A., & Weisman, C. S. (2012). Longitudinal association of intimate partner violence and depressive symptoms. *Mental Health In Family Medicine*, 9(2), 107-114.
- Coker, A. L., Smith, P. H., & Fadden, M. K. (2005). Intimate partner violence and disabilities among women attending family practice clinics. *Journal of Women's Health*, 14(9), 829-838.
- Coker, A. L., Smith, P. H., Bethea, L., King, M. R., & McKeown, R. E. (2000). Physical health consequences of physical and psychological intimate partner violence. *Archives of family medicine*, 9(5), 451.
- Comstock, G. W., & Helsing, K. J. (1976). Symptoms of depression in two communities. *Psychological Medicine*, 6(4), 551-563.
- Constantino, R. E., & Bricker, P. L. (1997). Social support, stress, and depression among battered women in the judicial setting. *Journal of the American Psychiatric Nurses Association*, 3(3), 81-88.

- Covey, W. C., Ignatowski, T. A., Knight, P. R., & Spengler, R. N. (2000). Brain-derived TNF α : Involvement in neuroplastic changes implicated in the conscious perception of persistent pain. *Brain research*, 859(1), 113-122.
- Davies, L., Ford-Gilboe, M., Willson, A., Varcoe, C., Wuest, J., Campbell, J., & Scott-Storey, K. (2015). Patterns of cumulative abuse among female survivors of intimate partner violence: Links to women's health and socioeconomic status. *Violence Against Women*, 21(1), 30-48.
- Davis, D. A., Luecken, L. J., & Zautra, A. J. (2005). Are reports of childhood abuse related to the experience of chronic pain in adulthood?: A meta-analytic review of the literature. *The Clinical journal of pain*, 21(5), 398-405.
- De Civita, M., Bernatsky, S., & Dobkin, P. (2004). The role of depression in mediating the association between sexual abuse history and pain in women with fibromyalgia. *Psychology, health & medicine*, 9(4), 450-455.
- Dillon, G., Hussain, R., Loxton, D., & Rahman, S. (2013). Mental and physical health and intimate partner violence against women: a review of the literature. *International journal of family medicine*, 2013.
- Dima, A. L., Gillanders, D. T., & Power, M. J. (2013). Dynamic pain–emotion relations in chronic pain: A theoretical review of moderation studies. *Health Psychology Review*, 7(1), S185-S252. doi:10.1080/17437199.2011.569937
- Edwards, L. M. (2004). Measuring perceived social support in Mexican American youth: Psychometric properties of the Multidimensional Scale of Perceived Social Support. *Hispanic Journal of Behavioral Sciences*, 26 (2), 187-194. doi: 10.1177/0739986304264374.

- Eldoseri, H.M., Tufts, K.A., Zhang, Q., & Fish, J.N. (2014). Adverse health effects of spousal violence among women attending Saudi Arabian primary health-care clinics. *Eastern Mediterranean Health Journal*, 20 (11), 717-725.
- Elhai, J. D., de Francisco Carvalho, L., Miguel, F. K., Palmieri, P. A., Primi, R., & Frueh, B. C. (2011). Testing whether posttraumatic stress disorder and major depressive disorder are similar or unique constructs. *Journal of Anxiety Disorders*, 25(3), 404-410.
- El-Sawy, H. & Abd Elhay, M. (2011). Characteristics of substance dependence in adolescents with and without a history of trauma. *Middle East Current Psychiatry*, 18(4), 211–216.
- Feder, A., Ahmad, S., Lee, E. J., Morgan, J. E., Singh, R., Smith, B. W., ... & Charney, D. S. (2013). Coping and PTSD symptoms in Pakistani earthquake survivors: Purpose in life, religious coping and social support. *Journal of Affective Disorders*, 147(1), 156-163.
- Ferreira-Valente, M. A., Pais-Ribeiro, J. L., & Jensen, M. P. (2014). Associations between psychosocial factors and pain intensity, physical functioning, and psychological functioning in patients with chronic pain: A cross-cultural comparison. *The Clinical journal of pain*, 30(8), 713-723.
- Fields, H. L. (2000). Pain modulation: Expectation, opioid analgesia and virtual pain. *Progress in brain research*, 122, 245-253.
- Forde, D. R., Baron, S. W., Scher, C. D., & Stein, M. B. (2012). Factor structure and reliability of the childhood trauma questionnaire and prevalence estimates of

trauma for male and female street youth. *Journal of interpersonal violence*, 27(2), 364-379.

Ford-Gilboe, M., Varcoe, C., Noh, M., Wuest, J., Hammerton, J., Alhalal, E., & Burnett, C. (2015). Patterns and predictors of service use among women who have recently left abusive partners. *Journal of Family Violence*, 30(4), 419-431.

DOI:10.1007/s10896-015-9688-8 (Open Access).

Ford-Gilboe, M., Varcoe, C., Wuest, J., & Merritt-Gray, M. (2010). Intimate partner violence and nursing practice. In J. Humphreys, & J. C. Campbell (Eds.) *Family Violence and Nursing Practice*. Springer Publishing Company.

Ford-Gilboe, M., Wuest, J., Varcoe, C., Davies, L., Merritt-Gray, M., Campbell, J., & Wilk, P. (2009). Modelling the effects of intimate partner violence and access to resources on women's health in the early years after leaving an abusive partner. *Social science & medicine*, 68(6), 1021-1029.

Gangapersad, J., Brouwer, A., Kurilsky, S., Willis, E., & Shaw, L. (2010). A scoping review of the knowledge base in WORK that addresses work related outcomes for individuals with chronic pain. *Work: Journal of Prevention, Assessment & Rehabilitation*, 35(3), 283-299.

Gartland, D., Hemphill, S.A., Hegarty, K., & Brown, S.J. (2011). Intimate partner violence during pregnancy and the first year postpartum in an Australian pregnancy cohort study. *Maternal Child Health Journal*, 15(5), 570-578.

Gaskin, D. J., & Richard, P. (2012). The economic costs of pain in the United States. *The Journal of Pain*, 13(8), 715-724.

- Gatchel, R. J. (2004). Comorbidity of chronic pain and mental health: The biopsychosocial perspective. *American Psychologist, 59*(8), 792–794.
- Gatchel, R. J., McGeary, D. D., McGeary, C. A., & Lippe, B. (2014). Interdisciplinary chronic pain management: Past, present, and future. *American Psychologist, 69*(2), 119-130
- Gatchel, R. J., Peng, Y. B., Peters, M. L., Fuchs, P. N., & Turk, D. C. (2007). The biopsychosocial approach to chronic pain: scientific advances and future directions. *Psychological bulletin, 133*(4), 581.
- Ghosh, S. N., & Sharma, T. (2010). Life events stress and chronic pain. *Psychological Studies, 55*(1), 46-51.
- Ghubash, R., Daradkeh, T. K., Al Naseri, K. S., Al Bloushi, N. A., & Al Daheri, A. M. (2000). The Performance of the Center for Epidemiologic Study Depression Scale (CES-D) in an Arab female community. *International Journal Social Psychiatry, 46* (4), 241-249. doi: 10.1177/002076400004600402.
- Glass, N., Perrin, N., Campbell, J. C., & Soeken, K. (2007). The protective role of tangible support on posttraumatic stress disorder symptoms in urban women survivors of violence. *Research in Nursing and Health, 30*, 558-568.
- Gold, P. B., Engdahl, B. E., Eberly, R. E., Blake, R. J., Page, W. F., & Frueh, B. C. (2000). Trauma exposure, resilience, social support, and PTSD construct validity among former prisoners of war. *Social psychiatry and psychiatric epidemiology, 35*(1), 36-42.

- Gormsen, L., Rosenberg, R., Bach, F. W., & Jensen, T. S. (2010). Depression, anxiety, health-related quality of life and pain in patients with chronic fibromyalgia and neuropathic pain. *European Journal of Pain, 14*(2), 127-e1.
- Gouin, J.P., Glaser, R., Malarkey, W.B., Beversdorf, D.Q., & Kiecolt-Glaser, J.K. (2012). Childhood abuse and inflammatory responses to daily stressors. *Annals of Behavioral Medicine, 44*(2), 287–292. DOI 10.1007/s12160-012-9386-1
- Guruge, S., Ford-Gilboe, M., Samuels-Dennis, J., Varcoe, C., Wilk, P., & Wuest, J. (2012). Rethinking social support and conflict: lessons from a study of women who have separated from abusive partners. *Nursing research and practice, 738905-10*. doi:10.1155/2012/738905
- Hannibal, K. E., & Bishop, M. D. (2014). Chronic stress, cortisol dysfunction, and pain: A psychoneuroendocrine rationale for stress management in pain rehabilitation. *Physical therapy, 94*(12), 1816-1825.
- Harb, C. (2015). The Arab region: Cultures, values, and identities. In M. M. Amer & G. H. Awad (Eds.) *Handbook of Arab American Psychology*. New York, Routledge.
- Harkness, E. F., Macfarlane, G. J., Nahit, E., Silman, A. J., & McBeth, J. (2004). Mechanical injury and psychosocial factors in the work place predict the onset of widespread body pain: A two-year prospective study among cohorts of newly employed workers. *Arthritis & Rheumatism, 50*(5), 1655-1664.
- Harrington, T., & Newman, E. (2007). The psychometric utility of two self-report measures of PTSD among women substance users. *Addictive Behaviors, 32*(12), 2788–2798.

- Hegarty, K., Bush, R., & Sheehan, M. (2005). The composite abuse scale: Further development and assessment of reliability and validity of a multidimensional partner abuse measure in clinical settings. *Violence and Victims, 20*(2), 529-547.
- Hegarty, K., Sheehan, M., & Schonfeld, C. (1999). A multidimensional definition of partner abuse: Development and preliminary validation of the Composite Abuse Scale. *Journal of Family Violence, 14*(4), 399-415.
- Heim, C., Bradley, B., Mletzko, T., Deveau, T., Musselman, D., Nemeroff, C., . . . Binder, E. (2009). Effect of childhood trauma on adult depression and neuroendocrine function: Sex-specific moderation by CRH receptor 1 gene. *Frontiers in Behavioral Neuroscience, 3*, 41. doi:10.3389/neuro.08.041.2009
- Heim, C., Ehler, U., Hanker, J.P., & Hellhammer, D.H. (1998). Abuse-related posttraumatic stress disorder and alterations of the hypothalamic-pituitary-adrenal axis in women with chronic pelvic pain. *Psychosomatic Medicine, 60*(3), 309–318.
- Heim, C., Newport, D. J., Mletzko, T., Miller, A. H., & Nemeroff, C. B. (2008). The link between childhood trauma and depression: insights from HPA axis studies in humans. *Psychoneuroendocrinology, 33*(6), 693-710.
- Herrenkohl, T. I., Jung, H., Klika, J. B., Mason, W. A., Brown, E. C., Leeb, R. T., & Herrenkohl, R. C. (2016). Mediating and moderating effects of social support in the study of child abuse and adult physical and mental health. *American Journal of Orthopsychiatry, 86*(5), 573-583.

- Horan, J. M., & Widom, C. S. (2015). Does age of onset of risk behaviors mediate the relationship between child abuse and neglect and outcomes in middle adulthood?. *Journal of youth and adolescence, 44*(3), 670-682.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal, 6*(1), 1-55.
- Humphreys, J., Cooper, B. A., & Miaskowski, C. (2010). Differences in depression, posttraumatic stress disorder, and lifetime trauma exposure in formerly abused women with mild versus moderate to severe chronic pain. *Journal of interpersonal violence, 25*(12), 2316-2338. doi:10.1177/0886260509354882
- Humphreys, J., Cooper, B. A., & Miaskowski, C. (2011). Occurrence, characteristics, and impact of chronic pain in formerly abused women. *Violence Against Women, 17*(10), 1327–1343.
- Institute of Medicine (2011). *Relieving pain in America A Blueprint for Transforming Prevention, Care, Education, and Research*. Washington.
- Jarvis, K.L., Gordon, E.E., & Novaco, R.W. (2005). Psychological distress of children and mothers in domestic violence emergency shelters. *Journal of Family Violence, 20*(6), 309-402.
- Katon, W., Sullivan, M., & Walker, E. (2001). Medical symptoms without identified pathology: Relationship to psychiatric disorders, childhood and adult trauma, and personality traits. *Annals of internal medicine, 134*(9 Part 2), 917-925.

- Kazarian, S.S., & Taher, D. (2010). Validation of the Arabic center for epidemiological studies depression (CES-D) scale in a Lebanese community sample. *European Journal of Psychology Assessment, 26* (1), 68–73.
- Kelly, U. (2010). Intimate partner violence, physical health, posttraumatic stress disorder, depression, and quality of life in Latinas. *Western Journal of Emergency Medicine, 11*(3).
- Kirkby Shaw, K., Rausch-Derra, L. C., & Rhodes, L. (2016). Grapiprant: An EP4 prostaglandin receptor antagonist and novel therapy for pain and inflammation. *Veterinary Medicine and Science, 2*(1), 3-9.
- Kiy, G., Lehmann, P., Hahn, H. K., Eling, P., Kastrup, A., & Hildebrandt, H. (2011). Decreased hippocampal volume, indirectly measured, is associated with depressive symptoms and consolidation deficits in multiple sclerosis. *Multiple Sclerosis Journal, 17*(9), 1088-1097.
- Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling. Third Edition*. New York: Guilford Press.
- Kong, L., Chen, K., Womer, F., Ren, L., Jiang, W., Cao, Y., & Blumberg, H. P. (2013). Functional connectivity between the amygdala and prefrontal cortex in medication-naive individuals with major depressive disorder. *Journal of psychiatry & neuroscience: JPN, 38*(6), 417.
- Koopman, C., Ismailji, T., Palesh, O., Gore-Felton, C., Narayanan, A., Saltzman, K. M., ... & McGarvey, E. L. (2007). Relationships of depression to child and adult abuse and bodily pain among women who have experienced intimate partner violence. *Journal of Interpersonal Violence, 22*(4), 438-455.

- Kowal, J., Wilson, K. G., McWilliams, L. A., Péloquin, K., & Duong, D. (2012). Self-perceived burden in chronic pain: Relevance, prevalence, and predictors. *PAIN®*, *153*(8), 1735-1741.
- Lagdon, S., Armour, C., & Stringer, M. (2014). Adult experience of mental health outcomes as a result of intimate partner violence victimisation: A systematic review. *European journal of psychotraumatology*, *5*.
- Lakey, B., & Orehek, E. (2011). Relational regulation theory: a new approach to explain the link between perceived social support and mental health. *Psychological review*, *118*(3), 482.
- Lang, A.J., Laffaye, C., Satz, L.E., McQuaid, J.R., Malcarne, V.L., Dresselhaus, T.R., & Stein, M.B. (2006). Relationships among childhood maltreatment, PTSD, and health in female veterans in primary care. *Child Abuse Neglect*, *30*, 1281–1292.
- Lang, A.J., Stein, M.B., Kennedy, C.M., & Foy, D.W. (2004). Adult psychopathology and intimate partner violence among survivors of childhood maltreatment. *Journal of Interpersonal Violence*, *19*(10), 1102-1118.
- LaViolette, A. D., & Barnett, O. W. (2013). *It could happen to anyone: Why battered women stay*. SAGE Publications, Incorporated.
- Lee, J., Pomeroy, E. C., & Bohman, T. M. (2007). Intimate partner violence and psychological health in a sample of Asian and Caucasian women: The roles of social support and coping. *Journal of Family Violence*, *22*(8), 709-720.
- Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198-1202.

- Lokhmatkina, N.V., Kuznetsova, O.Y., & Feder, G.S. (2010). Prevalence and associations of partner abuse in women attending Russian general practice. *Family Practice, 27*(6), 625-631.
- MacMillan, H. L., Wathen, C. N., Jamieson, E., Boyle, M. H., Shannon, H. S., Ford-Gilboe, M., . . . for the McMaster Violence Against Women Research Group. (2009). Screening for intimate partner violence in health care settings: A randomized trial. *Jama, 302*(5), 493-501. doi:10.1001/jama.2009.1089
- Madianos, M. G., Sarhan, A. L., & Koukia, E. (2011). Posttraumatic stress disorders comorbid with major depression in West Bank, Palestine: a general population cross sectional study. *The European Journal of Psychiatry, 25*(1), 19-31.
- Mallen, C., Peat, G., Thomas, E., & Croft, P. (2005). Severe disabling chronic pain in young adults: Prevalence from a population based postal survey in North Staffordshire. *BMC Musculoskeletal Disorders, 6*(1), 1.
- Mann, C. J. (2003). Observational research methods. Research design II: Cohort, cross sectional, and case-control studies. *Emergency Medicine Journal, 20*(1), 54-60.
- Mansour, K., Roshdy, E., Langdon, P.E., Daoud, O.A., El-Saadawy, M., Al-Zahrani, A., & Khashaba, A. (2010). Child abuse and its long-term consequences: An exploratory study on Egyptian university students. *The Arab Journal of Psychiatry, 21*(2), 137-163.
- McBeth, J., Chiu, Y. H., Silman, A. J., Ray, D., Morriss, R., Dickens, C., ... & Macfarlane, G. J. (2005). Hypothalamic-pituitary-adrenal stress axis function and the relationship with chronic widespread pain and its antecedents. *Arthritis research & therapy, 7*(5), 1.

- McEwen, B. S. (2000). Allostasis and allostatic load: implications for neuropsychopharmacology. *Neuropsychopharmacology*, 22(2), 108-124.
- McEwen, B. S. (2003). Interacting mediators of allostasis and allostatic load: towards an understanding of resilience in aging. *Metabolism*, 52, 10-16.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles: Muthén & Muthén.
- Nicolson, N. A., Davis, M. C., Kruszewski, D., & Zautra, A. J. (2010). Childhood maltreatment and diurnal cortisol patterns in women with chronic pain. *Psychosomatic medicine*, 72(5), 471-480.
- O'Donnell, M. L., Creamer, M., & Pattison, P. (2004). Posttraumatic stress disorder and depression following trauma: Understanding comorbidity. *American Journal of Psychiatry*, 161(8), 1390-1396.
- Outcalt, S. D., Kroenke, K., Krebs, E. E., Chumbler, N. R., Wu, J., Yu, Z., & Bair, M. J. (2015). Chronic pain and comorbid mental health conditions: Independent associations of posttraumatic stress disorder and depression with pain, disability, and quality of life. *Journal of Behavioral Medicine*, 38(3), 535-543.
doi:10.1007/s10865-015-9628-3
- Pacella, M. L., Hruska, B., & Delahanty, D. L. (2013). The physical health consequences of PTSD and PTSD symptoms: A meta-analytic review. *Journal of Anxiety Disorders*, 27(1), 33-46. doi:10.1016/j.janxdis.2012.08.004.
- Papadopoulos, A. S., & Cleare, A. J. (2012). Hypothalamic–pituitary–adrenal axis dysfunction in chronic fatigue syndrome. *Nature Reviews Endocrinology*, 8(1), 22-32.

- Parker, B., & McFarlane J. (1991). Nursing assessment of the battered pregnant woman. *American Journal of Maternal Child Nursing*, 16 (3), 161–164.
- Pasquale, M. K., Dufour, R., Schaaf, D., Reiners, A. T., Mardekian, J., Joshi, A. V., & Patel, N. C. (2014). Pain conditions ranked by healthcare costs for members of a national health plan. *Pain Practice*, 14(2), 117-131.
- Pearlin L. I. (1999). The stress process revisited. In *Handbook of the Sociology of Mental Health* (eds C. Aneshensel & J. Phelan), pp. 395–415. Kluwer Academic/Plenum, New York.
- Pearlin L.I. (1989). The sociological study of stress. *Journal of Health and Social Behavior*, 30(3), 241–256.
- Pearlin, L. I., Aneschensel, C. A., & LeBlanc, A. J. (1997). The forms and mechanisms of stress proliferation: the case of AIDS caregivers. *Journal of Health and Social Behavior*, 38(3), 223–236.
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, 22(4), 337-356.
- Pedhazur, E., & Pedhazur Schmelkin L. (1991). *Measurement, design, and analysis: An integrated approach*. Hillsdale, NJ: Lawrence Erlbaum.
- Pigeon, W. R., Cerulli, C., Richards, H., He, H., Perlis, M., & Caine, E. (2011). Sleep disturbances and their association with mental health among women exposed to intimate partner violence. *Journal of women's health*, 20(12), 1923-1929.
- Pines, A. M., & Zaidman, N. (2003). Gender, culture, and social support: A male–female, Israeli Jewish-Arab comparison. *Sex Roles*, 49(11-12), 571-586.

- Plenis, A., Konieczna, L., Olędzka, I., Kowalski, P., & Bączek, T. (2011). Simultaneous determination of urinary cortisol, cortisone and corticosterone in parachutists, depressed patients and healthy controls in view of biomedical and pharmacokinetic studies. *Molecular BioSystems*, 7(5), 1487-1500.
- Plichta, S. B. (2007). Interactions between victims of intimate partner violence against women and the health care system policy and practice implications. *Trauma, Violence, & Abuse*, 8(2), 226-239.
- Plichta, S.B. (2004). Intimate partner violence and physical health consequences: Policy and practice implications. *Journal of Interpersonal Violence*, 19(11), 1296–1323.
- Polit, D.F. (2010). *Statistics and Data Analysis for Nursing Research. Second Edition*. New Jersey: Pearson Education Inc. (pp. 365- 388).
- Ponizovsky, A.M., & Ritsner, M.S. (2004). Patterns of loneliness in an immigrant population. *Comprehensive Psychiatry*, 45(5), 408–414.
- Post, L. M., Feeny, N. C., Zoellner, L. A., & Connell, A. M. (2016). Post-traumatic stress disorder and depression co-occurrence: Structural relations among disorder constructs and trait and symptom dimensions. *Psychology and Psychotherapy: Theory, Research and Practice*, 89(4), 418-434.
- Post, L. M., Zoellner, L. A., Youngstrom, E., & Feeny, N. C. (2011). Understanding the relationship between co-occurring PTSD and MDD: Symptom severity and affect. *Journal of anxiety disorders*, 25(8), 1123-1130.
- Powers, A., Fani, N., Pallos, A., Stevens, J., Ressler, K. J., & Bradley, B. (2014). Childhood abuse and the experience of pain in adulthood: The mediating effects

- of PTSD and emotion dysregulation on pain levels and pain-related functional impairment. *Psychosomatics*, 55(5), 491-499. doi:10.1016/j.psych.2013.10.004
- Procidano, M. E., & Heller, K. (1983). Measures of perceived social support from friends and from family: Three validation studies. *American journal of community psychology*, 11(1), 1-24.
- Prosman, G.J., Jansen, S.J., Lo Fo Wong, S.H., & Lagro-Janssen, A.L. (2011). Prevalence of intimate partner violence among migrant and native women attending general practice and the association between intimate partner violence and depression. *Family Practice*, 28(3), 267-271.
- Przekop, P. (2015). *Conquer Chronic Pain: An Innovative Mind-body Approach*. Hazelden Publishing.
- Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385-401.
- Radloff, L. S., & Locke, B. Z. (1986). The community mental health assessment survey and the CES-D scale. *Community surveys of psychiatric disorders*, 4, 177-188.
- Ramaswamy, V., Aroian, K., & Templin, T. (2009). Adaptation and psychometric evaluation of the multidimensional scale of perceived social support for Arab American adolescents. *American Journal of Community Psychology*, 43 (1-2), 49-56.
- Refaeli, T., Levy, D., Ben-Porat, A., Dekel, R., & Itzhaki, H. (2016). Personal and environmental predictors of depression among victims of intimate partner violence comparison of immigrant and Israeli-born women. *Journal of interpersonal violence*, 0886260516651624.

- Ricciotti, E., & FitzGerald, G. A. (2011). Prostaglandins and inflammation. *Arteriosclerosis, thrombosis, and vascular biology, 31*(5), 986-1000.
- Riva, R., Mork, P. J., Westgaard, R. H., Rø, M., & Lundberg, U. (2010). Fibromyalgia syndrome is associated with hypocortisolism. *International journal of behavioral medicine, 17*(3), 223-233.
- Saastamoinen, P., Laaksonen, M., Leino-Arjas, P., & Lahelma, E. (2009). Psychosocial risk factors of pain among employees. *European Journal of Pain, 13*(1), 102-108.
- Sachs-Ericsson, N., Kendall-Tackett, K., Hernandez, A. (2007). Childhood abuse, chronic pain, and depression in the National Comorbidity Survey. *Child Abuse Neglect, 31*, 531-547.
- Schumm, J.A., Briggs-Phillips, M., & Hobfoll, S.E. (2006). Cumulative interpersonal traumas and social support as risk and resiliency factors in predicting PTSD and depression among inner-city women. *Journal of Traumatic Stress, 19*(6), 825–836.
- Scioli-Salter, E. R., Forman, D. E., Otis, J. D., Gregor, K., Valovski, I., & Rasmusson, A. M. (2015). The shared neuroanatomy and neurobiology of comorbid chronic pain and PTSD: Therapeutic implications. *The Clinical Journal of Pain, 31*(4), 363-374. doi:10.1097/AJP.0000000000000115
- Scott-Storey, K. (2011). Cumulative abuse: Do things add up? An evaluation of the conceptualization, operationalization, and methodological approaches in the study of the phenomenon of cumulative abuse. *Trauma, Violence, & Abuse, 12*(3), 135-155, 1524838011404253.

- Seeds, P.M., Harkness, K.L., & Quilty, L.C. (2010). Parental maltreatment, bullying, and adolescent depression: Evidence for the mediating role of perceived social support. *Journal of Clinical Child Adolescent Psychology, 39*(5), 681e92.
- Sherin, J. E., & Nemeroff, C. B. (2011). Post-traumatic stress disorder: The neurobiological impact of psychological trauma. *Dialogues Clin Neurosci, 13*(3), 263-278.
- Sidani, S., Guruge, S., Miranda, J., Ford-Gilboe, M., & Varcoe, C. (2010). Cultural adaptation and translation measures: an integrated method. *Research in Nursing & Health, 33*(2), 133–143.
- Smith, B. N., Shipherd, J. C., Schuster, J. L., Vogt, D. S., King, L. A., & King, D. W. (2011). Posttraumatic stress symptomology as a mediator of the association between military sexual trauma and post-deployment physical health in women. *Journal of Trauma and Dissociation, 12*(3), 275–289. <http://dx.doi.org/10.1080/15299732.2011.551508>
- Snelgrove, S., & Lioffi, C. (2013). Living with chronic low back pain: A metasynthesis of qualitative research. *Chronic Illness, 9*(4), 283-301.
- Sperry, D.M., & Widom, C.S. (2013). Child abuse and neglect, social support, and psychopathology in adulthood: a prospective investigation. *Child Abuse and Neglect, 37*(6), 415-425. DOI: 10.1016/j.chiabu.2013.02.006.
- Stander, V. A., Thomsen, C. J., & Highfill-McRoy, R. M. (2014). Etiology of depression comorbidity in combat-related PTSD: a review of the literature. *Clinical psychology review, 34*(2), 87-98.

- Sutherland, C., Bybee, D., & Sullivan, C. (2002). Beyond bruises and broken bones: The joint effects of stress and injuries on battered women's health. *American Journal of Community Psychology, 30*(5), 609-636.
- Tashkandi, A. A. & Rasheed, P. (2009). Wife abuse: A hidden problem. A study among Saudi women attending PHC centers. *Eastern Mediterranean Health Journal, 15* (5), 1242- 1253.
- Thomas, J. L., Jones, G. N., Scarinci, I. C., Mehan, D. J., & Brantley, P. J. (2001). The utility of the CES-D as a depression screening measure among low-income women attending primary care clinics. *International Journal of Psychiatry in Medicine, 31*(1), 25-40.
- Thomtén, J., Soares, J. J., & Sundin, Ö. (2011). The influence of psychosocial factors on quality of life among women with pain: a prospective study in Sweden. *Quality of Life Research, 20*(8), 1215-1225.
- Tiwari, A., Fong, D. Y. T., Chan, C., & Ho, P. (2013). Factors mediating the relationship between intimate partner violence and chronic pain in Chinese women. *Journal of Interpersonal Violence, 28*(5), 1067-1087.
doi:<http://dx.doi.org/10.1177/0886260512459380>
- Tjaden, P., & Thoennes, N. (2000). *Extent, nature, and consequences of intimate partner violence: Findings from the National Violence Against Women Survey*. National Institute of Justice and the Center for Disease control and Prevention.
- Totsch, S. K., Waite, M. E., & Sorge, R. E. (2015). Chapter fifteen-dietary influence on pain via the immune system. *Progress in molecular biology and translational science, 131*, 435-469.

- Tunks, E. R., Weir, R., & Crook, J. (2008). Epidemiologic perspective on chronic pain treatment. *Canadian Journal of Psychiatry. Revue Canadienne De Psychiatrie*, 53(4), 235.
- Ullman, J. B. (2006). Structural equation modeling: Reviewing the basics and moving forward. *Journal of Personality Assessment*, 87(1), 35–50.
- Vachon-Preseau, E., Roy, M., Martel, M. O., Caron, E., Marin, M. F., Chen, J., ... & Rainville, P. (2013). The stress model of chronic pain: evidence from basal cortisol and hippocampal structure and function in humans. *Brain*, 136(3), 815-827.
- Van Dam, N. T., & Earleywine, M. (2011). Validation of the Center for Epidemiologic Studies Depression Scale—Revised (CESD-R): Pragmatic depression assessment in the general population. *Psychiatry research*, 186(1), 128-132.
- Varcoe, C., Hankivsky, O., Ford-Gilboe, M., Wuest, J., & Wilk, P & Campbell. J. (2011). Attributing selected costs to intimate partner violence in a sample of women who have left abusive partners: A social determinants of health approach. *Canadian Public Policy*, 37(3), 1-22.
- Von Korff, M., Ormel, J., Keefe, F. J., & Dworkin, S. F. (1992). Grading the severity of chronic pain. *Pain*, 50(2), 133-149.
- Vranceanu, A., Hobfoll, S. E., & Johnson, R. J. (2007). Child multi-type maltreatment and associated depression and PTSD symptoms: The role of social support and stress. *Child Abuse & Neglect*, 31(1), 71–84.
- Walsh, C. A., Jamieson, E., MacMillan, H., & Boyle, M. (2007). Child abuse and chronic pain in a community survey of women. *Journal of Interpersonal Violence*, 22(12), 1536-1554.

- Weathers, F.W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *PTSD Checklist—Civilian version*. Boston: National Center for PTSD, Behavioral Science Division.
- Weissman, M. M., Sholomskas, D., Pottenger, M., Prusoff, B. A., & Locke, B. Z. (1977). Assessing depressive symptoms in five psychiatric populations: a validation study. *American journal of Epidemiology*, *106*(3), 203-214.
- Wilson, J.S., Messing, J.T., Patchell, B., & Campbell, J.C. (2011). Factors related to posttraumatic symptoms in women experiencing police-involved intimate partner violence. *Advances in Nursing Science*, *34*(3), E14–E28.
- Wingenfeld, K., Heim, C., Schmidt, I., Wagner, D., Meinlschmidt, G., & Hellhammer, D. H. (2008). HPA axis reactivity and lymphocyte glucocorticoid sensitivity in fibromyalgia syndrome and chronic pelvic pain. *Psychosomatic medicine*, *70*(1), 65-72.
- Wong, J., & Mellor, D. (2014). Intimate partner violence and women's health and wellbeing: Impacts, risk factors and responses. *Contemporary nurse*, *46*(2), 170-179.
- Wood, I. S., Wang, B., Jenkins, J. R., & Trayhurn, P. (2005). The pro-inflammatory cytokine IL-18 is expressed in human adipose tissue and strongly upregulated by TNF α in human adipocytes. *Biochemical and biophysical research communications*, *337*(2), 422-429.
- Woods, A. B., Page, G. G., O'Campo, P., Pugh, L. C., Ford, D., & Campbell, J. C. (2005). The mediation effect of posttraumatic stress disorder symptoms on the relationship of intimate partner violence and IFN- γ levels. *American journal of community psychology*, *36*(1-2), 159-175.

- Woods, S. J., Hall, R. J., Campbell, J. C., & Angott, D. M. (2008). Physical health and posttraumatic stress disorder symptoms in women experiencing intimate partner violence. *Journal of Midwifery & Women's Health, 53*(6), 538-546.
- Woolf, C. J., & Mannion, R. J. (1999). Neuropathic pain: Aetiology, symptoms, mechanisms, and management. *The lancet, 353*(9168), 1959-1964.
- World Health Organization (2013). *Responding to intimate partner violence and sexual violence against women WHO clinical and policy guidelines*. Geneva: WHO.
- Wright, K. M., Britt, T.W., Bliese, P. D., Adler, A.B., Picchioni, D., & Moore, D. (2011). Insomnia as predictor versus outcome of PTSD and depression among Iraq combat veterans. *Journal of Clinical Psychology, 67*(12), 1240–1258.
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Varcoe, C., Lent, B., Wilk, P., & Campbell, J. (2009). Abuse-related injury and symptoms of posttraumatic stress disorder as mechanisms of chronic pain in survivors of intimate partner violence. *Pain Medicine, 10*(4), 739-747.
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Wilk, P., Campbell, J. C., Lent, B., ... & Smye, V. (2010). Pathways of chronic pain in survivors of intimate partner violence. *Journal of Women's Health, 19*(9), 1665-1674.
- Wuest, J., Merritt-Gray, M., Ford-Gilboe, M., Lent, B., Varcoe, C., & Campbell, J. C. (2008). Chronic pain in women survivors of intimate partner violence. *Journal of Pain, 9*(11), 1049-1057.
- Yehuda, R. (1998). Psychoneuroendocrinology of post-traumatic stress disorder. *Psychiatric Clinics of North America, 21*(2), 359-379.

- Yehuda, R., & LeDoux, J. (2007). Response variation following trauma: A translational neuroscience approach to understanding PTSD. *Neuron*, *56*(1), 19-32.
doi:10.1016/j.neuron.2007.09.006
- Yehuda, R., Bierer, L. M., Sarapas, C., Makotkine, I., Andrew, R., & Seckl, J. R. (2009). Cortisol metabolic predictors of response to psychotherapy for symptoms of PTSD in survivors of the World Trade Center attacks on September 11, 2001. *Psychoneuroendocrinology*, *34*(9), 1304-1313.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, *52*, 30-41.

CHAPTER FOUR ARTICLE TWO

RELIABILITY AND VALIDITY OF THE ARABIC PTSD CHECKLIST

CIVILIAN VERSION (PCL-C)

The ubiquity of traumatic life events globally across political, religious, and geographical borders (Bedard, Greif, & Buckley, 2004) has led to increased worldwide awareness of posttraumatic stress as a significant, but complex, psychological state that results from traumatic experiences, such as war, intimate partner violence, terrorism, or earthquakes (Wilson, 2007). According to the National Center for PTSD (2013), the lifetime prevalence of PTSD has been estimated at about 7% globally, but whether symptoms of traumatic stress vary across cultures remains an area of controversy (Good & Hinton, 2016). In addition, the literature is still inconclusive regarding the number as well as the nature of the underlying dimensions of PTSD symptomology (Armour, 2015; Armour, Müllerová, & Elhai, 2016), because the factor structure of PTSD has been questioned by theorists and empirical findings (Elhaia & Palmierib, 2011).

Experiences of interpersonal trauma, such as intimate partner violence (IPV), are more likely to lead to the development of PTSD than other types of traumatic events (Ozer, Best, Lipsey, & Weiss, 2003). Although one in three women worldwide will experience IPV in their lifetime (World Health Organization, 2013), and research has demonstrated an association between IPV and symptoms of traumatic stress (Wilson, Messing, Patchell, & Campbell, 2011), this field of study is still in the early stages of development. There is a particular gap with respect to research on the factor structure of PTSD in the context of IPV. As well, there is a gap in researching PTSD with women living in different cultural contexts, due, in large part, to the lack of reliable and valid

measures of PTSD symptomology available in languages other than English. In this paper, we describe the process used to translate an established and widely used measure of PTSD symptoms, the PTSD Checklist-Civilian Version (PCL-C), into Arabic and to examine the reliability and validity of the translated self-report measure in a sample of women experiencing IPV and living in Saudi Arabia.

Review of Literature

Conceptualizing Post-Traumatic Stress Disorder

Posttraumatic stress is a highly complex and multifaceted concept (Harned, Jackson, Comtois, & Linehan, 2010; Resick et al., 2012). The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* identified PTSD as three clusters of symptoms (i.e. re-experiencing, hyperarousal, and avoidance) (American Psychiatric Association [APA], 2000). The first cluster, persistent reexperiencing, it is reflected by five symptoms (B1–B5). The second cluster is persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness and it is measured by seven symptoms (C1–C7). The third cluster is persistent symptoms of increased arousal and is measured by five PTSD symptoms (D1–D5). In the recently released *DSM-5* criteria for PTSD symptoms, the organization and definition of PTSD symptoms has been modified to reflect four clusters of symptoms: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity. In addition, three symptoms were added resulting in 20 symptoms of PTSD (APA, 2013).

Herman (1992) suggests broader understanding of PTSD symptomology than the *DSM-IV* as she claimed that these criteria are not a perfect fit with the heterogeneity of trauma types. She proposed to extend the concept of PTSD to be a spectrum that includes

both simple PTSD (i.e. a reaction to acute trauma) and complex PTSD, a response to exposure to chronic and repeated traumas. While simple or classic PTSD stems from single or time-limited trauma (e.g. natural disaster or car accident), individuals with prolonged and repeated trauma may report different or complicated PTSD symptoms. Herman argued that women survivors of prolonged trauma, such as IPV, live in a state of captivity, feel incapable of getting away, and under coercive control as well as continuous contact with the abuser (Herman, 1997). Thus, prolonged trauma survivors experience complex and persistent PTSD symptoms. They also develop personality alterations and have increased vulnerability to recurring harm (Herman, 1992). These symptoms have been called complex PTSD or Disorders of Extreme Stress Not Otherwise Specified (DESNOS) (Herman, 1992; van der Kolk et al., 2005).

A number of studies on PTSD symptoms have been conducted to find the best representation of PTSD's underlying dimensions or how the symptoms must be organized or grouped (Armour, 2015; Elhaia & Palmierib, 2011). However, most studies have generally failed to replicate the three-factor structure of DSM-IV (reexperiencing, avoidance/emotional numbing, and hyperarousal) (Cernvall, Alaie, & Essen, 2012; Costa et al., 2011; Elhaia & Palmieri, 2011; Krause, Kaltman, Goodman, & Dutton, 2007; Yufik & Simms, 2010). Rather, they have provided support for three other alternative conceptual models: 1) a four-factor Emotional Numbing model (King, Leskin, King, & Weathers, 1998); 2) a four-factor Dysphoria model (Simms, Watson, & Doebbeling, 2002); and, 3) a five-factor Dysphoric Arousal model (Elhai et al., 2011). Differences in these models in comparison to the three-factor DSM-IV model are shown in Table 1.

In comparison to the three-factor DSM-IV model, King et al's (1998) four-factor Emotional Numbing model divides the avoidance symptom cluster into two factors – effortful avoidance and emotional numbing. This model is based on the premise that avoidance and numbing have different underlying mechanisms and are, therefore, different constructs (Asmundson, Stapleton, & Taylor, 2004); while numbing is a result of overwhelming arousal and a failure to decrease distress, avoidance is a deliberate process to reduce distress associated with memories of trauma (Foa, Zinbarg, & Rothbaum, 1992). Support for the numbing model has been found in a wide range of different population using different measures (e.g. Elhai, Palmieri, Biehn, Frueh, & Magruder, 2010; Ford, Elhai, Ruggiero, & Frueh, 2009; Grubaugh, Long, Elhai, Frueh, & Magruder, 2010).

An alternative four-factor Dysphoria model was proposed by Simms, Watson, and Doebbeling (2002) and is different from the numbing model in that three PTSD hyperarousal symptoms were removed from the hyperarousal factor and combined with numbing symptoms to form the dysphoria factor based on theoretical and empirical evidence that general distress is the underlying component in many anxiety and mood disorders (Watson, 2005). Support for the Dysphoria model has been found among diverse populations using different measures (e.g. Armour & Shevlin, 2010; Cernvall, Alaie, & Essen, 2012; Elhai, Biehn, Naifeh, & Frueh, 2011).

The most recent alternative model is five-factor Dysphoric Arousal model by Elhai et al (2011). This is based on a theoretical model proposed by Watson, which separates symptoms that encompass restlessness and agitation from fear-based, panic-like symptoms that underline PTSD (Watson, 2005). As well, a number of studies have found

support for this model among different trauma samples using different measures (e.g. Byllesby, Durham, Forbes, Armour, & Elhai, 2016; Charak et al., 2014; Demirchyan, Goenjian, & Khachadourian, 2014).

Table 1: *Four Different PTSD Symptoms Models*

PTSD symptoms	Model 1	Model 2	Model 3	Model 4
	Three – factor model (DSM-IV)	Four-factor model (King et al., 1998)	Four-factor model (Simms et al. 2002)	Five-factor model (Elhai et al., 2011)
B1. Intrusive thoughts	R	R	R	R
B2. Nightmares	R	R	R	R
B3. Flashbacks	R	R	R	R
B4. Emotional cue reactivity	R	R	R	R
B5. Physiological cue reactivity	R	R	R	R
C1. Avoidance of thoughts	A/N	A	A	A
C2. Avoidance of reminders	A/N	A	A	A
C3. Trauma related amnesia	A/N	N	D	N
C4. Anhedonia	A/N	N	D	N
C5. Feeling detached	A/N	N	D	N
C6. Feeling numb	A/N	N	D	N
C7. Hopelessness	A/N	N	D	N
D1. Disturbed sleep	H	H	D	DA
D2. Irritability/ anger	H	H	D	DA
D3. Concentration difficulty	H	H	D	DA
D4. Hypervigilance	H	H	H	AA
D5. Exaggerated startle	H	H	H	AA

A: avoidance; AA: anxious arousal; D: dysphoria; DA: dysphoric arousal; H: hyperarousal; N: numbing; R: re-experiencing.

In sum, the *DSM-IV* identified PTSD as three clusters of symptoms (i.e. reexperiencing, hyperarousal, and avoidance). Yet, there has been an argument about extending the concept of PTSD to be a spectrum (simple PTSD and complex PTSD). Further, a number of factor analyses conducted with measures of PTSD symptoms have failed to find support to the *DSM-IV* three-factor structure. These studies have found three alternate factor models that fit PTSD symptom measures well: 1) a four-factor Emotional Numbing model; 2) a four-factor Dysphoria model; and 3) a five-factor Dysphoric Arousal model.

Post-Traumatic Stress Disorder Symptoms among IPV Survivors

Intimate partner violence, a pattern of physical, sexual and/or emotional abuse in the context of coercive control (Tjaden & Thoennes, 2000), creates a fearful environment for women. PTSD is the most prevalent mental health consequence of IPV (Golding, 1999; Nathanson, Shorey, Tirone, & Rhatigan, 2012) and severity of PTSD symptoms has been linked to risk of lethality from IPV (Wilson, Messing, Patchell, & Campbell, 2011). A dose-response relationship has been confirmed meaning that more severe and persistent IPV associated with greater levels of PTSD symptoms (Chandra, Satyanarayana, & Carey, 2009; Woods, Hall, Campbell, & Angott, 2008). Moreover, the experience of more than one type of IPV (e.g., physical, sexual, or emotional abuse) has been associated with higher levels of PTSD symptomology (Eshelman & Levendosky, 2012; Houry, Kemball, Rhodes, & Kaslow, 2006).

Cross-sectional studies, conducted in different parts of the world, including North America, Colombia, Spain, China, and India, have provided consistent support for a positive association between IPV and PTSD symptoms among abused women (e.g. Chan,

Tiwari, Fong, & Ho, 2010; Medina, Canaval, Burgos, & Humphreys, 2011; Stampfel, Chapman, & Alvarez, 2010). Although a few studies have examined the mental health consequences of wife abuse conducted in Arab countries (Al-Modallal, 2012; Hamdan-Mansour, Farhan, Othman, & Yacob, 2010; Hamdan-Mansour et al., 2011), PTSD symptoms were assessed in only one study (Khadra, Wehbe, Fiola, & Skaff, 2015) using an English self-report measure. Measures developed for native English speakers without cultural adaptation may not be relevant or comprehensible to non-English speaking populations (Cha, Kim, & Erlen, 2007; Fischbacher, Hunt, & Alexander, 2004).

While the significance of taking into consideration the number and nature of symptom clusters has been highlighted (Elhai & Palmieri, 2011; Armour, Múllerová, & Elhai, 2016), very limited research has examined the unique influence of IPV experiences on PTSD symptom clusters across women. Only Matlow and DePrince (2013) suggested that diverse histories of IPV experiences (chronic versus new victimizations) predict specific PTSD symptoms. The researchers found that revictimization by multiple perpetrators resulted in PTSD symptoms associated with ‘passive’ avoidance or emotional numbing symptoms, but chronic victimization by the same perpetrator resulted in symptoms associated with ‘active’ avoidance symptoms (Matlow & DePrince, 2013). This suggests that different patterns of IPV victimization may be linked to different clusters of PTSD symptoms or exposure to IPV can lead to qualitatively different PTSD symptoms. Therefore, not all PTSD treatments may be experienced by all survivors, because IPV is a unique traumatic stressor (Hellmuth, Jaquier, Swan, & Sullivan, 2014). The distinctiveness of IPV experience as a traumatic stressor that every so often occurs over extended periods of time might result in specific factor structure of PTSD symptoms

and ultimately require different intervention strategies. It is possible that symptomatology found among IPV survivors are associated with complex PTSD symptoms that were proposed by Herman (1992) instead of classical PTSD. Yet, the literature lacks research that assesses the profile of PTSD symptom clusters in the context of IPV and examines whether IPV is more linked to simple or chronic (complex) PTSD.

PTSD in Varied Cultural Contexts

Some scholars view PTSD symptoms as a universal and cross-culturally valid response to traumatic events (Costa et al., 2011; Wilson, 2007), while others argue that the Western conceptualization of trauma only fits the context of a Western culture and its moral framework (Kienzler, 2008). Although culture is a powerful socializing force for generating and forming beliefs that influence the perception and processing of trauma (Wilson, 2007), both neuroendocrine dysregulation and neuroanatomical changes in the brain as a result of chronic stress could explain universality of PTSD symptoms (Roosendaal, McEwen, & Chattarji, 2009; Yehuda & LeDoux, 2007). These physiological changes result in universal symptoms (e.g., hyperarousal) (Wilson, 2007). Trauma advocates across the globe assert that symptoms following trauma exposure become worse in non-Western countries if they are not treated by Western-style treatment approaches, which legitimize PTSD symptoms as universal response to trauma (Kienzler, 2008). However, there is a need to examine variations in PTSD symptoms globally taking culture as a determinant into consideration (Marsella, 2010; Moghimi, 2012). In addition, researchers need to advance knowledge about the factor structure of PTSD symptoms across diverse cultural groups (Elhaia & Palmierib, 2011) in order to

understand whether PTSD dimensions vary as a function of cultural and linguistic variations.

A number of factor analysis studies have been conducted with different non-Western samples, with results showing that the latent structures of PTSD symptoms in variety of cultures are comparable to those found in Euro-American samples. These studies have revealed support for the numbing four-factor model (Costa et al., 2011), dysphoria four-factor model (Vinson & Chang, 2012), and five-factor Dysphoric Arousal model (Armour, Raudzah Ghazali, & Elklit, 2013; Mordeno, 2011; Wang et al., 2011; Wang et al., 2012). Yet, there is still a lack of research that examines the structure of PTSD symptomology within Arab culture.

PTSD Measures

Heightened interest in PTSD identification, conceptualization and treatment has resulted in a wide array of instruments used to measure this concept. These measures fall into one of three categories (Adkins, Weathers, McDevitt-Murphy, Daniels, 2008; Weathers & Keane, 1998): a) measures developed based on their ability to discriminate individuals with and without PTSD (i.e. empirically-derived measures); b) measures that are based on the *DSM* diagnostic criteria for PTSD; and, c) measures that assess trauma-related symptomatology but are not based on the DSM criteria (Adkins et al., 2008). The most common instruments used to assess PTSD symptoms are measures that are based on the DSM diagnostic criteria for PTSD, including the PTSD Checklist or PCL (Weathers, Litz, Huska, & Keane, 1994).

There are three versions of the PTSD Checklist: a “specific” version that ties symptom ratings to a particular event (PCL-S); a “military” version (PCL-M) that links

ratings to an event experienced during military service, and a “civilian” version that allows ratings to be based on any stressful life experiences (PCL-C). The PCL-C is a self-report summated rating scale that yields a continuous measure of PTSD symptom severity with scores ranging from 17 to 85. Respondents are asked how much they have been bothered by each PTSD symptom over the past month on a 5-point severity scale (ranging from 1= *not at all* to 5= *extremely*). The PCL may also be scored to yield a continuous measure for each cluster of PTSD symptoms (re-experiencing, avoidance/numbing, and hyperarousal). A presumptive diagnosis can be determined using DSM-IV symptom criteria as defined by at least one re-experiencing symptom, three avoidance/numbing symptoms, and at least two hyperarousal symptoms. PCL cut-point scores can also be used and should be chosen based on the type of setting or population. For example, in civilian primary care or general populations, the cut-point is 35. The PCL is currently one of the most widely used PTSD symptom measures because it has demonstrated strong psychometric properties across different populations (Balsam, Lehavot, Beadnell, & Circo, 2010; Wilkins, Lang, & Norman, 2011), including women who have experienced IPV (Kelly, 2010; Lee, Pomeroy, & Bohman, 2007; Varma, Chandra, Thomas, & Carey, 2007). The PCL-C has been adapted and validated with different ethnic/racial groups (Hem, Hussain, Wentzel-Larsen, & Heir, 2012; Marshall, 2004; Passos, Figueira, Mendlowicz, Moraes, & Coutinho, 2012) and the simple wording of items makes translation and administration to people with limited education relatively straightforward (Pham et al., 2004). Consistent with the broader literature on PTSD structure, studies conducted in different populations and settings using the PCL have

supported a number of different factor structures rather than the three-factor structure of the DSM (Cernvall, Alaie, & Essen, 2012; Costa et al., 2011; Krause et al., 2007).

In summary, the literature suggests that PTSD symptomology is complex concept that could be viewed as a spectrum, including simple PTSD and complex PTSD (Herman, 1992). Studies across sample types and measures have supported alternative factor structures of PTSD symptomology and there are still controversies regarding the number as well as the nature of PTSD dimensions or the core concepts of PTSD symptoms (Yufik & Simms, 2010). While there is consistent evidence that IPV survivors develop PTSD symptoms, there is very little information about the structure of PTSD symptoms in the context of IPV. In addition, there are still debates about the cross-cultural validity of PTSD symptomology (Hinton & Good, 2015) and there is still a gap in knowledge about whether there is an equivalent factor structure of PTSD symptoms across cultures. Thus, there is a need to adapt, translate and evaluate Western generated PTSD symptom measures to Arab cultures and languages. The availability of valid Arabic versions of PTSD would enhance the potential for high quality research with Arab women, enable collaborations and synergy between violence researchers from various cultures and more effectively build a base of knowledge that applies across cultural groups. Having translating measure of PTSD also provides insight into the influence of culture and IPV trauma on the clusters of PTSD symptoms.

As part of a study examining the health consequences of exposure to family violence among Saudi women, we adapted and linguistically translated the Posttraumatic Stress Disorder Checklist—Civilian Version (PCL–C; Weathers, Litz, Herman, Huska, & Keane, 1993) to Arabic for use with Arab women. The objective of this paper was to

investigate the psychometric properties of the adapted and translated PCL-C, including its internal consistency, concurrent validity, and construct validity (factor structure).

Method

A methodological study was undertaken to first translate the PCL-C into Arabic and pilot test this new version of the scale (Appendix A) and, subsequently, to examine the reliability and validity of the Arabic PCL-C in a sample of Saudi women who were taking part in a larger study examining the health consequences of family violence.

Cultural Adaptation, Translation and Pilot Testing of the PCL-C

A standardized method (Sidani, Guruge, Miranda, Ford-Gilboe, & Varcoe, 2010) was used to produce a linguistic and cultural translation of the PCL-C using a three-step process: a) assessing conceptual equivalence of the concept; b) forward translation of items from English to Arabic; and, c) testing the items for comprehension and cultural validity with the target population. To assess the conceptual equivalence of the 17 PCL-C items with Arab culture, two bicultural and bilingual health professional who were knowledgeable about PTSD and Arab culture, were asked to individually rate the relevance and clarity of each item for Arab culture on a 10-point scale ranging from “not at all” to “very” and to provide recommendations for item modification if needed. All items were rated as easy to understand (i.e., comprehension >5) and relevant to Arab culture (i.e., cultural relevance >5) and both reviewers agreed that item modification was not necessary. Next, forward translation of all 17 items was independently completed by the same two reviewers along with a certified bilingual translator who had a medical background. Prior to translation, the reviewers were asked to retain the meaning of the concept representing by each item, while incorporating cultural expressions and using

terms that are easy to understand. Only minor differences were evident in the three translations. Two of the three translators met with the researcher to review and discuss items with discrepant translations and to come to consensus on the most appropriate wording for these items. Although back translation of new measures into the source language is sometimes recommended, the usefulness of this step has been questioned (Martinez, Marin, & Sohous-Glusberg, 2006) and proposed as optional (Sidani et al., 2010). Given the high level of agreement among translators in this study, backward translation was not conducted.

Finally, the adequacy and internal consistency of the translated item pool was assessed in a convenience sample of 30 adult, Arab women from the Middle East who were recruited from an organization that serves the immigrant/refugee people in Canada. The mean age of women was 38.1 years ($SD= 12.02$, range 18–70) and more than half (63.3%, $n=19$) are married. Women had been in Canada an average of 29.7 months ($SD = 15.64$, range 2-48). The majority of women (86.7%, $n =26$) were refugees, with 83.3% ($n=25$) emigrating from Iraq. Although 10% had only completed elementary school, 40% had earned a bachelor's degree. Almost half (46.7%) of women were unemployed, while 26.7% are were English as Second Language (ESL) students. Data were collected using Structured Interviews (SI) designed to elicit information about the scale and women's demographic characteristics. Interviews were conducted in a private room in the agency or another private location selected by the woman. Ethics approval for the pilot study was obtained from the Research Ethics Board at Western University.

Women reported that the items were straightforward and easy to understand with the exception of item 8 (C3: trauma-related amnesia). Although we were not sure if it was

related to the meaning of this item or the wording of the translation, minor wording changes were made to this item in consultation with the translators. Internal consistency reliability of the translated scale was acceptable (.96 for the total score, .94 for re-experiencing, .88 for avoidance, .84 for hyperarousal). Subscale scores were highly correlated ($r = .794$ to $.755$) and the corrected item-total correlations were all above .40, the recommended level for retaining items (Ware & Gandek, 1998). On the basis of these results, the revised scale was deemed ready for further testing with a larger sample of women.

Evaluating the Reliability and Validity of the Arabic Version of the PCL-C

The reliability and validity of the Arabic version of the PCL-C was examined in a sample of 299 Saudi women who were recruited for the larger study from nine primary health care centers in Saudi Arabia (see Chapter 3). Women were eligible to participate if they were married, aged 18 to 65 years of age, were Saudi citizens who spoke Arabic and had experienced wife abuse in the past 12 months. Exposure to wife abuse (trauma) was confirmed using the Arabic version of the 4-item Abuse Assessment Screen (AAS) (Parker & McFarlane, 1991) where an affirmative response to at least one of four screening questions focused on physical abuse, forced sex, fear of partner, and experiences of coercive control was considered positive for wife abuse. Women were asked by a staff member if they were interested in participating in a women's health study as they presented for care; those who agreed to participate were screened for eligibility by the researcher in a private room. Written consent to participate was obtained from each woman before collecting the data. Interviews were conducted in private room in the primary health care center. Ethics approval was obtained from the Research Ethics

Board at Western University and Institutional Review Board (IRB) for both Ministry of Health and King Abdullah International Medical Research Center (KAIMRC) /MNGHA in Saudi Arabia prior to recruitment. For a more detailed description of the study procedure see chapter three.

Sample

Considerable variability is evident with respect to demographic characteristics of the sample (See chapter Three). The mean age of participants was 36.11 years ($SD=10.20$, range 18–64). In terms of women's education, 10.7% were unable to read and write, 30.1% had completed elementary school, 29.1% had completed high school, and 21.4% had earned a university/college degree. The vast majority of women (92.3%) were mothers and they had, on average, 4.23 children ($SD=3.021$, range 0-14). Only 22.7% of women were employed and the mean of their personal income was 1,702 Saudi Riyal (SR) (\$589 Canadian) per month ($SD=3,522$ SR). The total household monthly income ranged from 0 to 53,000 SR (\$0 to \$18,550 Canadian dollars) per month, with a mean 9,455 SR (\$3,303 Canadian) per month ($SD=7,324$ SR). The women had experienced wife abuse for an average of 11.4 years (range = 0.08 - 45.0, $SD=9.985$).

Measurement

This analysis used data from women's completion of the PTSD Checklist-Civilian version (PCL-C; Weathers et al., 1994) and the Center for Epidemiologic Studies-Depression (CESD) Scale. The CESD (Radloff, 1977) was used to examine the concurrent validity of the PCL-C, because depressive symptoms overlap with PTSD symptoms (Post, Feeny, Zoellner, & Connell, 2016) and the presence of PTSD symptoms without depression symptoms is rare among IPV survivors (Lagdon, Armour, & Stringer, 2014; Pigeon et al., 2011). Women were asked to rate the degree of symptom occurrence

during the past week, on a 4-point likert scale ranging from *rarely or none* (1) to *most of the time* (4). The CESD has demonstrated strong reliability in different populations (Ford-Gilboe et al., 2009; Jarvis, Gordon, & Novaco, 2005; Thomas, Jones, Scarinci, Mehan, & Brantley, 2001). For the purpose of study, the Arabic version of CESD was used (Ghubash, Daradkeh, Al Naseri, Al Bloushi, & Al Daheri, 2000). Internal consistency in this study was 0.86.

Data Analysis

To assess the construct validity of the PCL-C, Confirmatory Factor Analysis (CFA) of the four alternative factor structure models shown in Table 1 was conducted using Mplus 7 (Muthen & Muthen, 2012) with the maximum likelihood (ML) method of estimation. There were no missing data in the current study. Assumptions of multivariate normality were assessed through the inspection of univariate distributions. Univariate skewness ranged from -0.036 (B1) to .995 (C3), whereas kurtosis ranged from -1.574 (D1) to .014 (C3) (Table 3). Kline's (2011) rule of thumb for the absolute values for skewness index (SI) and kurtosis index (KI) was applied and specified that data is severely non-normal if the $SI > 3$ and $KI > 10$. In addition, the box plots were assessed and there were no univariate or multivariate outliers. Given that the data were not severely non-normal and ML is robust to minor deviation from normality (Kilne, 2011), the ML estimation was used. Various indices were assessed to determine which of the four proposed models (Table 1) fit with the data. The fit indices used were root-mean-squared error of approximation (RMSEA), comparative fit index (CFI), and chi-squared. The factor loadings for the best fitting model were assessed in terms of its magnitude and statistical significance.

The Statistical Package for Social Sciences (SPSS) Version 24 was used to assess the concurrent validity of PCL-C using the CESD and to estimate the scales' internal consistency reliability for the total score and the subscales for the best model fit using Cronbach's alpha. Basic item analysis was performed as well by assessing the correlation matrix for degree of inter-item correlation.

Results

Descriptive

Descriptive statistics for each item are provided (Table 2). The mean PCL-C score for the total sample was 46.72 ($SD = 15.50$) with a range of 17–82. Using a cut-off score of 35, 75.6% of women has PTSD symptoms.

Construct and Concurrent Validity

Fit indices for the four competing models based on confirmatory factor analysis are summarized in Table 3. Although the four competing models had statistically significant chi-square tests, the proposed models were not rejected because chi-square is sensitive to large samples (Tanaka, 1987). Model 1 (the three-factor DSM-IV model) did not result in an adequate fit. Model 2 (the four-factor Emotional Numbing model) and Model 3 (the four-factor Dysphoria model) both resulted in an adequate fit. Model 4 (the five-factor Dysphoric Arousal model) yielded evidence of an excellent fit. Inspection of the fit indices (Table 3) revealed that Model 2, 3, and 4 (i.e. Numbing model, Dysphoria model, and Dysphoric Arousal model) fit better than Model 1 (the three-factor model by the DSM-IV). However, the five-factor Dysphoric Arousal model (Elhai et al., 2011) provided the best fit compared with the other models.

Table 2: *Item-level descriptive statistics of PCL-C (N = 299).*

PCL-items	M	SD	Skewness	Kurtosis
1. B1 Intrusive thoughts	3.16	1.53	-.036	-1.450
2. B2 Nightmares	2.42	1.48	.685	-.908
3. B3 Flashbacks	2.29	1.46	.766	-.805
4. B4 Emotional cue reactivity	3.55	1.52	-.454	-1.297
5. B5 Physiological cue reactivity	2.65	1.53	.339	-1.319
6. C1 Avoidnce of thoughts	3.28	1.63	-.232	-1.544
7. C2 Avoidance of reminders	3.10	1.68	-.055	-1.640
8. C3 Trauma related amnesia	1.97	1.20	.995	.014
9. C4 Anhedonia	3.29	1.53	-.262	-1.345
10. C5 Feeling detached	2.49	1.57	.524	-1.244
11. C6 Feeling numb	2.51	1.56	.527	-1.236
12. C7 Hopelessness	2.12	1.46	.970	-.507
13. D1 Disturbed sleep	3.08	1.62	-.054	-1.574
14. D2 Irritability/anger	3.35	1.45	-.277	-1.220
15. D3 Concentration difficulty	2.72	1.47	.271	-1.251
16. D4 Hypervigilance	2.31	1.46	.735	-.834
17. D5 Exaggerated startle	2.44	1.50	.559	-1.119
PCL-total	46.72	15.50	.054	-.750

To assess the concurrent validity of the PCL-C, the correlation between depressive symptoms measured by the CESD total score and total score on PCL-C was computed. As expected, the CES-D total score was highly correlated ($\alpha = .784$) with PCL-C total score, providing support for concurrent validity of PCL-C.

Table 3: *Goodness-of-fit Indices*

Models	Chi-square	<i>df</i>	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI
Model 1 (three – factor DSM-IV)	366.859	116	0.85	.83	.058	.085	.075-0.095
Model 2 (four-factor Numbing)	231.600	113	0.930	.916	.047	.056	.048- .070
Model 3 (four-factor Dysphoria)	218.132	113	.938	.926	.044	.056	.045- .067
Model 4 (five-factor Dysphoric Arousal model)	190.860	109	.952	.940	.042	.050	.038- .062

The best fitting model (Dysphoric Arousal model) resulted in standardized factor loadings (Table 4) that ranged from .311 to .827. The correlations among the five factors (re-experiencing, avoidance, numbing, dysphoric arousal, and anxious arousal) ranged from .34 to .82.

Reliability

The internal consistency of the PCL-C for the whole sample as measured by Cronbach's coefficient was .89 for the total score. Based on the subscales for the 5-factor Dysphoric Arousal model, Cronbach's coefficient were .81 for re-experiencing sub-scale, .81 for avoidance sub-scale, .71 for numbing sub-scale, .73 for dysphoria arousal sub-scale, and .68 for anxious arousal sub-scale. Corrected item-total correlations were over 0.4 for the PCL total scale, with the exception of the correlation between the total score and item 8 (C3: trauma related amnesia) which was .31. The reliability would not change if item 8 (C3) was deleted from the test. The mean of inter-item correlation coefficient was .32 for the full PCL, .45 on the re-experiencing subscale, .68 on the avoidance

subscale, .32 on the numbing subscale, .47 on the dysphoria arousal subscale, and .52 on the anxious arousal subscale.

Table 4: *Standardized factor loadings and factor correlations for the five-factor PTSD model*

PCL-items	R	A	N	DA	AA
1. Intrusive thoughts	.714				
2. Nightmares	.614				
3. Flashbacks	.626				
4. Emotional cue reactivity	.726				
5. Physiological cue reactivity	.685				
6. Avoidance of thoughts		.827			
7. Avoidance of reminders		.826			
8. Trauma related amnesia			.311		
9. Anhedonia			.601		
10. Feeling detached			.695		
11. Feeling numb			.597		
12. Hopelessness			.667		
13. Disturbed sleep				.690	
14. Irritability/anger				.710	
15. Concentration difficulty				.657	
16. Hypervigilance					.805
17. Exaggerated startle					.639
Factor correlations					
A	.62				
N	.70	.52			
DA	.80	.55	.82		
AA	.60	.34	.65	.66	

A: avoidance; AA: anxious arousal; DA: dysphoric arousal; N: numbing; R: re-experiencing.

Discussion

In the present study we adapted and translated the PCL-C from English to Arabic and assessed its reliability as well as construct and concurrent validity by testing four competing models of PTSD symptoms (the DSM-IV model, the Numbing model, the Dysphoria model, and the Dysphoric Arousal model). We also assessed the extent to which PCL-C corresponds to a previously established measure of depressive symptoms among Saudi women who have experienced IPV. The study yielded evidence in favor of the five-factor Dysphoric Arousal model (Elhai et al., 2011) – reexperiencing (B1–B5), avoidance (C1–C2), numbing (C3–C7), dysphoric arousal (D1–D3) and anxious arousal (D4–D5), albeit the fit indices for four-factor numbing model and four-factor dysphoria model were fairly similar. The high correlation found between PCL-C total score and CESD total score provides evidence of concurrent validity. Internal consistency of both the full scale and subscales were satisfactory based on alpha and item-total correlations. Thus, there is evidence for the validity and reliability of the Arabic version of the PCL-C when used as a screening instrument for PTSD symptoms among Saudi women. This suggests that the adaption and translation procedure was successful and that the scale can be applied in populations of Arabic speakers.

The finding that the five-factor Dysphoric Arousal model was the best fit with the data is consistent with other research (e.g. Armour et al., 2012; Byllesby et al., 2016; Demirchyan et al., 2014; Elhai et al., 2011; Pietrzak, Tsai, Harpaz-Rotem, Whealin, & Southwick, 2012; Armour, & Elklit, 2012) which have suggested the five-factor model as better represents PTSD's underlying dimensionality. Yet, it is important to note that the sample of women who have experienced IPV in the present study is markedly

different from those in which the factor structure has been examined previously (e.g. veterans and individuals exposed to natural disaster) in terms of the trauma type. IPV survivors experience prolonged and repeated trauma, as they live in terror and captivity (Herman, 1992). Thus, the features of their trauma symptoms are usually complicated (called complex PTSD) and uniquely linked to the nature of IPV (Herman, 1997). Therefore, the current study makes a contribution to the literature as it tested the alternative PTSD symptoms models with a sample of women who have experienced IPV. An accurate understanding of the structure of PTSD symptoms among women who have experienced IPV might help inform the assessment of PTSD, as the presentation of PTSD symptoms may be more heterogeneous and complex than that described in the DSM-IV.

The study supports Watson's (2005) theoretical model that was used to develop the five-factor Dysphoric Arousal model. This theoretical model suggests the PTSD's D1–D3 (sleep difficulty, irritability, and concentration difficulty) symptoms differ conceptually from both the hyperarousal factor (where both DSM-IV model and Numbing model placed them), and the dysphoria factor (where the Dysphoria model placed them) (Table 1). The D1–D3 symptoms create a distinct cluster because these symptoms are characterized by restlessness and agitation and are more related to general distress, while D4–D5 tap the anxious arousal that feature fear-based (panic) disorders (Watson, 2005). There is evidence that the level of hyperarousal symptoms predict the trajectory of psychological adjustment and the severity of other symptom clusters over time (Schell, Marshall, & Jaycox, 2004). Hyperarousal symptoms have been found to predict abused women's physical health (Woods, Campbell, Hall, & Wineman, 2003; Woods & Wineman, 2004) and physical IPV re-victimization (Iverson et al., 2013).

Therefore, support for separating the D1-D5 items into two distinct clusters (i.e. dysphoric arousal and anxious arousal) in a sample of abused women may have implications for the trajectory of PTSD symptoms among women who have experienced IPV. Researchers and clinicians should examine the role of dysphoric arousal and anxious arousal in predicting the chronicity of PTSD and women's physical and mental health.

Further research is also needed to examine the structure of PTSD symptoms among women who have experienced IPV using different measures and/or with samples of women from different backgrounds in order to confirm the latent structure for PTSD. In addition, more studies are needed to examine the longitudinal structural invariance of the Dysphoric Arousal model among abused women who are in current relationship or who have left an abusive relationship. Research on the health consequences of IPV would benefit from greater consensus on the structural model of PTSD symptoms that holds up across diverse samples and time.

In the current study, all factor loadings were moderate to high except the factor loading for trauma-related amnesia. This relatively low loading was previously found in CFA studies across different samples (e.g. Armour & Shevlin, 2010; Armour et al., 2015; Elhai et al., 2011; Miller et al., 2013; Palmieri et al., 2007; Wang, Zhang, et al., 2011), including in an IPV sample (Krause et al., 2007). Matlow and DePrince (2013) found that chronic victimization (i.e., multiple incidents of victimization by the same perpetrator, such as in IPV) would be specifically related to active avoidance PTSD symptoms, but not passive avoidance symptom such as "inability to recall an important aspect of the trauma". Researchers view the amnesia item as quite difficult to assess, because people

with amnesia are not be able to accurately report what they cannot remember (King et al., 1998). There is no guidance as to what constitutes an “important aspect” of traumatic experience (Weathers, Marx, Friedman & Schnurr, 2014). Amnesia has also been understood as a manifestation of dissociation (Carlson, Dalenberg, & McDade-Montez, 2012). Research suggests that the amnesia symptom is most likely reported by people with a subtype of PTSD characterized by depersonalization, derealization, and/or flashbacks (Wolf et al., 2012). It has been also argued that it is unclear whether the information is in memory but the person is unable to access (i.e. retrieval failure), or it was never stored in memory (encoding failure). Moreover, it is hard to conclude whether the retrieval failure is caused by motivated forgetting or normal forgetting (McNally, 2003, 2009).

The reliability and validity of PCL-C in a sample of Saudi women adds to the general body of research on the cross-cultural applicability of PTSD (Good & Hinton, 2016), because the study reinforces that PTSD is a universal and cross-culturally valid response to traumatic events. The current study is the only study to assess PTSD’s latent structure in an Arab population and represents the first investigation of the structure of PTSD symptoms carried out in Middle East. The few studies that were conducted in non-Western countries (Armour et al., 2013; Wang et al., 2011; Wang et al., 2012; Fodor et al., 2015; Charak et al., 2014) deemed the Dysphoric Arousal model to be the best fitting model which is similar to our findings and the major Euro-American findings. This comparability lends further support to the cross-cultural applicability of the five-factor PTSD model. Since the four-factor Numbing model (King et al., 1998) as well as the four-factor Dysphoria model (Simms et al., 2002) adequately fit the data, further studies

need to be conducted with the purpose of comparing these models with competing models using the Arabic version of PCL-C among different Arab samples.

The present study was limited in several ways. All women were recruited from primary care centers in Saudi Arabia. Thus, it is unclear how generalizable the results are to other abused women from shelters, rural areas, or different cultural backgrounds. The generalizability of the results could be limited to general Arab populations. Since the data used in this study were cross-sectional, we could not examine the longitudinal structural invariance of PTSD symptoms. Moreover, the Dysphoric Arousal model is limited since two of the latent factors (avoidance and anxious arousal) include only two items each (Kline, 2011). Creating subscales of constructs with so few items led to low reliability for anxious arousal subscale ($\alpha = .68$). Thus, further research is needed to increase the number of items to tap this construct. Finally, given that a new model of PTSD has emerged based on the DSM-5 (Armour et al., 2014; Pietrzak et al., 2014; Wang et al., 2015), it is a limitation of this study that the PTSD symptoms from DSM-5 could not be tested. In DSM-5, PTSD has four clusters organized to resemble the Emotional Numbing model, but with three additional symptoms. The Dysphoric Arousal model was not considered in developing DSM-5 because the expansion of the Dysphoric Arousal model coincided with the release of the new DSM-5 (Armour et al., 2015). Furthermore, it is not possible to assess whether the 20-item DSM-5 model of PTSD fits with data from this study as PCL-C includes 17 of 20 symptoms. The study was planned before the release of PCL-5 that is based on DSM-5.

Conclusion

In the current study, we found support for the reliability and construct validity of the Arabic version of PCL-C. The results demonstrate the best fit for the five-factor Dysphoric Arousal model (Elhai et al., 2011) in the context of Saudi women who have experienced IPV. These results add to the growing body of literature examining the best model that represents PTSD's underlying dimensionality. It also contributes to the existing literature on the cross-cultural applicability of PTSD symptoms using PCL-C, since it demonstrates the comparability of the Arabic and the English version. Further studies are needed to assess the factor structure of PTSD symptoms among women who have experienced IPV using the Arabic PCL-C. Because the two four factor models (numbing and dysphoria) provide adequate fit for the data as well, researchers using the Arabic version of PCL-C must carefully consider whether to assess these models.

References

- Adkins, J. W., Weathers, F. W., McDevitt-Murphy, M., & Daniels, J. B. (2008). Psychometric properties of seven self-report measures of posttraumatic stress disorder in college students with mixed civilian trauma exposure. *Journal of Anxiety Disorders, 22*(8), 1393-1402. doi:10.1016/j.janxdis.2008.02.002
- Al-Modallal, H. (2012). Psychological partner violence and women's vulnerability to depression, stress, and anxiety. *International Journal Of Mental Health Nursing, 21*(6), 560-566. doi:10.1111/j.1447-0349.2012.00826.x.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.
- Armour, C. (2015). The underlying dimensionality of PTSD in the diagnostic and statistical manual of mental disorders: Where are we going? *European Journal of Psychotraumatology, 6*, 1-8. doi:10.3402/ejpt.v6.28074
- Armour, C., & Shevlin, M. (2010). Testing the dimensionality of PTSD and the specificity of the dysphoria factor. *Journal of Loss and Trauma, 15*(1), 11-27.
- Armour, C., Carragher, N., & Elhai, J. D. (2013). Assessing the fit of the dysphoric arousal model across two nationally representative epidemiological surveys: The Australian NSMHWB and the United States NESARC. *Journal of Anxiety Disorders, 27*(1), 109-115. doi: 10.1016/j.janxdis.2012.10.006.
- Armour, C., Layne, C. M., Naifeh, J. A., Shevlin, M., Duraković-Belko, E., Djapo, N. . . Elhai, J. D. (2011). Assessing the factor structure of posttraumatic stress disorder

- symptoms in war-exposed youths with and without criterion A2 endorsement. *Journal of Anxiety Disorders*, 25(1), 80-87. doi:10.1016/j.janxdis.2010.08.006
- Armour, C., Müllerová, J., & Elhai, J. D. (2016). A systematic literature review of PTSD's latent structure in the diagnostic and statistical manual of mental disorders: DSM-IV to DSM-5. *Clinical Psychology Review*, 44, 60-74.
- Armour, C., Raudzah Ghazali, S., & Elklit, A. (2013). PTSD's latent structure in Malaysian tsunami victims: Assessing the newly proposed dysphoric arousal model. *Psychiatry Research*, 206(1), 26-32. doi:10.1016/j.psychres.2012.09.012
- Asmundson, G. J. S., Stapleton, J. A., & Taylor, S. (2004). Are avoidance and numbing distinct PTSD symptom clusters? *Journal of Traumatic Stress*, 17(6), 467-475. doi: 10.1007/S10960-004-5795-7.
- Balsam, K. F., Levahot, K., Beadnell, B., & Circo, E. (2010). Childhood abuse and mental health indicators among ethnically diverse lesbian, gay, and bisexual adults. *Journal of Consulting and Clinical Psychology*, 78 (4), 459–468.
- Bedard, M., Greif, J. L., & Buckley, T. C. (2004). International publication trends in the traumatic stress literature. *Journal of Traumatic Stress*, 17(2), 97-101. doi:10.1023/B:JOTS.0000022615.03388.78.
- Biehn, T. L., Elhai, J. D., Fine, T. H., Seligman, L. D., & Richardson, J. D. (2012). PTSD factor structure differences between veterans with and without a PTSD diagnosis. *Journal of Anxiety Disorders*, 26(3), 480-485. doi: 10.1016/j.janxdis.2012.01.008.
- Bradley, R., Schwartz, A. C., & Kaslow, N. J. (2005). Posttraumatic stress disorder symptoms among low-income, African American women with a history of intimate partner violence and suicidal behaviors: Self-esteem, social support, and

religious coping. *Journal of Traumatic Stress*, 18(6), 685-696.

doi:10.1002/jts.20077.

Buckley, T. C., Blanchard, E. B., & Hickling, E. J. (1998). A confirmatory factor analysis of posttraumatic stress symptoms. *Behaviour Research and Therapy*, 36, 1091–1099. doi:10.1016/S0005-7967(98)00076-X

Byllesby, B. M., Durham, T. A., Forbes, D., Armour, C., & Elhai, J. D. (2016). An investigation of PTSD's core dimensions and relations with anxiety and depression. *Psychological Trauma : Theory, Research, Practice and Policy*, 8(2), 214-217. doi:10.1037/tra0000081

Carlson, E. B. (2001). Psychometric study of a brief screen for PTSD: Assessing the impact of multiple traumatic events. *Assessment*, 8(4), 431– 441.

doi:10.1177/107319110100800408.

Cernvall, M., Alaie, I., & von Essen, L. (2012). The factor structure of traumatic stress in parents of children with cancer: A longitudinal analysis. *Journal of Pediatric Psychology*, 37(4), 448-457. doi:10.1093/jpepsy/jsr105

Cha, E. S., Kim, K. H., & Erlen, J. A. (2007). Translation of scales in cross-cultural research: Issues and techniques. *Journal of Advanced Nursing*, 58(4), 386–395.

doi: 10.1111/j.1365-2648.2007.04242.x.

Chan, C., Tiwari, A., Fong, D., & Ho, P. (2010). Post-traumatic stress disorder among Chinese women survivors of intimate partner violence: A review of the literature. *International Journal Of Nursing Studies*, 47(7), 918-925.

doi:10.1016/j.ijnurstu.2010.01.003.

- Chandra, P. S., Satyanarayana, V. A. & Carey, M. P. (2009). Women reporting intimate partner violence in India: Associations with PTSD and depressive symptoms,” *Archives of Women’s Mental Health*, 12(4), 203–209.
- Charak, R., Armour, C., Elklit, A., Angmo, D., Elhai, J., & Koot, H. (2014). Factor structure of PTSD, and relation with gender in trauma survivors from India. *European Journal of Psychotraumatology*, 5, 25547, doi: <http://dx.doi.org/10.3402/ejpt.v5.25547>
- Contractor, A. A., Layne, C. M., Steinberg, A. M., Ostrowski, A. A., Ford, J. D., & Elhai, J. D. (2013). Do gender and age moderate the symptom structure of PTSD? Findings from a national clinical sample of children and adolescents. *Psychiatry Research*, 210(3), 1056-1064. doi: 10.1016/j.psychres.2013.09.012.
- Costa, M. F., Mendlowicz, M. V., Vasconcelos, A. G. G., Berger, W., Luz, M. P. d., Figueira, I., & Garcia Rosa, M. L. (2011). Confirmatory factor analysis of posttraumatic stress symptoms in Brazilian primary care patients: An examination of seven alternative models. *Journal of Anxiety Disorders*, 25(7), 950-963. doi:10.1016/j.janxdis.2011.06.002
- Demirchyan, A., Goenjian, A. K., & Khachadourian, V. (2014). Factor structure and psychometric properties of the posttraumatic stress disorder (PTSD) checklist and DSM-5 PTSD symptom set in a long-term postearthquake cohort in Armenia. *Assessment*, 22(5), 594. doi:10.1177/1073191114555523
- Elhai, J. D., & Palmieri, P. A. (2011). The factor structure of posttraumatic stress disorder: A literature update, critique of methodology, and agenda for future

research. *Journal of Anxiety Disorders*, 25(6), 849–854. <http://dx.doi.org/10.1016/j.janxdis.2011.04.007>

- Elhai, J. D., Biehn, T. L., Armour, C., Klopper, J. J., Frueh, B. C., & Palmieri, P. A. (2011). Evidence for a unique PTSD construct represented by PTSD's D1-D3 symptoms. *Journal of Anxiety Disorders*, 25(3), 340-345.
- Elhai, J. D., Biehn, T. L., Naifeh, J. A., & Christopher Frueh, B. (2011). Posttraumatic stress disorder instrument wording content is associated with differences in factor structure. *Journal of Traumatic Stress*, 24(2), 208-212. doi:10.1002/jts.20628.
- Elhai, J. D., Engdahl, R. M., Palmieri, P. A., Naifeh, J. A., Schweinle, A., & Jacobs, G. A. (2009). Assessing posttraumatic stress disorder with or without reference to a single, worst traumatic event: Examining differences in factor structure. *Psychological Assessment*, 21(4), 629-634. doi: 10.1037/a0016677.
- Elhai, J. D., Grubaugh, A. L., Kashdan, T. B., & Frueh, B. C. (2008). Empirical examination of a proposed refinement to DSM-IV posttraumatic stress disorder symptom criteria using the National Comorbidity Survey Replication data. *Journal of Clinical Psychiatry*, 69(4), 597–602.
- Elhai, J. D., Palmieri, P. A., Biehn, T. L., Frueh, B. C., & Magruder, K. M. (2010). Posttraumatic stress disorder's frequency and intensity ratings are associated with factor structure differences in military veterans. *Psychological Assessment*, 22(4), 723-728. doi:10.1037/a0020643
- Eshelman, L. & Levendosky, A. A. P. (2012). Dating violence: Mental health consequences based on type of abuse. *Violence and Victims*, 27 (2), 215–228.

- Fischbacher, C.M., Hunt, S., & Alexander, L. (2004). How physically active are south Asians in the United Kingdom? A literature review. *Journal of Public Health, 26*(3), 250–258.
- Foa, E.B., Zinbarg, R., & Rothbaum, B.O. (1992). Uncontrollability and unpredictability in post-traumatic stress disorder: An animal model. *Psychology Bull, 112*(2), 218–38.
- Fodor, K.E., Pozen, J., Ntaganira, J., Sezibera, V., & Neugebauer, R. (2015). The factor structure of posttraumatic stress disorder symptoms among Rwandans exposed to the 1994 genocide: A confirmatory factor analytic study using the PCL-C. *Journal of Anxiety Disorder, 32*, 8–16.
- Ford, J. D., Elhai, J. D., Ruggiero, K. J., & Frueh, B. C. (2009). Refining posttraumatic stress disorder diagnosis: Evaluation of symptom criteria with the national survey of adolescents. *The Journal of Clinical Psychiatry, 70*(5), 748.
- Golding, J.M. (1999). Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence, 14*(2), 99-132.
doi: 10.1023/A:1022079418229.
- Good, B., J., & Hinton, D., E. (2016). Introduction Culture, trauma, and PTSD. In D. E. Hinton and B. J. Good (Ed.). *Culture and PTSD: Trauma in Global and Historical Perspective* (pp.3). Philadelphia: University of Pennsylvania.
- Griffin, M. G., Uhlmansiek, M. H., Resick, P. A., & Mechanic, M. B. (2004). Comparison of the posttraumatic stress disorder scale versus the clinician-administered posttraumatic stress disorder scale in domestic violence survivors. *Journal of Traumatic Stress, 17*(6), 497-503. doi:10.1007/s10960-004-5798-4.

- Grubaugh, A. L., Long, M. E., Elhai, J. D., Frueh, B. C., & Magruder, K. M. (2010). An examination of the construct validity of posttraumatic stress disorder with veterans using a revised criterion set. *Behaviour Research and Therapy, 48*(9), 909-914. doi:10.1016/j.brat.2010.05.019
- Guillemin, F., Bombardier, C., & Beaton, D. (1993). Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines. *Journal of Clinical Epidemiology, 46*(12), 1417-1432.
- Hamdan-Mansour, A. M., Constantino, R. E., Farrell, M., Doswell, W., Gallagher, M. E., Safadi, R., & Banimustafa, R. (2011). Evaluating the mental health of Jordanian women in relationships with intimate partner abuse. *Issues In Mental Health Nursing, 32*(10), 614-623.
- Hamdan-Mansour, A., Farhan, N., & Othman, E., Yacob, M. (2010). Knowledge and practices of critical care nurses caring for patients with delirium in Jordan. *Journal of Continuing Education in Nursing, 4*(12), 571-576.
- Harned, M. S., Jackson, S. C., Comtois, K. A., & Linehan, M. M. (2010). Dialectical behavior therapy as a precursor to PTSD treatment for suicidal and/or self-injuring women with borderline personality disorder. *Journal of Traumatic Stress, 23*(4), 421-429. doi:10.1002/jts.20553
- Hellmuth, J. C., Jaquier, V., Swan, S. C., & Sullivan, T. P. (2014). Elucidating posttraumatic stress symptom profiles and their correlates among women experiencing bidirectional intimate partner violence: PTSD symptom profiles among IPV-exposed women. *Journal of Clinical Psychology, 70*(10), 1008-1021. doi:10.1002/jclp.22100

- Hem, C., Hussain, A., Wentzel-Larsen, T., & Heir, T. (2012). The Norwegian version of the PTSD checklist (PCL): Construct validity in a community sample of 2004 tsunami survivors. *Nordic Journal of Psychiatry, 66*(5), 355-359. doi:10.3109/08039488.2012.655308
- Herman, J., L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress, 5*(3), 377–391. doi: 10.1002/jts.2490050305.
- Herman, J., L. (1997). *Trauma and recovery*. New York: Basic books.
- Houry, D., Kembal, R., Rhodes, K. V., & Kaslow, N. J. (2006). Intimate partner violence and mental health symptoms in African American female ED patients. *American Journal of Emergency Medicine, 24*(4), 444–450.
- Hoyt, T., & Yeater, E. A. (2010). Comparison of posttraumatic stress disorder symptom structure models in Hispanic and White college students. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*(1), 19-30. doi: 10.1037/a0018745.
- Iverson, K. M., Litwack, S. D., Pineles, S. L., Suvak, M. K., Vaughn, R. A., & Resick, P. A. (2013). Predictors of intimate partner violence revictimization: The relative impact of distinct PTSD symptoms, dissociation, and coping strategies. *Journal of Traumatic Stress, 26*(1), 102-110. doi:10.1002/jts.21781
- Kelly U. (2010). Intimate partner violence, physical health, posttraumatic stress disorder, depression, and quality of life in Latinas. *West Journal Emergency Medicine, 11*(3), 247–251.
- Khadra, C., Wehbe, N., Lachance Fiola, J., Skaff, W., & Nehmé, M. (2015). Symptoms of post-traumatic stress disorder among battered women in Lebanon: An

- exploratory study. *Journal of Interpersonal Violence*, 30(2), 295-313.
doi:10.1177/0886260514534774.
- Kienzler, H. (2008). Debating war-trauma and post-traumatic stress disorder (PTSD) in an interdisciplinary arena. *Social Science & Medicine*, 67(2), 218–227.
- King, D. W., Leskin, G. A., King, L. A., & Weathers, F. W. (1998). Confirmatory factor analysis of the clinician-administered PTSD scale: Evidence for the dimensionality of posttraumatic stress disorder. *Psychological Assessment*, 10(2), 90-96.
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). London: The Guilford Press.
- Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling. Third Edition*. New York: Guilford Press.
- Krause, E. D., Kaltman, S., Goodman, L. A., & Dutton, M. A. (2007). Longitudinal factor structure of posttraumatic stress symptoms related to intimate partner violence. *Psychological Assessment*, 19(2), 165-175. doi: 10.1037/1040-3590.19.2.165.
- Lee, J., Pomeroy, E. C., & Bohman, T. M. (2007). Intimate partner violence and psychological health in a sample of Asian and Caucasian women: The roles of social support and coping. *Journal of Family Violence*, 22(8), 709-720.
- Liu, P., Wang, L., Cao, C., Wang, R., Zhang, J., Zhang, B., . . . Elhai, J. (2014). The underlying dimensions of DSM-5 posttraumatic stress disorder symptoms in an epidemiological sample of chinese earthquake survivors. *Journal of Anxiety Disorders*, 28(4), 345-351. doi:10.1016/j.janxdis.2014.03.008.

- Mansfield, A. J., Williams, J., Hourani, L. L., & Babeu, L. A. (2010). Measurement invariance of posttraumatic stress disorder symptoms among U.S. military personnel. *Journal of Traumatic Stress, 23*(1), 91-99. doi: 10.1002/jts.20492.
- Marsella, A. J. (2010). Ethnocultural aspects of PTSD: An Overview of concepts, issues, and treatments. *Traumatology, 16*(4), 17–26.
- Marshall, G. N. (2004). Posttraumatic stress disorder symptom checklist: Factor structure and English–Spanish measurement invariance. *Journal of Traumatic Stress, 17*(3), 223-230. doi:10.1023/B:JOTS.0000029265.56982.86
- Marshall, G. N. (2004). Posttraumatic stress disorder symptom checklist: Factor structure and English-Spanish measurement invariance. *Journal of Traumatic Stress, 17*(3), 223_230. doi:10.1023/B:JOTS.0000029265.56982.86.
- Martinez, G., Marin, B.V., & Sohous-Glusberg, A. (2006). Translating from English to Spanish. The 2002 National Survey of Family Growth. *Hispanic Journal of Behavioral Sciences, 28*(4), 531–545.
- Matlow, R. B., & DePrince, A. P. (2013). The influence of victimization history on PTSD symptom expression in women exposed to intimate partner violence. *Psychological trauma: theory, research, practice, and policy, 5*(3), 241.
- McNally, R.J. (2003). Progress and controversy in the study of posttraumatic stress disorder. *Annual Review of Psychology, 54*(1), 229–252.
- McNally, R.J. (2009). Can we fix PTSD in DSM-V? *Depression and Anxiety, 26*(7), 597–600.
- Medina, N., T. Canaval, Burgos, & Humphreys, J. (2011). Contribution of intimate partner violence exposure, other traumatic events and posttraumatic stress

- disorder to chronic pain and depressive symptoms [Spanish]. *Investigacion & Educacion En Enfermeria*, 29(2), 174-186.
- Miller, M. W., Wolf, E. J., Kilpatrick, D., Resnick, H., Marx, B. P., Holowka, D. W., ... & Friedman, M. J. (2013). The prevalence and latent structure of proposed DSM-5 posttraumatic stress disorder symptoms in US national and veteran samples. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5(6), 501-512. doi: 10.1037/a0029730.
- Moghimi, Y. (2012). Anthropological discourses on the globalization of posttraumatic stress disorder (PTSD) in post-conflict societies. *Journal of Psychiatric Practice*, 18(1), 29-37.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles: Muthén & Muthén.
- Naifeh, J. A., Elhai, J. D., Kashdan, T. B., & Grubaugh, A. L. (2008). The PTSD Symptom Scale's latent structure: an examination of trauma-exposed medical patients. *Journal of Anxiety Disorders*, 22(8), 1355–1368.
doi:10.1016/j.janxdis.2008.01.016
- Naifeh, J. A., Richardson, J. D., Del Ben, K. S., & Elhai, J. D. (2010). Heterogeneity in the latent structure of PTSD symptoms among Canadian veterans. *Psychological Assessment*, 22(3), 666–674. doi:10.1037/a0019783
- Nathanson, A. M., Shorey, R. C., Tirone, V., & Rhatigan, D. L. (2012). The prevalence of mental health disorders in a community sample of female victims of intimate partner violence. *Partner Abuse*, 3(1), 59-75. doi:10.1891/1946-6560.3.1.59

- National Center for PTSD. (2013). Understanding Research on the Epidemiology of Trauma and PTSD. *PTSD Research Quarterly*, 24 (2-3), 1050-1835.
- Norris, A. E. & Aroian, K. J. (2008). Assessing reliability and validity of the Arabic language version of the Post-traumatic Diagnostic Scale (PDS) symptom items. *Psychiatry Research*, 160(3), 327–334.
- Olf, M., Sijbrandij, M., Opmeer, B. C., Carlier, I. V., & Gersons, B. P. (2009). The structure of acute posttraumatic stress symptoms: ‘Reexperiencing’, ‘active avoidance’, ‘dysphoria’, and ‘hyperarousal’. *Journal of Anxiety Disorders*, 23(5), 656-659. doi: 10.1016/j.janxdis.2009.02.003.
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, 129, 52–73.
- Palmieri, P. A., Weathers, F. W., Difede, J., & King, D. W. (2007). Confirmatory factor analysis of the PTSD checklist and the clinician-administered PTSD scale in disaster workers exposed to the World Trade Center Ground Zero. *Journal of Abnormal Psychology*, 116(2), 329_341. doi: 10.1037/0021-843X.116.2.329.
- Parker, B., & McFarlane J. (1991). Nursing assessment of the battered pregnant woman. *American Journal of Maternal Child Nursing*, 16(3), 161–164.
- Passos, R. B. F., Figueira, I., Mendlowicz, M. V., Moraes, C. L., & Coutinho, E. S. F. (2012). Exploratory factor analysis of the Brazilian version of the post-traumatic stress disorder checklist: Civilian version (PCL-C). *Revista Brasileira De Psiquiatria*, 34(2), 155-161. doi:10.1016/S1516-4446(12)70033-8

- Pietrzak, R.H., Tsai J., Harpaz-Rotem, I., Whealin, J.M., & Southwick, S.M. (2012). Support for a novel five-factor model of posttraumatic stress symptoms in three independent samples of Iraq/Afghanistan veterans: A confirmatory factor analytic study. *Journal of Psychiatric Research*, *46*(3), 317-322.
- Resick, P. A., Bovin, M. J., Calloway, A. L., Dick, A. M., King, M. W., Mitchell, K. S. . . . Wolf, E. J. (2012). A critical evaluation of the complex PTSD literature: Implications for DSM-5. *Journal of Traumatic Stress*, *25*(3), 241-251. doi:10.1002/jts.21699
- Roosendaal, B., McEwen, B. S., & Chattarji, S. (2009). Stress, memory and the amygdala. *Nature Reviews Neuroscience*, *10*(6), 423–433.
- Schell, T. L., Marshall, G. N., & Jaycox, L. H. (2004). All symptoms are not created equal: The prominent role of hyperarousal in the natural course of posttraumatic psychological distress. *Journal of Abnormal Psychology*, *113*(2), 189-197. doi: 10.1037/0021-843X.113.2.189.
- Seedat, S., Stein, M. B., Kennedy, C. M., & Hauger, R. L. (2003). Plasma cortisol and neuropeptide Y in female victims of intimate partner violence. *Psychoneuroendocrinology*, *28*(6), 796-808. doi:10.1016/S0306-4530(02)00086-0.
- Sidani, S., Guruge, S., Miranda, J., Ford-Gilboe, M., & Varcoe, C. (2010). Cultural adaptation and translation measures: an integrated method. *Research in Nursing & Health*, *33*(2), 133–143.
- Simms, L. J., Watson, D., & Doebbeling, B. N. (2002). Confirmatory factor analyses of posttraumatic stress symptoms in deployed and nondeployed veterans of the Gulf

War. *Journal of Abnormal Psychology*, 111(4), 637-647. doi: 10.1037//0021-843X.111.4.637.

Stampfel, C., Chapman, D., & Alvarez, A. (2010). Intimate partner violence and posttraumatic stress disorder among high-risk women: Does pregnancy matter? *Violence Against Women*, 16(4), 426-443.

doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1177/1077801210364047>.

Sullivan, T. P., & Holt, L. J. (2008). PTSD symptom clusters are differentially related to substance use among community women exposed to intimate partner violence. *Journal of Traumatic Stress*, 21(2), 173-180. doi:10.1002/jts.20318.

Tanaka, J. S. (1987). "How big is big enough?": Sample size and goodness of fit in structural equation models with latent variables. *Child Development*, 58(1), 134. doi:10.2307/1130296

Tjaden, P., & Thoennes, N. (2000). *Extent, nature, and consequences of intimate partner violence: Findings from the National Violence Against Women Survey*. National Institute of Justice and the Center for Disease control and Prevention.

van der Kolk, Bessel A, Roth, S., Pelcovitz, D., Sunday, S., Spinazzola, J., van der Kolk, Bessel A, & Courtois, C. A. (2005). Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of Traumatic Stress*, 18(5), 389-399. doi:10.1002/jts.20047

Varma, D., Chandra, P. S., Thomas, T., & Carey, M. P. (2007). Intimate partner violence and sexual coercion among pregnant women in India: Relationship with depression and post-traumatic stress disorder. *Journal of Affective Disorders*, 102(1), 227-235. doi:10.1016/j.jad.2006.09.026

- Vinson, G. A., & Chang, Z. (2012). PTSD symptom structure among West African war trauma survivors living in African refugee camps: A factor-analytic investigation. *Journal of Traumatic Stress, 25*(2), 226-231. doi:10.1002/jts.21681
- Wang, L., Cao, C., Wang, R., Zhang, J., & Li, Z. (2012). The dimensionality of PTSD symptoms and their relationship to health-related quality of life in Chinese earthquake survivors. *Journal of Anxiety Disorders, 26*(7), 711-718. doi:10.1016/j.janxdis.2012.06.005.
- Wang, L., Li, Z., Shi, Z., Zhang, J., Zhang, K., Liu, Z., & Elhai, J. D. (2011). Testing the dimensionality of posttraumatic stress responses in young Chinese adult earthquake survivors: Further evidence for dysphoric arousal as a unique PTSD construct. *Depression & Anxiety, 28*(12), 1097-1104.
- Wang, L., Long, D., Li, Z., & Armour, C. (2011). Posttraumatic stress disorder symptom structure in Chinese adolescents exposed to a deadly earthquake. *Journal of Abnormal Child Psychology, 39*(5), 749-758. doi:10.1007/s10802-011-9508-4.
- Wang, L., Zhang, J., Shi, Z., Zhou, M., Li, Z., Zhang, K., ... & Elhai, J. D. (2011). Comparing alternative factor models of PTSD symptoms across earthquake victims and violent riot witnesses in China: Evidence for a five-factor model proposed by Elhai et al. 2011. *Journal of Anxiety Disorders, 25*(6), 771-776.
- Wang, M., Armour, C., Li, X., Dai, X., Zhu, X., & Yao, S. (2013). The factorial invariance across gender of three well-supported models: Further evidence for a five-factor model of posttraumatic stress disorder. *The Journal of Nervous and Mental Disease, 201*(2), 145-152.

- Ware, J. E., & Gandek, B. (1998). Overview of the SF-36 health survey and the international quality of life assessment (IQOLA) project. *Journal of Clinical Epidemiology*, *51*(11), 903-912. doi:10.1016/S0895-4356(98)00081-X
- Watson, D. (2005). Rethinking the mood and anxiety disorders: a quantitative hierarchical model for DSM-V. *Journal of Abnormal Psychology*, *114*(4), 522–536. doi:10.1037/0021-843X.114.4.522
- Weathers, F. W. & Keane, T. M. (1998). Psychological assessment. In P.A. Saigh & J.D. Bremner (Eds.), *Posttraumatic Stress Disorder: A comprehensive Approach to Research and Treatment*. New York: Allyn & Bacon.
- Weathers, F. W., Keane, T. M., & Davidson, J. R. T. (2001). Clinician-administered PTSD scale: A review of the first ten years of research. *Depression and Anxiety*, *13*(3), 132-156. doi:10.1002/da.1029.
- Weathers, F.W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *PTSD Checklist—Civilian version*. Boston: National Center for PTSD, Behavioral Science Division.
- Weathers, F.W., Litz, B.T., Herman, D.S., Huska, J. A., & Keane, T. M. (1993). The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility. Paper presented at: 9th Annual Meeting of the International Society for Traumatic Stress Studies; San Antonio, Tex.
- Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the psychometric properties of the PTSD checklist (PCL) military, civilian, and specific versions. *Depression and Anxiety*, *28*(7), 596-606. doi:10.1002/da.20837
- Wilson, J. P. (2007). The lens of culture: Theoretical and Conceptual Perspectives in the Assessment of Psychological Trauma and PTSD. In J. P. Wilson and C. S. Tang

(Eds.). *Cross-Cultural Assessment of Psychological Trauma and PTSD* (pp. 3-30).
New York: Springer Science and Business Media.

- Wilson, J.S., Messing, J.T., Patchell, B., & Campbell, J.C. (2011). Factors related to posttraumatic symptoms in women experiencing police-involved intimate partner violence. *Advances in Nursing Science*, *34*(3), E14–E28.
- Woods, S. J., & Wineman, N. M. (2004). Trauma, posttraumatic stress disorder symptom clusters, and physical health symptoms in postabused women. *Archives of Psychiatric Nursing*, *18*(1), 26-34. doi:10.1053/j.apnu.2003.11.005
- World Health Organization (2013). *Responding to intimate partner violence and sexual violence against women WHO clinical and policy guidelines*. Geneva: WHO.
- Yehuda, R. & LeDoux, J. (2007). Response variation following trauma: A translational neuroscience approach to understanding PTSD. *Neuron* *56*(1), 19–32.
- Yufik, T., & Simms, L. J. (2010). A meta-analytic investigation of the structure of posttraumatic stress disorder symptoms. *Changes*, *119*(4), 764-776.

CHAPTER FIVE
ARTICLE THREE
THE RELIABILITY AND VALIDITY OF THE ARABIC VERSION OF
COMPOSITE ABUSE SCALE

Introduction

Intimate partner violence (IPV), a pattern of physical, sexual, emotional, economic and/or spiritual abuse by an intimate partner in the context of coercive control (Tjaden & Thoennes, 2000), is a widespread, international issue experienced by 15% to 71% of all women in their lifetime (World Health Organisation, 2005). In the past two decades, research on IPV has increased dramatically worldwide, leading to increased public awareness and understanding that IPV is an important public health problem and human rights issue (Ellsberg & Heise, 2005).

Development of high quality evidence about IPV and its effects depends on the availability of reliable and valid measures that are capable of capturing the complexity of this concept (Follingstad & Ryan, 2013; Waltermaurer, 2005). Establishing the reliability of IPV measures is imperative in understanding the measure's stability, consistency, and/or dependability (Ryan, 2013). Evaluating the factor structure (validity) of IPV measures is an important topic of continued study. It can provide insight into the underlying dimensions of IPV or confirm previous theoretical and/or empirical knowledge of IPV. Such research has implications for developing accurate prevalence rates of IPV. It also can advance the understanding of risk factors for specific dimensions of IPV and reveal relationships between abuse types (e.g. emotional abuse) and health consequences. Finally, gleaning this information can enhance developing and evaluating new intervention programs related to IPV.

Although IPV is a significant problem for women regardless of their racial, ethnic, and socioeconomic background (Heise, 1999; Krahe, Bieneck, & Möller, 2005), a systematic review highlighted the significant need for additional testing and validation of IPV instruments in various populations and with women from varied race, ethnic and/or cultural backgrounds (Rabin, Jennings, Campbell, & Bair-Merritt, 2009). In Arab countries, including Saudi Arabia (SA), research on IPV is hampered by lack of instruments whose psychometric properties have been rigorously assessed. Studies in the Arab world have tended to capture only physical abuse (e.g. Eldoseri, Tufts, Zhang, & Fish, 2014; Al-Faris et al., 2013; Khawaja & Barazi, 2005; Rachana et al., 2002), because this is the easiest detectable form of abuse. Psychological/emotional abuse that is usually perpetrated by husbands to control their partners has been overlooked in the few Arab studies that have been completed. Yet, evidence suggests that psychological/emotional abuse has dire impacts on women's health and is a strong predictor of women's traumatic responses to abuse (DeKeseredy & Schwartz, 2009). By failing to consider other types of abuse, this approach has been critiqued for exacerbating the issue of underreporting as well as underestimating the prevalence of the IPV (DeKeseredy & Schwartz, 2011).

In addition, a number of studies conducted with Arab populations have used measures that were created by the researchers to document acts of abuse using checklists of abusive behaviors (e.g. AboulAzm et al., 2009; Afifi et al., 2011; Barnawi, 2015; Bohlaiga et al., 2014; Rachana et al., 2002). However, this approach has been criticized by the absence of a contextual framework for the behaviors (Follingstad & Rogers, 2013) and the lack of consideration given to the dynamics of abusive relationships (Krahe,

Bieneck, & Möller, 2005). Further, most studies that developed their own measures did not elaborate on the reliability and validity of the scales.

Other studies conducted with Arab women have used translated scales such as the Conflict Tactics Scales (e.g. Haj-Yahia & Clark, 2013; Tashkandi & Rasheed, 2009), the Abuse Assessment Screen (e.g. Al-Modallal, Abu Zayed, Abujilban, Shehab, & Atoum, 2015), Index of Spouse Abuse (e.g. Al-Khurinej, Almutairi, & Allengawi, 2009), and the questionnaires for the WHO Multi-country Study on Women's Health and Domestic Violence Against Women (e.g. Al-Modallal et al., 2015). However, the researchers have not reported the reliability and validity of these measures. In addition, most of these measures have other significant limitations. For example, Conflict Tactics Scale (CTS; Straus, 1979) has been widely criticized as it measures the phenomenon of IPV out of context (Belknap, 2001; Dobash & Dobash, 2004) by solely counting crude numbers of violence acts (DeKeseredy & Schwartz, 2011). The CTS does not consider forced isolation (Jiwani, 2000) or fear instilled in women (Barnett, Miller-Perrin, & Perrin, 2005) and includes only items related to psychological conflict instead of psychological abuse (Tolman, 1989). Similarly, the usefulness of Index of Spouse Abuse is limited, because it's weighted scoring system is challenging to use (Eliason, Taylor, & Arnct, 2005). Also, the non-physical items have been criticized for being vague and poorly defined (Winstok & Sowan-Basheer, 2015).

Thus, without a well-validated IPV measure, it is challenging to make meaningful comparisons across studies in the Arab world or to conduct large-scale population-based studies within the country that could produce meaningful information. The way in which IPV is conceptualized or defined critically influences prevention, recognition, and

treatment strategies that are implemented within a society (Woodin, Sotskova & O’Leary, 2013). In essence, the key to conducting rigorous research and developing and testing interventions is the capacity to accurately and appropriately estimate rates of IPV and measure its dimensions (Bachman, 2000; Saltzman, 2004). To promote the development of a body of research on IPV, as well as inform interventions and policies in Arab countries, particularly SA, a standardized and comprehensive measure of IPV needs to be available. Thus, the most beneficial approach to the field of IPV in Saudi Arabia is to begin with a gold standard measure that embraces a comprehensive definition of IPV and has been proved to be reliable and valid among Saudi women.

The lack of a multi-dimensional measure that assesses various aspects of abuse comprehensively presents challenges for researchers (Evans, Gregory, Feder, Howarth, & Hegarty, 2016). The 30-item Composite Abuse Scale (CAS; Hegarty, Bush, & Sheehan, 2005) was developed in response to this issue and as a way of addressing the limitations of other IPV measures (Hegarty et al., 2005). It has become a gold standard in assessing IPV that is recommended for use by the National Centre for Injury Prevention and Control in the United States (Thompson et al., 2006). The CAS uses a comprehensive definition of IPV that considers the severity and frequency of different types of abuse and the context in which women are deliberately isolated and subserviently treated (Hegarty et al., 2005; Hegarty & Roberts, 1998). It asks women to rate how often in the past 12 months they experienced abusive actions on a 6-point likert scale ranging from *never* (0) to *daily* (5).

Initially, Hegarty et al (1999) recruited 427 Australian nurses to assess the CAS’s reliability and validity. The analysis revealed a four-factor solution: Severe Combined

Abuse (SCA), Emotional Abuse (EA), Physical Abuse (PA), and Harassment (H). The internal consistency reliability of the scale was high, with Cronbach's alpha for the SCA, EA, PA, and H scales were .95, .92, .95, and .91, respectively and all item-total correlations above .6. Face validity, criterion validity, and construct validity were assessed and established (Hegarty et al., 1999). A second validation study was conducted with a sample of 1,836 Australian women attending general health practice (Hegarty et al., 2005). The 74 items were reduced to 30 items and convergent validity was established. The same four-factor model identified in initial development was also supported in the second study (Hegarty et al., 2005).

The CAS has been used to identify IPV among clinical populations in Australia (e.g. Gartland, Hemphill, Hegarty, & Brown, 2011), and the UK (Sohal, Eldridge, Feder, 2007). The CAS has also been adapted and translated in eight different languages and used in different countries including Holland (Prosman et al., 2011), Nigeria (Mapayi, Makanjuola, Fatusi, & Afolabi, 2011), Russia (Lokhmatkina, Kuznetsova, & Feder, 2010), and India (Sohani et al., 2013). In the previous studies that reported the reliability, the CAS has demonstrated adequate internal reliability (Cronbach's alpha >0.75).

Despite the widespread use of the CAS, the factor structure of the scale has only recently been re-evaluated in two studies (Loxton et al. 2013; Ford-Gilboe et al, in press), neither of which were able to replicate Hegarty's four factor model. Loxton et al. (2013) tested the factor structure of a 28-item version of the CAS called the Community Composite Abuse Scale (CCAS), in which the three sexual abuse items were collapsed to one item. Participants were a cohort of 7,608 women taking part in the Australian

Longitudinal Study on Women's Health. Factor analyses supported a three factor model, with domains representing physical abuse, emotional abuse, and harassment, along with the single sexual abuse item. More recently, Ford-Gilboe et al (in press) evaluated the factor structure of the CAS using data from a sample of 6278 Canadian women, as part of a larger study designed to develop a brief version of the CAS for use in population surveys. As well, factor analyses supported three factor solution which are physical, sexual, and psychological abuse. Results of these two factor analysis studies suggest the need to further test the factor structure of CAS in diverse contexts.

The CAS was recently translated into Arabic as a first step in exploring the prevalence of IPV among Saudi women living in the UK (Alhabib, Feder, & Horwood, 2013). Translation of the CAS was conducted in four stages. In the first stage, a bilingual General Practitioner conducted a preliminary forward translation. In the second stage, the bilingual General Practitioner and two panels of bilingual experts (i.e. a consultant psychiatrist and a layperson) reviewed the initial translation of the CAS to ensure that content validity was maintained. Next, two focus groups reviewed the format and wording of the questionnaire. Finally, back-translation of the CAS by an independent professional bilingual translator was completed to check the accuracy of the original translation. Based on feedback, the term used for "intimate partner" was changed to "husband", since using boyfriend or girlfriend is not acceptable in the Saudi culture at the current time. Items were judged as acceptable and appropriate for use with Saudi women with one exception: item 25 which asked women about the use of foreign objects in the vagina, was removed because it was seen as intrusive (Alhabib et al., 2013). While the Arabic version of the CAS has potential to substantially advance researching on IPV in

Saudi Arabia, the reliability and validity of 29-item Arabic version of CAS were not reported. Thus, additional research is still required to assess its applicability, reliability and validity among Saudi women prior to the widespread use of the scale. Consequently, the purpose of this analysis was to assess the psychometric properties of the Arabic version of CAS among Saudi women who had experienced IPV. Specifically, we evaluate the reliability (internal consistency), construct validity (factor structure), and concurrent validity of the scale and discuss its use in both practice and research.

Method

The analysis in this paper utilized data from a larger study examining the impact of IPV on Saudi women's health in a convenience sample of 299 married women recruited from nine primary health care centers (PHCCs) in Saudi Arabia. Adult women (age 18 -65 years), who presented to the PHCC seeking care for themselves or for their children, were asked by a staff member if they were interested in participating in a women's health study. Those who agreed (n=774) were screened for exposure to IPV using an Arabic translation of the Abuse Assessment Screen (AAS; Parker & McFarlane, 1991). In all, 311 of 774 women (40.2%) screened positive for IPV in the past 12 months and were provided with a description of the study and invited to participate. Among women who screened positive for IPV, 305 women (98.1%) agreed to participate and completed an interview. Six cases were excluded from the study, four of which contained larger amount of missing data (from 20.7% to 71.4% on main variables) and two in which women answered no to all abuse item, even though they screened positive for IPV based on the AAS. Thus, the total sample for the study was 299. Written consent was obtained from each woman prior to data collection; the consent was read to women who

were unable to read and write and they were asked to provide a thumb print to indicate their consent.

Data Collection

Structured interviews (SI) comprised of standardized self-report measures and survey questions, were conducted by trained researchers with each woman in a private room in the PHCC. Standardized protocols were used to make certain that data were collected in a similar way and that attention to women's safety was prioritized. Interviews took 20 to 40 minutes to complete. Each woman received a gift certificate for 50 Saudi Riyal (SR) (equivalent of \$16 cdn) from a local grocery store to recognize her contributions and time. Ethics approval to conduct this study was obtained from the Research Ethics Board at Western University and Institutional Review Boards (IRB) for both the Ministry of Health and King Abdullah International Medical Research Center (KAIMRC) /MNGHA in Saudi Arabia.

Sample

The mean age of participants was 36.11 years ($SD= 10.20$, range 18–64). The vast majority of women (92.3%) were mothers. The mean of women's personal income was 1,702 Saudi Riyal (SR) (\$589 Canadian) per month ($SD= 3,522$ SR). Women's total household monthly incomes ranged from 0 to 53 SR (\$0 to \$18,550 Canadian) per month with a mean 9,455 SR (\$3,303 Canadian) ($SD= SR 7,324$); however 5.57% of women didn't know their family income. This sample income is lower than the general Saudi population, as the mean of Saudi family income is estimated to be 14,250 SR per month (McKinsey Global Institute, 2015). Women's educational backgrounds varied widely; 10.7% were unable to read and write, 30.1% had completed elementary school, 29.1%

had completed high school, and 21.4% had earned a university/college degree. The literacy rate is higher at this sample compared with the general Saudi population, as 17.8% of Saudi women can't read and write (UNESCO Institute for Statistics, 2011) compared to 10.8% in the sample. Participants had experienced wife abuse for an average of 11.4 years (range = 0.08 - 45.0, $SD=9.985$). For detailed description of the sample see chapter three.

Measurement

Composite Abuse Scale. This analysis uses women's responses to questions on the 29-item Arabic Composite Abuse Scale (CAS) (Alhabib et al., 2013). The Arabic CAS uses the same response options and scoring as the original CAS. Women were asked to rate how often in the past 12 months they experienced 29 abusive acts on a 6-point Likert scale (ranging from 0= never to 5= daily). Items encompassed four subscales: a) Severe Combined Abuse (8 items), which includes combination of severe physical abuse items, physical isolation aspects of emotional abuse, and all sexual abuse items; b) Physical Abuse (7 items), which includes less severe physical abuse items; c) Emotional Abuse (11 items), which includes verbal, psychological, dominance and social isolation abuse items; and d) Harassment (4 items), which includes items about being stalked and harassed. Total and subscale scores can be computed by summing all applicable items.

Center for Epidemiologic Studies-Depression (CESD) Scale. The CESD (Radloff, 1977) was used to examine the concurrent validity of the CAS, because there is strong evidence that IPV and depressive symptoms are related (Lacey, Mcpherson, Samuel, Sears, & Head, 2013; Kim-godwin, Maume, & Fox, 2014). Women were asked

to rate the frequency of experiencing symptoms in the past week on a 4-point likert scale ranging from *rarely or none* (1) to *most of the time* (4). The CESD has demonstrated strong reliability among different populations (Ford-Gilboe et al., 2009; Jarvis, Gordon, & Novaco, 2005; Thomas, Jones, Scarinci, Mehan, & Brantley, 2001). For the purpose of study, the Arabic version of CESD was used (Ghubash, Daradkeh, Al Naseri, Al Bloushi, & Al Daheri, 2000). Internal consistency was 0.86 in this current study.

Data Analysis

Preliminary analysis related to missing data was conducted before the main analysis. Although the missing data occurred at a low frequency for the CAS (range from 0% to 0.3%), the assumption of data missing completely at random (MCAR) was evaluated using Little's MCAR test (Little, 1988). Results showed that the assumption of MCAR was met ($\chi^2(77) = 39.012, p=1.00$) as the test was non-significant. Missing item level data were imputed by using the individual's average score from the scale items. Using the case mean to impute or substitute missing data was appropriate because people are usually internally consistent across a set of items that form a scale and it has an advantage of using the whole sample (Polit, 2010).

The analysis plan was designed to test the reliability and validity of the Arabic CAS based first on the original 4 factor model proposed by Hegarty and, if this model proved to be inadequate, to employ more exploratory analysis to identify a factors structure that would best fit the data. The Statistical Package for Social Sciences (SPSS) Version 23 was used to assess descriptive statistics for each item, conduct an item analysis, and estimate the internal consistency reliability of the CAS total score and the original four subscales (Severe Combined Abuse, Physical Abuse, Emotional Abuse, and

Harassment) using Cronbach's alpha. The concurrent validity of the CAS was examined by computing the correlation between the CAS total score and CESD total score.

Next, Mplus 7 (Muthen & Muthen, 2012) was used to conduct a Confirmatory Factor Analysis (CFA) of the 29-item Arabic version of CAS in an attempt to replicate the original four subscales (Sever Combined Abuse, Physical Abuse, Emotional Abuse, and Harassment). The model fit for CFA was assessed using several goodness-of-fit indices: root-mean-squared error of approximation (RMSEA), comparative fit index (CFI), and chi-squared. Empirically-defined benchmarks were used to interpret the fit indices, with CFI and TLI = .90 indicative of adequate fit and $\geq .95$ indicative of excellent fit; and RMSEA = .08 indicative of adequate fit and $\geq .06$ indicative of excellent fit (Hu & Bentler, 1999).

In the event that the 4 factor model did not fit the data and the modification indices were theoretically unreasonable, an exploratory factor analysis (EFA) was planned in Mplus to identify the underlying dimensions of IPV in the item pool among Saudi women. EFA is a method used to discover the number and nature of factors that explain the most variation and covariation in a set of measure's items without imposing a pre-determined model (Kline, 2013; Preacher & MacCallum, 2003). A model was estimated with the number of factors ranging from 2 to 5 based on the theoretical knowledge and initial results from SPSS using scree plots, eigenvalues greater than one, and percent of variance accounted for by each extracted factor. An oblique rotation, where the factors are *allowed* to correlate (covary), was chosen, because types of abuse are not completely independent (Caetano, Field, Ramisetty-Mikler, & Lipsky, 2009). Although varimax rotation was used in the initial factor analysis of the CAS, it has been argued to be

inappropriate because factors are rarely if ever uncorrelated theoretically and empirically (Kline, 2013; Preacher & MacCallum, 2003). Decisions about the best model were made based on evaluation of the model fit criteria (RMSEA, SRMR, and CFI) as well as conceptual clarity, interpretability and theoretical salience of the rotated factors.

Finally, we planned to assess the concurrent validity of the CAS again in the event that items were deleted from the scale. A second item-analysis was also planned to estimate the reliability (internal consistency) of each of the newly derived factor using Cronbach's alpha and to describe the contribution of each item to the total alpha, the average inter-item correlations for sub-scales (factors), and correlation of items with their intended factors (using corrected item-total correlations).

Results

Descriptive statistics for each item are shown in Table 1. The mean total CAS was 30.23 ($SD = 20.86$) with a range of 2–137. Inspecting the means for all items showed that four items had low means: *locked me in the bedroom* (item 5); *harassed me at work* (item 16); *used a knife or gun or other weapon* (item 18); and *tried to convince friends/family/children I was crazy* (item 27). Two items (Item 12: *blamed me for causing their violent behavior* and Item 25: *refused to let me work outside the home*) had high means relative to other items. All but three items were normally distributed: *harassed me at work* (item 16); *used a knife or gun or other weapon* (item 18); and *tried to convince friends/family/children I was crazy* (item 27) had skewness indexes were above 3.0 and kurtosis indexes above 10.0 (Kline, 2011).

Table 1: *Item-level descriptive statistics, item-total correlations, and internal consistency of CAS (N=299).*

CAS-items	M	SD	Skew	Kurtosis	Item-total correlations	Alpha if item deleted
CAS1: Told me I wasn't good enough	1.99	1.64	.324	-.942	.473	.892
CAS2: Kept me from medical care	.61	1.18	2.149	4.263	.483	.892
CAS3: Followed me	.99	1.55	1.432	.883	.347	.894
CAS4: Turned family/friend/children against me	1.04	1.55	1.235	.283	.544	.890
CAS5: Locked me in the bedroom	.35	.91	2.911	8.553	.490	.892
CAS6: Slapped me	1.07	1.46	1.734	4.607	.572	.890
CAS7: Raped me	.66	1.22	1.850	2.685	.371	.894
CAS8: Told me that I was ugly	.91	1.30	1.278	.785	.497	.891
CAS9: Tried to keep me from seeing or talking to family	1.00	1.46	1.394	1.054	.500	.891
CAS10: Threw me	.70	1.18	1.831	2.924	.636	.889
CAS11: Hung around outside my house	.55	1.32	2.482	5.012	.291	.895
CAS12: Blamed me for causing their violent behaviour	2.85	1.83	-.081	-.953	.459	.892
CAS13: Harassed me over the telephone	.90	1.40	1.508	1.358	.426	.893
CAS14: Shook me	1.04	1.47	1.351	.901	.600	.889
CAS15: Tried to rape me	.79	1.28	1.545	1.590	.374	.894
CAS16: Harassed me at work	.32	.91	3.416	12.402	.224	.895
CAS17: Pushed, grabbed or shoved me	1.24	1.38	.929	.107	.587	.889

CAS-items	M	SD	Skew	Kurtosis	Item-total correlations	Alpha if item deleted
CAS18: Used a knife or gun or other weapon	.10	.42	4.773	23.748	.376	.895
CAS19: Became upset if dinner/housework not done	1.82	1.76	.399	-1.179	.555	.890
CAS20: Told me that I was crazy	.85	1.37	1.586	1.659	.577	.890
CAS21: Told no one would ever want me	.77	1.39	1.788	2.262	.432	.892
CAS22: Took my wallet and left me stranded	1.60	1.88	.757	-.896	.451	.893
CAS23: Hit or tried to hit me with something	1.19	1.41	1.078	.373	.579	.890
CAS24: Did not want me to socialize with female friends	1.41	2.04	.985	-.798	.207	.900
CAS25: Refused to let me work outside the home	2.38	1.95	.117	-1.462	.306	.897
CAS26: Kicked/bit/hit with a fist	.53	1.08	2.127	4.012	.582	.890
CAS27: Tried to convince friends/family/children I was crazy	.26	.84	3.629	13.263	.458	.893
CAS28: Told me I was stupid	1.73	1.70	.516	-.926	.553	.890
CAS29: Beat me up	.61	1.24	2.111	3.676	.630	.889
CAS-total	30.23	20.86	1.357	2.469		

Reliability and Validity Based on the Original Four-Factor Structure

The internal consistency of the CAS as measured by Cronbach's alpha coefficient was .895 for all 29 items, with item-total correlations ranging from .207 to .636. Three items had item-total correlations below .30 (Item 11: *hung around outside my house*; Item 16: *harassed me at work*; Item 24: *did not want me to socialize with female friends*). The reliability of the overall scale would increase if item 24 (*did not want me to socialize with female friends*) and item 25 (*refused to let me work outside the home*) were deleted from the test. The inter-item correlation coefficients ranged from -.017 to .836 (mean .246) on the entire CAS.

Internal consistency of the subscales was .597 for severe combined abuse, .793 for emotional abuse, .903 for physical abuse, and .548 for harassment. Thus, internal consistency reliability was acceptable (Cronbach's $\alpha \geq 0.70$; Nunnally & Bernstein, 1994) for only 2 of the 4 subscales. For the severe combined abuse subscale, item-total correlations ranged from .233 to .414, with the inter-item correlation ranging from .045 to .836 (mean was .209). The lowest item-total correlations were for Item 18 and Item 25. For the emotional abuse subscale, item-total correlations ranged from .127 to .621, with the inter-item correlations ranging from -.017 to .638 (mean was .275). Only item 24 (*did not want me to socialize with female friends*) had an item-total correlations below .30. For the physical abuse subscale, item-total correlations ranged from .682 to .776, with the inter-item correlations ranging from .450 to .699 (mean was .582). For the harassment subscale, item-total correlations ranged from .237 to .442, with the inter-item correlations ranging from .150 to .407 (mean was .231). Both item 13 (*harassed me over the telephone*) and item 16 (*harassed me at work*) had item-total correlations below .30.

The CAS total score was moderately correlated with CESD ($r = .505$) which provides support to the concurrent validity of the CAS. CFA was conducted with the robust maximum likelihood (RML) method for parameter estimation, because the assumption of multivariate normality was not met based on the inspection of univariate distributions. Data are severely non-normal if the skewness index (SI) is > 3 and kurtosis index (KI) is > 10 (Kline, 2011). In this current data, univariate skewness ranged from $-.081$ (CAS12) to 4.773 (CAS18), whereas kurtosis ranged from -1.462 (CAS25) to 23.748 (CAS18) (Table 1). The goodness-of-fit indices for the CFA indicated that the original 4-factor model (Severe Combined Abuse, Physical Abuse, Emotional Abuse, and Harassment) from the scale developers (Hegarty et al., 1999; Hegarty et al., 2005) did not sufficiently fit the observed data. The goodness-of-fit indices were χ^2 (371, $N = 299$) = 954.630 , CFI = $.752$, TLI = $.729$, RMSEA = $.073$ (90% CI: $.067$ - $.078$), SRMR = $.076$. The modification indices were assessed but most were modest and the changes suggested did not make theoretical sense.

Exploratory Analysis of the CAS Structure

Given the poor fit of the original four-factor structure with the item pool, and the lack of direction for additional analysis based on modification indices, an unrestricted EFA using MLR estimation and oblique rotation was conducted to identify a potential latent structure for the CAS. Using EFA, we ran solutions with 2, 3, 4, and 5 factors based on initial results from SPSS using scree plots, eigenvalues greater than one, and percent of variance accounted for by each extracted factor. Using fit-indices, a theory-driven approach and the interpretability of the factor structure, the four-factor solution was the best solution and the only reasonable model. The fit-indices were χ^2 (296, $N =$

299) = 532.34, CFI = .901, RMSEA = .052 (90% CI: .045- .059), SRMR = .043. Based on the item content, these factors were labelled Sexual Abuse, Physical Abuse, Controlling Behavior, and Verbal Abuse. Two items were identified for deletion. Item 24 (*did not want me to socialize with female friends*) did not load on any factors at a threshold of .3, had the lowest item-total correlation and the reliability of the overall scale would improve if this item is deleted from the test. Women who are already in abusive relationship usually pull away from their friends (LaViolette & Barnett, 2013) and may lose interest in socializing (Alhabib, 2011). Saudi women are not allowed to drive which might hinder their ability to get out with their friends. Thus, this item might not be appropriate to the Saudi context. Similarly, item 25 (*refused to let me work outside the home*) loaded on the verbal abuse factor (.38) rather than the controlling behavior factor (.24) and had a high mean (2.38) relative to other items. These findings could be related to the Saudi context which discourages women's economic involvement based on cultural attitudes (Achoui, 2006; Sidani, 2005). A husbands' refusal to let women work outside the home is normative in Saudi Arabia.

Thus, the EFA was run again excluding item 24 and 25. The fit-indices improved: χ^2 (249, N = 299) = 444.780, CFI = .911, RMSEA = .051 (90% CI: .043- .059), SRMR = .040 and item loadings cleanly on each factor at a level of 0.3. The final rotated factors loadings are shown in Table 2. The Sexual Abuse factor consists of two items (factor loadings .95 to .96) that capture the use of manipulative and forceful sexual behaviors. The Physical Abuse factor consists of seven items (factor loadings .60 to .85) including items that tap range of acts of physical violence and force. The Verbal Abuse factor

includes six items (factor loadings .41 to .83) that measure the verbal acts, such as insulting, belittling, cursing, or humiliating the partner. The controlling behavior factor

Table 2: *Factor Loadings for the Four Factors Arabic Composite Abuse Scale*

CAS-items	Sexual	Controlling	Physical	Verbal
CAS07:Raped me	.95			
CAS15:Tried to rape me	.86			
CAS02:Kept me from medical care		.63		
CAS03:Followed me		.46		
CAS04:Tried to turn my family, friends and children against me		.38		
CAS05:Locked me in the bedroom		.38		
CAS09:Tried to keep me from seeing or talking to my family		.57		
CAS11:Hung around outside my house		.60		
CAS13:Harassed me over the telephone		.34		
CAS16:Harassed me at work		.42		
CAS18:Used a knife or gun or other weapon		.42		
CAS21:Told me that no one would ever want me		.33		
CAS22:Took my wallet and left me stranded		.48		
CAS27: Tried to convince my friends, family or children that I was crazy		.34		
CAS06: Slapped me			.71	
CAS10:Threw me			.80	
CAS14:Shook me			.60	
CAS17:Pushed, grabbed or shoved me			.61	
CAS23:Hit or tried to hit me with something			.74	
CAS26:Kicked me, bit me or hit me with a fist			.78	
CAS29:Beat me up			.85	
CAS01:Told me that I wasn't good enough				.46
CAS08:Told me that I was ugly				.56
CAS12:Blamed me for causing their violent behaviour				.48
CAS19: Became upset if dinner/housework wasn't done when they thought it should be.				.78
CAS20:Told me that I was crazy				.41
CAS28:Told me that I was stupid				.83

includes twelve items (factor loadings .33 to .63) capturing coercive controlling tactics, such as threats, monitoring, and invoking male privilege.

Item 18 (*used a knife or gun or other weapon*) from the original severe combined abuse subscale moved to the controlling behavior scale (factor loading .42). Given that this statement could be understood as “threatened” to use knife or gun or other weapon instead of real use (Ford-Gilboe et al, in press), this is an indicator of controlling women’s behavior. Similarly, item 21 (*told me that no one would ever want me*) from the original emotional abuse scale loaded on the controlling behavior factor (.33). However, this items could be perceived as an indicator of coercive control as the abusive partner (husband) might use this tactic to limit the woman’s options and prevent her from leaving him (Ford-Gilboe et al, in press). As noted in Table 3, the four factors were significantly and moderately correlated (ranging from .20 to .51), suggesting that the four factors reflect unique constructs.

Table 3: *Correlation Matrix for the Four Factors*

Factors	1	2	3	4
1. Sexual abuse	1			
2. Controlling behaviour	.34	1		
3. Physical abuse	.25	.46	1	
4. Verbal abuse	.20	.43	.51	1

The concurrent validity of 27-item CAS was re-examined after the deletion of 2 items. The correlation between the total score of the 27-item CAS with CESD was .509, which is slightly higher than with the original 29 items. The reliability (internal consistency) of the CAS was acceptable (.902 for the total scale and .903, .805, .910, and .781, for the physical abuse, verbal abuse, sexual abuse, and controlling behaviors scales,

respectively). The mean of inter-item correlation for the full scale was .27, and .58 for physical abuse subscale, .42 for verbal abuse subscale, .84 for sexual abuse subscale, and .25 for controlling behaviors subscale. The item-total correlations for the entire scale ranged from .223 to .644. For subscales, item-total correlations ranged from .682 to .776 for the Physical Abuse; .682 to .776, for Verbal Abuse; .477 to .687 for Controlling Behavior; and .309 to .552 Sexual Abuse. The Cronbach's alpha for the total scale as well as subscales would not increase if any item was deleted from the test.

Discussion

This paper aimed to assess the reliability of the Arabic CAS as well as replicate the factor structure found in the original development of the CAS conducted by Hegarty et al. (1999). As the first study to investigate the factor structure of Arabic version of an IPV measure, the results have potential to significantly enhance the conduct of IPV research in the Arab world, particularly in Saudi Arabia. The study produced two major findings. First, confirmatory factor analysis failed to replicate the original four-factor CAS structure in the current sample. Second, the exploratory factor analysis yielded an alternate four-factor model based on 27 of 29 items that fit the data from this sample of Saudi women, with subscales for Sexual Abuse, Physical Abuse, Verbal Abuse and Controlling Behavior. Results provide initial evidence that the 27 item Arabic CAS is both a reliable and valid measure of IPV in the Saudi context and, thus, can be adopted in future research. The result of this analysis are consistent to some extent with findings of previous studies (Ford-Gilboe et al., in press; Loxton et al., 2013) which failed to find support for a separate severe combined abuse factor, but identified separate physical, sexual and psychological abuse factors.

The finding that controlling behaviors is a distinct factor adds to the ongoing controversy about gender symmetry in IPV (DeKeseredy, 2011; Dutton, Hamel, & Aaronson, 2010; Johnson, 2011; Langhinrichsen-Rohling, 2010). A central concern to this debate is the problem of coercive control because control is highly gendered (DeKeseredy & Schwartz, 2011; Stark, 2006). Researchers who argue that IPV is gender neutral (Straus, 2008; Straus & Gelles, 1990) have mainly used measures like the Conflict Tactics Scales (Archer, 2000; Ehrensaft, Moffitt, & Caspi, 2004), a scale that has been critiqued for decontextualizing women's experience of IPV by not adequately taking coercive control into account (Dobash, Dobash, Wilson, & Daly, 1992). Since the CTS assesses physical abuse and interpersonal conflict, it measures primarily the Situational Couple Violence (Kelly & Johnson, 2008). Failing to account for control in the relationship confounds gender differences in the experience of IPV. In the literature, there is a lack of research that conceptualizes and measures control as a key dimension of IPV (Dutton & Goodman, 2005); instead, coercive control tends to be conceptualized as an aspect of psychological/emotional abuse (Outlaw, 2009). Other research conceptualizes coercive control as non-physical abuse that includes emotional abuse, sexual coercion, and stalking (Carney & Barner, 2012). Giving greater attention to coercive control in abusive relationships highlights how women's experiences of IPV are different than experiences of other traumatic events. As Herman (1992) argued, coercive control creates a unique form of relationship that has important psychological effects, because establishing control is based on continuous acts that are designed to damage women's relations to others, cause a great deal of fear, and enhance the attachment to the abusive.

The ability to measure controlling behaviors separately from other forms of IPV contributes to the field of IPV for a number of reasons. Considering the control aspect of IPV is imperative in order to adequately define the context in which IPV occurs and relationship dynamics (Stark, 2006). Further, assessing the control construct has the potential to make gender differences in IPV visible, and enhances the understanding that abused women are subjected to strategies of control that extend to several aspects of their lives. According to Stark (2007), abused women do not merely suffer from physical abuse, but rather they are exposed to ongoing coercive control that results in deprivation of women's liberty; in this sense, IPV is seen as a human rights issue (World Health Organization, 2013). In addition, having control as a separate aspect of IPV makes it possible for researchers to examine the prevalence of control and its impact on women's well-being. For example, among women experiencing IPV, Coker et al. (2002) found that the relationship between IPV and drug abuse was stronger for controlling behavior than for verbal abuse. Disentangling the effects of controlling behavior may provide directions for developing perpetrator treatment intervention programs as well as in assessing women's risk and safety planning (Dutton & Goodman, 2005).

Moreover, the finding that controlling behaviors is a distinct subtype of abuse might be important feature of IPV in SA, a traditional patriarchal context in which men are granted power and control over women (Bryan, 2013). In Saudi Arabia, as other Arab countries, husbands are entitled to act as authority figures by controlling women's actions and decisions as well as suppressing their personal freedom (Usta, Farver, & Sylva Hamieh, 2015). For example, 73.7% of Jordanian women (Al-Modallal et al., 2015) and 68.3% of Sudanese women (Ahmed & Elmardi, 2005) experience control from their

partners. The finding that verbal abuse was a separate factor from controlling behaviors in this study could be related to Saudi context as well, because verbal abuse has been found to be the most common type of IPV among Arab women (Awwad et al., 2014). While both controlling behavior and verbal abuse are common and socially acceptable behaviors in SA, our results suggest that they should be recognized and measured as separate constructs in the Saudi context. This approach would allow for more in depth study of their unique impacts.

The findings that two items (*did not want me to socialize with female friends* and *refused to let me work outside the home*) did not fit with the model and needed to be removed from the CAS could be related to the nature of abusive relationships and the Saudi context as well. Women in abusive relationship usually distance themselves from friends (LaViolette & Barnett, 2013). They are often socially isolated and may not be interested in socializing (Alhabib, 2011) due to shame and guilt related to IPV (Constantino & Bricker, 1997). Although abusive partners intentionally isolate women (Levendosky et al., 2004), at some point, they might no longer have to “try” (Evans et al., 2016). The driving ban for Saudi women might further hinder their ability to socialize with their friends on a practical level.

Furthermore, in the Arab world, including SA, there is a main cultural practice that deters women from working outside home based on cultural attitudes (Sidani, 2005). Mernissi (1987; 1993) questioned the refusal of the Arab male to accept the economic participation of women. She explained that the “space” in Arab male mind is entirely separated into an economic space (public and male) and a domestic space (private and female). In Saudi Arabia, there is a conservative ideology that assumes women should

stay at home to protect her “innate nature” and be thankful to assume the respected role of being a mother (Sidani, 2005). Therefore, in traditional or conservative families, men should work while women are expected to be stay-at-home mothers (Achoui, 2006). In addition, if women are allowed to work, there is a debate about where women should work (Hamdan, 2005). Saudi women constitute only 13% of Saudi workforce (Alarabiya, 2015). Thus, a husband’s refusal to let a woman work outside the home is normative rather than being recognized as an indication of an abusive relationship. Consistent with Ford-Gilboe et al.’s (in press) study, IPV experts also identified this item as not appropriate for women who cannot or do not want to work.

The finding that item18 (*used a knife or gun or other weapon*) loaded on the controlling behavior factor could be understood in different ways. This result demonstrated some consistency with findings from Evans et al. (2016) and Ford-Gilboe et al. (in press) studies. In Evan et al. study, participants pointed out that item 18 has an ambiguous meaning as the word “used” was understood as *being threatened* with a knife, gun or weapons rather than an actual *use*. Similarly, in Ford-Gilboe et al. study, IPV experts highlighted that item 18 is unclear in whether ‘used’ indicates *threatened* or *harmed*. Women in the current study may have interpreted this item in the same way, explained why it loaded on the control factor instead of the physical abuse factor (actual act of violence). In addition, the relatively low frequency of *using a gun, knife or other weapon* in the current study ($M=0.10$, $SD= 0.418$) might be explained by the fact that obtaining a gun is extremely restricted and regulated in SA. Despite its low occurrence, it is important to retain this item since this is a serious type of IPV that is a strong predictor of both injury and lethality (Campbell, Webster & Glass, 2009).

Similarly, the finding that item 21 (*told me that no one would ever want me*) moved to the controlling behavior factor may be linked to the cultural context. In the Arab world, a woman has the right to initiate a divorce, but the procedure is difficult compared to when the man initiates the divorce, specifically in SA. In addition, traditional families are still stigmatized from divorce, making this option very undesirable (Zuhur, 2011). Therefore, item 21 might be perceived by women as the husbands' attempts to control options for leaving the relationships by reinforcing the very real negative consequences of this decision (i.e. not being accepted in society).

Although concerns have been raised about whether it is appropriate to ask about sexual abuse in the Arab context (Shalhoub-Kevorkian, 1999), particularly Saudi Arabia (Al-Zahrani, 2003), increased attention to sexual abuse as a separate form of IPV among Saudi women is important in understanding women's physical, reproductive, and mental health. Studies reveal that experiencing sexual and physical abuse at the same time increases women's risk of poor physical and mental health outcomes, compared to experiencing physical abuse alone (Bonomi et al., 2007; Pico-Alfonso et al., 2006). For instance, sexual abuse predicts PTSD (Bennice, Resick, Mechanic, & Astin 2003; Symes, Maddoux, McFarlane, Nava, & Gilroy, 2014), somatization (Samelius, Wijma, Wingren, & Wijma, 2007; Symes et al., 2014), and unwanted pregnancies (Kapadia, Saleem, & Karim, 2009; Silverman, Gupta, Decker, Kapur, & Raj, 2007). Disclosing sexual abuse is difficult for women in Arab culture, particular in the context of marriage (Oweis, Gharaibeh, Al-Natour, & Froelicher, 2008), but the current study demonstrates that women were capable to reveal their experiences when appropriate measures are taken to protect their safety and privacy.

Since the Arabic CAS provides a reliable tool to measure experiences of physical abuse, verbal abuse, sexual abuse, and controlling behavior, it has the potential to advance scholarship related to IPV in Saudi Arabia. Since the CAS enables measurement of different dimensions of IPV, it could contribute to research exploring different patterns of IPV among Saudi women. Studies conducted in other contexts support the notion that there is not single pattern of IPV among women (Ansara & Hinden, 2010; Davies et al., 2015). The availability of the CAS as a well-developed research scale could prompt additional discussion about and identification of IPV in health care setting. Advances in scholarship in the area of IPV in Saudi Arabia have the ultimate potential to move toward consensus around the definition and measurement of IPV, lessen underreporting of IPV, enhance the capacity to develop interventions that address abused women's needs and well-being, guide reforms in policies, and improve the social and health services provided to IPV survivors. In other words, the availability of a reliable research measure, such as CAS, is essential in comprehensively investigating the IPV in the Saudi context and potentially in shifting the understanding that IPV is a private family matter rather than a public issue in need of services and social action.

Given the exploratory nature of the current analysis, further examination of the factor structure of the 27-item CAS is needed. Nunnally (1978) noted that the findings of factor analysis of a measure might be influenced by the type of sample. The results of this study are limited by the use of a convenience sample of women who were seeking health care at the PHCCs in Eastern Region and Riyadh, which are main cities at the country and may not be generalizable to the broader population of women, those in shelter or living in rural areas. Thus, additional validation of the CAS is needed with larger

independent community and clinic samples in future studies. Additional studies are also required to assess the test-retest reliability to explore the measurement consistency over time. Despite these limitations, and the need for further testing for the Arabic CAS, the results of this analysis provides preliminary evidence of the strength of this comprehensive measure of IPV experiences among women.

Conclusion

The current study provides initial evidence that the 27 item Arabic CAS is both a reliable and valid to measure of IPV experiences in the Arab world, particularly in SA. Our results did not support to the original 4-factor model of the CAS (severe combined abuse, physical abuse, emotional abuse, and harassment), but supported an alternate 4-factor model comprised of physical abuse, sexual abuse, controlling behaviors, and verbal abuse. The scale can be adopted in future research, but additional testing is needed with different samples and in diverse settings to validate the factor structure.

References

- AboulAzm, S., Hashem, W. E., & Elebiary, H., A. (2009). Impact of domestic violence against Saudi Arabian married women on their reproductive health outcomes. *Medical Journal of Cairo University*, 77(1), 485-494.
- Achoui, M. M. (2006). The Saudi society: Tradition and change. In J. Georgas, J. W. Berry, F. J. R. von de Vijver, C. Kagitcibasi, & Y. H. Poortinga (Eds.), *Families across cultures: A 30-nation psychological study* (pp. 434-441). Cambridge, UK: Cambridge University Press.
- Afifi, Z.E., Al-Muhaideb, N.S., Hadish, N.F., Ismail, F.I., & Al-Qeamy, F.M. (2011). Domestic violence and its impact on married women's health in Eastern Saudi Arabia. *Saudi Medical Journal*, 32(6), 612–620.
- Ahmed, A. M., & Elmardi, A. E. (2005). A study of domestic violence among women attending a medical centre in Sudan. *East Mediterranean Health Journal*, 11, 164–174.
- Alarabiya (2015). *Women constitute 13% of Saudi workforce: Stats agency*. Retrieved from <http://english.alarabiya.net/en/News/middle-east/2015/02/10/Women-constitute-13-of-Saudi-workforce-stats-agency.html>
- Al-Faris, H., Al-Faris, H., Al-Faris, E., Naghma, N., Jamal, A., AlQuaiz, A. M., ... & Feeley, P. (2013). A history of childhood maltreatment among spouses predicts violence against women. *American Saudi Medicine*, 33(6), 595–600.
- Alhabib, S., Feder, G., & Horwood, J. (2013). English to Arabic translation of the composite abuse scale (CAS): A multi-method approach. *PLoS One*, 8(9) doi:<http://dx.doi.org/10.1371/journal.pone.0075244>.

- Alhabib, S., Feder, G., & Horwood, J. (2013). English to Arabic translation of the composite abuse scale (CAS): A multi-method approach. *PLoS One*, 8(9) doi:<http://dx.doi.org/10.1371/journal.pone.0075244>.
- Al-Modallal (2012). Psychological partner violence and women's vulnerability to depression, stress, and anxiety. *International Journal of Mental Health Nursing*, 21(6), 560–566.
- Al-Modallal, H., Abu Zayed, I., Abujilban, S., Shehab, T., & Atoum, M. (2015). Prevalence of intimate partner violence among women visiting health care centers in Palestine refugee camps in Jordan. *Health care for women international*, 36(2), 137-148.
- Archer, J. (2000). Sex differences in aggression between heterosexual partners: a meta-analytic review. *Psychological Bulletin*, 126(5), 651–680.
- Arias, I., & Pape, K. (2001). Psychological abuse: Implications for adjustment and commitment to leave violent partners. In K. D. O'Leary & R. Maiuro (Eds.), *Psychological abuse in violent domestic relations* (pp. 137-151). New York: Springer.
- Awwad, J., Ghazeeri, G., Nassar, A. H., Bazi, T., Fakh, A., Fares, F., & Seoud, M. (2014). Intimate Partner Violence in a Lebanese Population Attending Gynecologic Care A Cultural Perspective. *Journal of interpersonal violence*, 29(14), 2592-2609.
- Babin, E. A., Palazzolo, K. E., & Rivera, K. D. (2012). Communication skills, social support, and burnout among advocates in domestic violence agency. *Journal of*

Applied Communication Research, 40(2), 147–166.

doi:10.1080/00909882.2012.670257.

- Bachman, R. (2000). A comparison of annual incidence rates and contextual characteristics of intimate-partner violence against women from the National Crime Victimization Survey (NCVS) and the National Violence Against Women Survey (NVAWS). *Violence Against Women*, 6(8), 839-867.
- Bair-Merritt, M. H., Lewis-O'Connor, A., Goel, S., Amato, P., Ismailji, T., Jelley, M. . . Cronholm, P. (2014). Primary care-based interventions for intimate partner violence: A systematic review. *American Journal of Preventive Medicine*, 46(2), 188-194.
- Baobaid, M., & Bijleveld, C. C. J. H. (2002). Violence against women in Yemen: Official statistics and exploratory survey. *International Review of Victimology*, 9(3), 331-347.
- Barnawi, F. H. (2015). Prevalence and risk factors of domestic violence against women attending a primary care center in Riyadh, Saudi Arabia. *Journal of Interpersonal Violence*, 1–16. doi: 10.1177/0886260515587669.
- Barnett, O., Miller-Perrin, C. L., & Perrin, R. D. (2005). *Family Violence Across the Lifespan: An Introduction* . Sage Publications, Inc.
- Basile, K.C., Hertz, M.F., & Back, S.E. (2007). Intimate partner violence and sexual violence victimization assessment instruments for use in healthcare settings: Version 1. *Centers for Disease Control and Prevention, National Center for Injury Prevention and Control*. Atlanta (GA).

- Belknap, J. (2001). *The Invisible woman: Gender, crime, and justice* (2nd ed.). Belmont: Wadsworth.
- Bennice, J.A., Resick, P.A., Mechanic, M., & Astin, M. (2003). The relative effects of intimate partner physical and sexual violence on post-traumatic stress disorder symptomatology. *Violence and Victims* 18(1), 87–94.
- Bohlaiga, A., Al-Kakhli, B., Al-Mattar, H., Al-Bahrani, I., Al-Lowaim, K., Al-Baqshi, M., & Alnasir, F. (2014). *Journal of General Practice*, 2(2). doi.org/10.4172/2329-9126.1000150.
- Bonomi, A. E., Anderson, M. L., Rivara, F. P., & Thompson, R. S. (2007). Health outcomes in women with physical and sexual intimate partner violence exposure. *Journal of Women's Health*, 16(7), 987-997.
- Bryan, D. (2012). Women in the Arab World: A Case of Religion or Culture?. *E-International Relations Studies*, Aug, 2, 2012.
- Buzawa, E. S., & Buzawa, C. G. (2003). *Domestic violence: The criminal justice response*. Sage.
- Bybee, D. I., & Sullivan, C. M. (2002). The process through which an advocacy intervention resulted in positive change for battered women over time. *American journal of community psychology*, 30(1), 103-132.
- Caetano, R., Field, C., Ramisetty-Mikler, S., & Lipsky, S. (2009). Agreement on reporting of physical, psychological, and sexual violence among White, Black, and Hispanic couples in the United States. *Journal of Interpersonal Violence*, 24(8), 1318–1337. doi:10.1177/0886260508322181.

- Campbell, J. C., & Soeken, K. L. (1999). Forced sex and intimate partner violence: Effects on women's risk and women's health. *Violence Against Women, 5*(9), 1017-1035. doi:10.1177/1077801299005009003.
- Campbell, J. C., Webster, D. W., & Glass, N. (2009). The danger assessment validation of a lethality risk assessment instrument for intimate partner femicide. *Journal of interpersonal violence, 24*(4), 653-674.
- Carney, M. M., & Barner, J. R. (2012). Prevalence of partner abuse: Rates of emotional abuse and control. *Partner Abuse, 3*(3), 286-335.
- Coker, A. L., Davis, K. E., Arias, I., Desai, S., Sanderson, M., Brandt, H. M., & Smith, P. H. (2002). Physical and mental health effects of intimate partner violence for men and women. *American journal of preventive medicine, 23*(4), 260-268.
- DeKeseredy, W. S. (2011). Feminist contributions to understanding woman abuse: Myths, controversies, and realities. *Aggression and Violent Behavior, 16*(4), 297-302.
- DeKeseredy, W. S., & Schwartz, M. D. (2011). Theoretical and definitional issues in violence against women. In C. M. Renzetti, J. L. Edleson, & R. K. Bergen (Eds.), *Sourcebook on violence against women* (2nd ed.) (pp. 3-20). Thousand Oaks, CA: Sage.
- DeKeseredy, W., & Schwartz, M. (2009). *Dangerous exits: Escaping abusive relationships in rural America*. Rutgers University Press.
- Dobash, R. P., & Dobash, R. E. (2004). Women's violence to men in intimate relationships working on a puzzle. *British Journal of Criminology, 44*(3), 324-349.

- Dobash, R. P., Dobash, R. E., Wilson, M., & Daly, M. (1992). The myth of sexual symmetry in marital violence. *Social problems*, 39(1), 71-91.
- Dutton, D. G., Hamel, J., & Aaronson, J. (2010). The gender paradigm in family court processes: Re-balancing the scales of justice from biased social science. *Journal of Child Custody*, 7(1), 1-31.
- Dutton, M. A., & Goodman, L. A. (2005). Coercion in intimate partner violence: Toward a new conceptualization. *Sex roles*, 52(11-12), 743-756.
- Ehrensaft, M. K., Moffitt, T. E., & Caspi, A. (2004). Clinically abusive relationships in an unselected birth cohort: men's and women's participation and developmental antecedents. *Journal of abnormal psychology*, 113(2), 258.
- Eldoseri, H. M., Tufts, K. A., Zhang, Q., & Fish, J. N. (2014). Adverse health effects of spousal violence among women attending Saudi Arabian primary health-care clinics. *Eastern Mediterranean Health Journal*, 20(11), 717.
- Eliason, M. J., Taylor, J. Y., & Arndt, S. (2005). Assessing intimate partner violence in incarcerated women. *Journal of Forensic Nursing*, 1(3), 106-110.
doi:10.1111/j.1939-3938.2005.tb00026.x.
- Ellsberg, M., & Heise, L. (2005). Researching violence against women: A practical guide for researchers and activities. *World Health Organization*. Retrieved January 10, 2016, from http://www.path.org/files/GBV_rvaw_complete.pdf.
- Evans, M., Gregory, A., Feder, G., Howarth, E., & Hegarty, K. (2016). "Even' Daily' is Not Enough": How Well Do We Measure Domestic Violence and Abuse?—A Think-Aloud Study of a Commonly Used Self-Report Scale. *Violence and victims*, 31(1), 3-26.

- Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological assessment*, 7(3), 286.
- Follingstad, D. R., & Rogers, M. J. (2013). Validity concerns in the measurement of women's and men's report of intimate partner violence. *Sex Roles*, 69(3-4), 149-167.
- Follingstad, D. R., & Ryan, K. M. (2013). Contemporary issues in the measurement of partner violence. *Sex Roles*, 69(3-4), 115-119.
- Ford-Gilboe, M., Wathen, C. N., Varcoe, C., MacMillan, H. L., Scott-Storey, K., Mantler, T., ... & Perrin, N. (2016). Development of a brief measure of intimate partner violence experiences: The Composite Abuse Scale (Revised)—Short Form (CASR-SF). *BMJ Open*, 6(12), e012824. doi:10.1136/bmjopen-2016-012824.
- Ford-Gilboe, M., Wuest, J., Varcoe, C., Davies, L., Merritt-Gray, M., Campbell, J., & Wilk, P. (2009). Modelling the effects of intimate partner violence and access to resources on women's health in the early years after leaving an abusive partner. *Social science & medicine*, 68(6), 1021-1029.
- Gartland, D., Hemphill, S.A., Hegarty, K., & Brown, S.J. (2011). Intimate partner violence during pregnancy and the first year postpartum in an Australian pregnancy cohort study. *Maternal Child Health Journal*, 15(5), 570-578.
- Ghubash, R., Daradkeh, T. K., Al Naseri, K. S., Al Bloushi, N. A., & Al Daheri, A. M. (2000). The Performance of the Center for Epidemiologic Study Depression Scale

- (Ces-D) in an Arab female community. *International Journal Social Psychiatry*, 46(4), 241-249. doi: 10.1177/002076400004600402.
- Haj-Yahia, M. (2000). Wife Abuse and Battering in the Sociocultural Context of Arab Society. *Family Process*, 39(2), 237.
- Haj-Yahia, M. M., & Clark, C. J. (2013). Intimate partner violence in the occupied Palestinian territory: Prevalence and risk factors. *Journal of family violence*, 28(8), 797-809.
- Haj-Yahia, M. M., & Clark, C. J. (2013). Intimate partner violence in the occupied Palestinian territory: prevalence and risk factors. *Journal of family violence*, 28(8), 797-809.
- Hamdan, A. (2005). Women and Education in Saudi Arabia: Challenges and Achievements. *International Education Journal*, 6(1), 42-64.
- Hegarty, K., & Roberts, G. (1998). How common is domestic violence against women? The definition of partner abuse in prevalence studies. *Australian and New Zealand journal of public health*, 22(1), 49-54.
- Hegarty, K., Bush, R., & Sheehan, M. (2005). The composite abuse scale: Further development and assessment of reliability and validity of a multidimensional partner abuse measure in clinical settings. *Violence and Victims*, 20(5), 529-547.
- Heise, L.L., Ellsberg, M., & Gottemoeller, M. (1999). *Ending violence against women*. Baltimore: Johns Hopkins University School of Public Health, Center for Communications Programs.

- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, 6(1), 1-55.
- Jarvis, K.L., Gordon, E.E., & Novaco, R.W. (2005). Psychological distress of children and mothers in domestic violence emergency shelters. *Journal of Family Violence*, 20(6), 309-402.
- Jiwani, Y. (2000). The 1999 general social survey on spousal violence: An analysis. *Canadian Woman Studies*, 20(3), 34.
- Johnson, M. P. (2011). Gender and types of intimate partner violence: A response to an anti-feminist literature review. *Aggression and Violent Behavior*, 16(4), 289-296.
- Jonker, I. E., Sijbrandij, M., van Luijtelaar, Maurice J A, Cuijpers, P., & Wolf, Judith R L M. (2015). The effectiveness of interventions during and after residence in women's shelters: A meta-analysis. *European Journal of Public Health*, 25(1), 15.
- Jouriles, E. N., & Kamata, A. (2016). Advancing measurement of intimate partner violence. *Psychology of Violence*, 6(2), 347-351. doi:10.1037/vio0000014
- Kapadia, M. Z., Saleem, S., & Karim, M. S. (2010). The hidden figure: sexual intimate partner violence among Pakistani women. *The European Journal of Public Health*, 20(2), 164-168.
- Kelly, J. B., & Johnson, M. P. (2008). Differentiation among types of intimate partner violence: Research update and implications for interventions. *Family court review*, 46(3), 476-499.
- Khadra, C., Wehbe, N., Lachance Fiola, J., Skaff, W., & Nehmé, M. (2015). Symptoms of post-traumatic stress disorder among battered women in Lebanon: An

exploratory study. *Journal of Interpersonal Violence*, 30(2), 295-313.

doi:10.1177/0886260514534774.

- Khawaja, M., & Barazi, R. (2005). Prevalence of wife beating in Jordanian refugee camps: Reports by men and women. *Journal of epidemiology and community health*, 59(10), 840-841.
- Khawaja, M., & Tewtel-Salem, M. (2004). Agreement between husband and wife reports of domestic violence: evidence from poor refugee communities in Lebanon. *International journal of epidemiology*, 33(3), 526-533.
- Kim-godwin, Y., Maume, M. O., & Fox, J. A. (2014). Depression, stress, and intimate partner violence among Latino migrant and seasonal farmworkers in rural southeastern north Carolina. *Journal of Immigrant and Minority Health*, 16(6), 1217-1224. doi:<http://dx.doi.org/10.1007/s10903-014-0007-x>
- Kline, R. B. (2013). Exploratory and Confirmatory Factor Analysis. In Y. Petscher & C. Schatsschneider (Eds.), *Applied quantitative analysis in the social sciences* (pp. 171-207). New York: Routledge.
- Krahé, B., Bieneck, S., & Möller I. (2005). Understanding gender and intimate partner violence from an international perspective. *Sex Roles*, 52(11), 807-827.
- Kulkarni, S., Herman-Smith, R., & Ross, T. C. (2015). Measuring intimate partner violence (IPV) service providers' attitudes: The development of the Survivor-Defined Advocacy Scale (SDAS). *Journal of family violence*, 30(7), 911-921.
- Lacey, K. K., Mcpherson, M., Samuel, P. S., Sears, K.P., & Head, D. (2013). The Impact of Different Types of Intimate Partner Violence on the Mental and Physical

- Health of Women in Different Ethnic Groups. *Journal of Interpersonal Violence*, 28(2), 359-385. doi:10.1177/0886260512454743.
- Langhinrichsen-Rohling, J. (2010). Controversies involving gender and intimate partner violence in the United States. *Sex Roles*, 62(3-4), 179-193.
- Lokhmatkina, N. V., Kuznetsova, O. Y., & Feder, G. S. (2010). Prevalence and associations of partner abuse in women attending Russian general practice. *Family practice*, 27(6), 625-631. doi:10.1093/fampra/cmq044
- Loxton, D., Powers, J., Fitzgerald, D., Forder, P., Anderson, A., Taft, A., & Hegarty, K. (2013). The Community Composite Abuse Scale: Reliability and validity of a measure of intimate partner violence in a community survey from the ALSWH. *Women's Health Issues Care*, 2, 4. doi.org/10.4172/2325-9795.1000115
- Mapayi, B., Makanjuola, R., Fatusi, A. O., & Afolabi, O.T. (2011). Socio-demographic factors associated with intimate partner violence in Ile-Ife, Nigeria. *Gender & Behaviour*, 9(1), 3466.
- McKinsey Global Institute (2015). *Saudi Arabia Beyond Oil: The Investment and Productivity Transformation*.
- Mernissi, F. (1987), *Beyond the Veil: Male-Female Dynamic in Modern Muslim Society*, Indiana University Press, Bloomington, IN.
- Mernissi, F. (1993), *The Forgotten Queens of Islam*, Polity Press, Cambridge, MA.
- Murphy, C. M., & O'Leary, K. D. (1989). Psychological aggression predicts physical aggression in early marriage. *Journal of consulting and clinical psychology*, 57(5), 579.

- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles: Muthén & Muthén.
- Nayak, M. B., & Al-Yattama, M. (1999). Assault victim history as a factor in depression during pregnancy. *Obstetrics & Gynecology*, *94*(2), 204-208. doi:10.1016/S0029-7844(99)00267-7.
- Nunnally, J. C., & Bernstein, I. H. (1994) *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill, Inc.
- O'Leary, K., & Woodin, E. M. (2009). *Psychological and physical aggression in couples: Causes and interventions*. American Psychological Association.
- Outlaw, M. (2009). No one type of intimate partner abuse: Exploring physical and non-physical abuse among intimate partners. *Journal of Family Violence*, *24*(4), 263-272.
- Oweis, A., Gharaibeh, M., Al-Natour, A., & Froelicher, E. (2008). Violence against women: Unveiling the suffering of women with a low income in Jordan. *Journal of Transcultural Nursing*, *20*(1), 69-76. doi:10.1177/1043659608325848
- Parker, B., & McFarlane J. (1991). Nursing assessment of the battered pregnant woman. *American Journal of Maternal Child Nursing*, *16*(3), 161-164.
- Pico-Alfonso, M. A., Garcia-Linares, M., Celda-Navarro, N., Blasco-Ros, C., Echeburua, E., & Martinez, M. (2006). The impact of physical, psychological, and sexual intimate male partner violence on women's mental health: Depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. *Journal of Women's Health*, *15*(5), 599-611. doi:10.1089/jwh.2006.15.599

- Polit, D.F. (2010). *Statistics and Data Analysis for Nursing Research. Second Edition.* New Jersey: Pearson Education Inc. (pp. 365- 388).
- Preacher, K. J., & MacCallum, R. C. (2003). Repairing Tom Swift's electric factor analysis machine. *Understanding statistics: Statistical issues in psychology, education, and the social sciences*, 2(1), 13-43.
- Prosman, G.J., Jansen, S.J., Lo Fo Wong, S.H., & Lagro-Janssen, A.L. (2011). Prevalence of intimate partner violence among migrant and native women attending general practice and the association between intimate partner violence and depression. *Family Practice*, 28(3), 267-271. doi:10.1093/fampra/cmq117
- Rabin, R. F., Jennings, J. M., Campbell, J. C., & Bair-Merritt, M. H. (2009). Intimate Partner Violence Screening Tools *American Journal of Preventive Medicine*, 36(5), 439–445.e4. <http://doi.org/10.1016/j.amepre.2009.01.024>.
- Rachana, C., Suraiya, K., Hisham, A., Abdulaziz, A., & Hai, A. (2002). Prevalence and complications of physical violence during pregnancy. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 103(1), 26-29. doi:10.1016/S0301-2115(02)00022-2
- Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385-401.
- Rathus, J. H., & Feindler, E. L. (2004). *Assessment of partner violence: A handbook for researchers and practitioners.* Washington, DC: American Psychological Association.
- Ryan, K. M. (2013). Issues of reliability in measuring intimate partner violence during courtship. *Sex roles*, 69(3-4), 131-148.

- Saltzman, L. E. (2004). Definitional and methodological issues related to transnational research on intimate partner violence. *Violence against women, 10*(7), 812-830.
- Samelius, L., Wijma, B., Wingren, G., & Wijma, K. (2007) Somatization in abused women. *Journal of Women's Health 16*(6), 909–918.
- Shalhoub-Kevorkian, N. (1999). The politics of disclosing female sexual abuse: a case study of Palestinian society. *Child Abuse & Neglect, 23*(12), 1275-1293.
- Sidani, Y. (2005). Women, work, and Islam in Arab societies. *Women in Management Review, 20*(7), 498-512.
- Silverman, J. G., Gupta, J., Decker, M. R., Kapur, N., & Raj, A. (2007). Intimate partner violence and unwanted pregnancy, miscarriage, induced abortion, and stillbirth among a national sample of Bangladeshi women. *BJOG: An International Journal of Obstetrics & Gynaecology, 114*(10), 1246-1252.
- Sohal, H., Eldridge, S., & Feder, G. (2007). The sensitivity and specificity of four questions (HARK) to identify intimate partner violence: A diagnostic accuracy study in general practice. *BMC Family Practice, 8*(1), 49-49. doi:10.1186/1471-2296-8-49.
- Sohani, Z., Shannon, H., Busse, J. W., Tikacz, D., Sancheti, P., Shende, M., & Bhandari, M. (2012). Feasibility of screening for intimate partner violence at orthopedic trauma hospitals in India. *Journal of interpersonal violence, 28*(7), 1455-1475. doi:10.1177/0886260512468244
- Spencer, R. A., Shahroui, M., Halasa, L., Khalaf, I., & Clark, C. J. (2014). Women's help seeking for intimate partner violence in Jordan. *Health Care for Women International, 35*(4), 380-399. doi:10.1080/07399332.2013.815755.

- Stark, E. (2006). Commentary on Johnson's "Conflict and Control: Gender Symmetry and Asymmetry in Domestic Violence". *Violence Against Women, 12*(11), 1019.
- Stark, E. (2007). *Coercive control: The entrapment of women in personal life*. New York, NY: Oxford University Press.
- Straus, M. A. (1979). Measuring intrafamily conflict and violence: The conflict Tactic Scales. *Journal of Marriage and the Family, 41*(1), 75–88. doi:10.2307/351733.
- Straus, M. A. (2008). Dominance and symmetry in partner violence by male and female university students in 32 nations. *Children and Youth Services Review, 30*(3), 252–275.
- Straus, M. A., & Gelles, R. J. (1990). How violent are American families? Estimates from the National Family Violence Resurvey and other studies. *Physical violence in American families: Risk factors and adaptations to violence in, 8*(145), 95-112.
- Symes, L., Maddoux, J., McFarlane, J., Nava, A., & Gilroy, H. (2014). Physical and sexual intimate partner violence, women's health and children's behavioural functioning: entry analysis of a seven-year prospective study. *Journal of clinical nursing, 23*(19-20), 2909-2918.
- Tashkandi, A. A. & Rasheed, P. (2009). Wife abuse: A hidden problem. A study among Saudi women attending PHC centers. *Eastern Mediterranean Health Journal, 15*(5), 1242- 1253.
- Thomas, J. L., Jones, G. N., Scarinci, I. C., Mehan, D. J., & Brantley, P. J. (2001). The utility of the CES-D as a depression screening measure among low-income women attending primary care clinics. *International Journal of Psychiatry in Medicine, 31*(1), 25-40.

- Thompson, R.S., Bonomi, A.E., Anderson, M., Reid, R. J., Dimer, J.A., Carrell, D., &, Rivara, F. P. (2006). Intimate partner violence prevalence, types, and chronicity in adult women. *American Journal Preventive Medicine, 30*(6), 447–57.
- Tjaden, P., & Thoennes, N. (2000). *Extent, nature, and consequences of intimate partner violence: Findings from the National Violence Against Women Survey*. National Institute of Justice and the Center for Disease control and Prevention.
- Tolman, R. M. (1989). The development of a measure of psychological maltreatment of women by their male partners. *Violence and Victims, 4*(3), 159–178.
- Usta, J., Farver, J. A. M., & Pashayan, N. (2007). Domestic violence: the Lebanese experience. *Public health, 121*(3), 208-219.
- Usta, J., Farver, J. M., & Hamieh, C. S. (2015). Effects of socialization on gender discrimination and violence against women in Lebanon. *Violence Against Women, 22*(4), 415-431. doi:10.1177/1077801215603509
- Waltermaurer, E. (2005). Measuring intimate partner violence (IPV) you may only get what you ask for. *Journal of Interpersonal Violence, 20*(4), 501-506.
- Wasco, S. M., Campbell, R., Howard, A., Mason, G. E., Staggs, S. L., Schewe, P. A., & Riger, S. (2004). A statewide evaluation of services provided to rape survivors. *Journal of Interpersonal Violence, 19*(2), 252-263.
- Winstok, Z., & Sowan-Basheer, W. (2015). Does psychological violence contribute to partner violence research? A historical, conceptual and critical review. *Aggression and Violent Behavior, 21*, 5-16.

- Woodin, E. M., Sotskova, A., & O'Leary, K. D. (2013). Intimate partner violence assessment in an historical context: Divergent approaches and opportunities for progress. *Sex Roles, 69*(3-4), 120-130.
- World Health Organization (2005). *WHO multi-country study on women's health and domestic violence: Report of initial results on prevalence, health outcomes and women's responses*. Geneva: WHO.
- Yount, K. M., Zureick-Brown, S., & Salem, R. (2014). Intimate partner violence and women's economic and non-economic activities in minya, Egypt. *Demography, 51*(3), 1069-1099. doi:10.1007/s13524-014-0285-x
- Zuhur, S. (2011). *Middle East in Focus Saudi Arabia*. ABC-CLIO, LLC: California, USA.

CHAPTER SIX

STUDY SUMMARY AND ITS IMPLICATIONS

Over the past decades, a substantial body of research has amassed that underscores the devastating impacts of IPV on women's lives and health (e.g. Banks, 2007; Campbell, 2002; Ford-Gilboe et al., 2009; Ouellet-Morin et al., 2015; Wong, & Mellor, 2014). While this literature provides valuable insights into the widespread effects of IPV, it still has a few limitations. First, current evidence comes mainly from Western-European countries and may not be generalizable to women living in different contexts. In Saudi Arabia, very little is known about IPV, because the issue is mostly hidden and kept within the sphere of private family life (Butler, 2015). In addition, there is a lack of Arabic reliable and valid measurements that assess IPV and common health outcomes associated with it among Saudi women. Second, the IPV literature lacks research that extensively examines the contextual mechanisms by which IPV and child abuse lead to chronic pain. Although depressive (Wuest et al., 2010) and post-traumatic stress disorder (PTSD) symptoms (Tiwari, Fong, Chan, & Ho, 2013; Wuest et al., 2009) have been found to mediate the impact of IPV on chronic pain, the differences (if any) between depressive and PTSD symptoms in terms of their mediation effects is poorly understood. Thus, studies focused on assessing and establishing the reliability and validity of IPV measures, understanding the pathways that explain the impact of IPV and child abuse on Saudi women's chronic pain, and examining whether particular aspects of PTSD and depression function in unique ways as mediators are warranted, as they address critical gaps in the literature.

To address these gaps, the study was conducted with two primary aims: a) to test a theoretical model of the mechanisms which explains how both severity of child abuse and wife abuse affect women's mental health (PTSD and depressive symptoms) and chronic pain and the mediating role of perceived social support, and, b) to advance the measurement of IPV and health problems associate with IPV by assessing the psychometric properties of Arabic versions of both Composite Abuse Scale (CAS) and PTSD Checklist—Civilian Version (PCL-C) that had been translated from English.

Conceptual Model

The conceptual model underlying this study is based on the Stress Process Model (SPM) (Pearlin, Menaghan, Lieberman, & Mullan, 1981). The SPM is a sociological framework that positions stress as a complex process that develops within the contexts of people's social lives leading to various health outcomes. It highlights how various features of stress are interrelated and also combine over time to form a process (Pearlin et al., 1981). Thus, the SPM recognizes stressors and certain personal and social resources as crucial factors in the stress-illness trajectory. Using the SPM as a guiding framework fit the purpose of the study as stress is inherent in experiences of child abuse; IPV is also seen as a chronic stressor in women's lives because it is existing within a continuing relationship and is rooted in institutionalized social roles (Anderson & Saunders, 2003; Greenfield, Lee, Friedman, & Springer, 2011; Pearlin, 1989).

The major concepts of the stress process model are: sources of stress (stressors), the mediators of stress, and the manifestations of stress. Stressors are continuing or persistent life problems that arise from the individual's life and social context (Pearlin, 1989). Stress mediators are resources that govern the effects of stressors on stress outcomes; thus, they have the capacity to shape variations in outcomes (Pearlin, 1989).

Stressors could have indirect effects on the outcome through the mediators because the individuals' resources may be diminished or increased by exposure to stressors and, in turn, exert effects on individuals' health (Pearlin, 1999; Pearlin et al., 1989). Pearlin and his colleagues pointed to social support as an important psychosocial resource that works as a mediator (Turner, 2009; Pearlin, 1989). Outcomes are the manifestations of stress on health (Pearlin, 1989; Pearlin et al., 1997). These outcomes are varied, and could affect different aspects of human systems, such as the digestive and cardiovascular systems, the immunological and endocrine systems, and mental health (Pearlin, 1989).

Based on both the SPM and the literature review, a conceptual model was constructed to test the relationships among severity of wife abuse and child abuse, mental health problems (PTSD and depressive symptoms), perceived family support and chronic pain. The model hypothesized that severity of IPV and child abuse would exert positive effects on women's mental health (PTSD and depressive symptoms) and chronic pain directly and, indirectly, through perceived family support. Furthermore, mental health (PTSD and depressive symptoms) would mediate the relationship between severity of child abuse and IPV and chronic pain. Specifically, severity of wife abuse and child abuse would decrease women's perceived family support, leading to higher mental health problem (PTSD and depressive symptoms) and chronic pain. Higher levels of PTSD and depressive symptoms would, in turn, result in chronic pain.

Method

This study involved two phases. In phase one (pilot study), two standard self-report scales, the PTSD Checklist Civilian Version (PCL-C; Weathers, Litz, Huska, & Keane, 1994) and Chronic Pain Grade (CPG; Von Korff, Ormel, Keefe & Dworkin,

1992) as well as five sexual abuse items from the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) were adapted and translated to Arabic. An integrated method for exploring conceptual equivalence within the process of translating measures (Sidani, Guruge, Miranda, Ford-Gilboe, & Varcoe, 2010) was used to produce a linguistic and cultural translation of these scales. In addition, the initial reliability of these translated scales were assessed in a convenience sample of 30 adult, Arab women recruited from a settlement agency for newcomers in London, Ontario, Canada. During the private 15-20 minute structured interview, women responded to items on each scale and provided feedback on the clarity and appropriateness of the questions. Data were analyzed using Cronbach's alpha to assess the three scales' internal consistency reliability. Basic item analysis was also performed to assess total-item correlations, changes in alpha level if items were deleted, degree of inter-item correlation, and correlations among subscales.

In phase two (main study), a convenience sample of 299 Saudi women seeking medical care was recruited from nine primary health care centers (PHCCs) in Saudi Arabia. Eight PHCCs in Dammam and one primary care in the capital city Riyadh were used as study sites, with selection based on included clinics that would reach women from diverse economic backgrounds. Women were between the ages of 18 and 65 years of age, were married, and had experienced IPV in the past 12 months. Exposure to IPV was confirmed using a modified version of the Abuse Assessment Screen (AAS) (Parker & McFarlane, 1991). Data were collected through completion of a structured 20 – 40 minute interview in private rooms in the PHCCs. Cronbach's alpha reliability was estimated for all instruments to determine the internal consistency of all measures among

Saudi women. The reliability and validity of Arabic versions of both PTSD Checklist and Composite Abuse Scale, with confirmatory Factor Analysis used to assess the factor structure of each scale. Structural equation modeling (SEM) was used to simultaneously test the theoretical model. The model was analyzed twice where mental health was represented by PTSD symptoms (Model 1) and by depressive symptoms (Model 2).

Results

This study produced a number of novel findings that contribute to the literature on IPV. First, a good fit was found between the data and the hypothesized models: $\chi^2 (13, N = 299) = 37.581 (P=0.003)$, CFI = 0.957, TLI = 0.907, RMSEA = 0.080 (90% CI: .051–.110), SRMR= 0.027 (Model 1 using PTSD symptoms) and $\chi^2 (13, N = 299) = 22.653 (P=0.046)$, CFI = 0.983, TLI = 0.964, RMSEA = 0.050 (90% CI: .007–.083), SRMR= 0.022 (Model 2 using depressive symptoms). This provides support for the mediating effects of mental health and social support on the relationships between abuse and chronic pain. In both models, severity of IPV and child abuse were directly associated with greater mental health problems (PTSD and depressive symptoms) and less perceived family support; higher family support was associated with lower mental health problems. Perceived family support significantly mediated the relationship between abuse severity and depressive symptoms. Severity of IPV and child abuse indirectly affected chronic pain through mental health problems (PTSD and depressive symptoms). Second, the study results show that PTSD and depressive symptoms operate in similar ways as mediators, but with different a magnitude of effects. Third, evidence of the reliability and validity of the Arabic version of the PCL-C was found, with supported provided for a five-factor Dysphoric Arousal model (Elhai et al., 2011) for PCL-C instead of DSM-IV

three-factor model. This finding is important because it reveals that the presentation of PTSD symptoms among IPV survivors may be more heterogeneous and complex than that described in the DSM-IV and reinforces the cross-cultural applicability of PTSD. Fourth, the study provided initial evidence that the 27 item Arabic CAS is both reliable (Cronbach's $\alpha = .902$) and valid to measure IPV experiences among Saudi women. A moderate correlation ($r = .509$) between the CAS total score and CESD provides evidence of concurrent validity of the scale. Our factor analysis did not support the original four-factor of CAS (severe combined abuse, physical abuse, emotional abuse, and harassment), but supported an alternate four-factor model that taps physical abuse, sexual abuse, verbal abuse and controlling behaviors. This finding provides a contextual measure of IPV experiences among Saudi women. For example, it suggests that controlling behaviors is a separate dimension of IPV which requires researchers to recognize it and measure it in the Saudi context.

The study findings shed light on the importance of early identification, diagnosis and treatment of PTSD as well as depression in order to decrease the likelihood of developing chronic pain among Saudi women who have experienced wife abuse and/or child abuse. The study also underscores the inseparability of mind and body, because it suggests that abuse severity impacts women's mental health which, in turn, leads to chronic pain. Since the study revealed that perceived family support mediated the relationship only between abuse and depressive symptoms, it suggests that different mechanisms may underlie the direct and indirect impacts of IPV and child abuse on depressive symptoms versus PTSD symptoms. Further, the process of adapting and translating the PCL-C was successful in that a reliable and valid scale is now available to

be applied in populations of Arab speakers. Additionally, the study extends evidence of the reliability and validity of the Composite Abuse Scale (CAS) to Saudi context. This contribution has potential to significantly enhance the conduct of IPV research in Saudi Arabia and in other Arab countries.

Study Limitations

Although the study findings are promising, a few limitations should be acknowledged. Relying on self-report measures could result in recall bias in the measurement of abuse experiences and/or health symptoms. Retrospective recall of child abuse might also be biased, particularly because the length of time between exposure and reporting, and the potential impact of psychological status on subjective reports.

However, retrospective reporting of abuse may underestimate these experiences instead of overestimating them (Hardt & Rutter, 2004; Heim, Newport, Mletzko, Miller, & Nemeroff, 2008), leading to more conservative results. Using individual face-to-face interviews allowed for clarifications during data collection to reduce these biases. In spite of limitations, standardized retrospective measures are still recommended as the most accurate method for measuring abuse experiences (Lang, Stein, Kennedy, & Foy, 2004).

Using self-report measures of both depressive and PTSD symptoms rather than a clinical diagnostic measures is another limitation for the study. However, each of these self-report measures have reasonable psychometric properties and can be scored to provide a presumptive diagnosis that is meaningful in practice. As well, these measures are widely used in IPV research studies, allowing for comparison to be made across studies, and are easy to utilize, time efficient, and cost effective. More specifically, the CESD assesses current level of depressive symptoms using items that are the same as

those used to arrive at a diagnosis of clinic depression. It discriminates well between psychiatric patients and general populations and is sensitive to levels of depressive symptoms severity (Radloff, 1977). Similarly, the PCL-C is valuable as a guide to diagnostic assessment (Wilkins, Lang, & Norman, 2011).

The study does not provide definitive evidence of causation in the theoretical model because cross-sectional, rather than longitudinal, data were used in the analysis. Yet, women's reports of past abuse adds a longitudinal dimension and predictor evidence for causal links with health outcomes. The decision to not measure abuse-related injury and consider its effect on chronic pain is a limitation. Given the complexity of the model, the available sample size, and the practical aspects of time, participant burden and data collection in busy primary health care settings, other important factors that could influence health, such as resilience, medication use or current medical history, were not included.

Finally, using convenience sampling in this study might limit the generalizability of the study findings beyond samples of women with similar characteristics. However, the sampling from nine primary healthcare centers from diverse neighborhoods was instrumental in overcoming some of the potential bias associated with convenience sampling. The sample of women who participated in this study was, in fact, reasonably diverse in terms of education, age and economic background.

Implications of the Findings

IPV and the consequences of IPV are complex issues that need to be addressed through collaboration among policy makers, community stakeholders, and service providers in health settings, social services, and legal setting. This study underscores the

direct links between IPV and child abuse and greater mental health symptoms (depressive and PTSD symptoms), and the indirect link to greater chronic pain through mental health symptoms. In addition, IPV and child abuse were directly associated with less perceived family support and higher family support was associated with lower mental health symptoms. Thus, study findings have implications for nursing practice, nursing education, research, and policy.

Implications for Nursing Practice

Women who have experienced IPV are high users of primary and specialty healthcare settings for a variety of reasons (Ford-Gilboe et al., 2015; Rivara et al., 2007; Trevillion, Agnew-Davies, & Howard, 2011) and severity of IPV increases the use of services (Duterte, Bonomi, Jernic, Schiff, Thompson & Rivara, 2008). Abused women usually have contact with health care system before they ever contact the legal system or child services (Wilson, 2015), especially in developing countries (International Center for Research on Women, 2009) such as Saudi Arabia. Nurses, who are the largest group of health professionals and on the frontlines of the healthcare system, have critical role to play, because they have consistent contact with women in all health care settings.

The study finding reinforces the complex interrelationships among child abuse, IPV, mental health problems, and physical health problems, and, therefore, reinforces the importance of health care providers recognizing that abuse is an important risk factor for poor mental and physical health (chronic pain) among women. Assessment for IPV and child abuse experiences in the health care setting is crucial in managing and treating women's mental health and subsequently their chronic pain. The high prevalence of IPV (40.2%) found in the primary healthcare clinic sample in this study also supports the need

for healthcare providers in Saudi Arabia to realize that many of the women they encounter in their practice are victims of IPV. Early identification and intervention related to abuse could reduce its dire health outcomes, lessen the possibility of further victimization, and increase women's safety. There is evidence that assessment of IPV followed by referrals leads to women's increased use of safety behaviors, reduces abuse experiences, and increases use of community resources (Humphreys, Tsoh, Kohn, & Gerbert, 2011). A recent multisite randomized control trial found that identification of IPV followed by an empowerment intervention is effective in decreasing IPV (Sharps et al., 2016). As well, an advocacy intervention for women who experience IPV resulted in decrease physical abuse (Rivas et al., 2015).

The World Health Organization (2013) recommends a case-finding approach (inquiring about IPV if indicators or suspicion are present). This approach requires asking women about abuse in a sensitive, caring and non-judgmental manner, while ensuring safety and confidentiality whenever there is heightened suspicion of risk, based on a thorough understanding of the dynamics of IPV, associated risk factors, and outcomes (World Health Organization, 2013). Nurses need to create spaces so that women can talk about their violence in privacy and make this encounter as a needed 'island of safety' (Richardson & Wade 2010). Although Arab culture including the Saudi culture values family harmony and reputation and disclosing IPV might stigmatize the family, Arab women consider the healthcare system to be the best and safest place to disclose IPV and also break their silence (Usta, Antoun, Ambuel, & Khawaja, 2012). In this context, it is critical that health care providers have the knowledge and skills to support women and that system are in place to support these practices.

Nurses must understand the experiences of IPV survivors and support them in their decisions, while working on increasing their safety, because ensuring women's safety and control during and after disclosure is significant. After disclosure, nurses should work with women to help them to reduce their distressing symptoms which could be helpful in improving women's health and strengthening women's resources (Ford-Gilboe, Varcoe, Wuest, & Merritt-Gray, 2010). A good referral system and coordination between the healthcare system and community resources could facilitate women's access to non-health services. Nurses have an important role to play in forming multidisciplinary teams in healthcare settings to serve abused women. In the Saudi context, nurses need to collaborate with other health care professionals as well as social services to develop referral pathways. Several shelters exist in Saudi Arabia, so nurses could work with shelter staff to facilitate women's access to these shelters. Furthermore, they could advocate for the development of additional shelters and services for abused women.

Traditionally, healthcare providers have understood pain as "acute" and from a biomedical perspective that emphasizes its cause as physical injury or pathology. The biomedical perspective views mind and body separately such that pain is either in the body or in the mind (Gatchel, 2004; Lewandowski, 2004). This study finding challenge this perspective which is still favoured and practiced in Saudi Arabia (El-Gilany, Amr, & Iqbal, 2010). It offers an important perspective for healthcare providers including nurses by suggesting that a holistic approach must be adopted in the health care responses of IPV survivors. As such, multimodal ways of caring that simultaneously addresses IPV, mental health symptoms, and women's social resources within the context of treating chronic pain is urgently needed. When women present with chronic pain, healthcare

providers should have a heightened suspicion about the possibility of a history of child abuse or IPV, as well as mental health issues, and systematically assess for these issues.

Moreover, identifying and treating both depression and PTSD symptoms is an important aspect of caring for abused women. Mental health problems including depressive and PTSD symptoms are treatable health issues (Carney & Freedland, 2007; Jones, Harding, Chung, & Campbell, 2009), but many people with depression are untreated or they receive suboptimal care (Lin et al., 2009). Among Canadian women who had left an abusive partner, 57% of them had symptoms consistent with clinical depression, but only 31% had been diagnosed (Wuest et al., 2007). In the same study, more than half of the women who had experienced IPV had symptoms consistent with PTSD based on the *Diagnostic and Statistical Manual of Mental Disorders-IV* criteria, yet only 7% reported that they had been diagnosed with PTSD by a health care provider (Wuest et al., 2008). Failure to recognize, diagnosis and treat these common mental health problems is a lost opportunity to support the health and well-being of women experiencing IPV.

Primary health care is the cornerstone of the Saudi healthcare system, as it is the initial point of entry to the healthcare system that is accessible to all citizens (Almalki, FitzGerald, & Clark, 2011). Yet, there is evidence that mental health issues are often undiagnosed and untreated at high rates in Saudi Arabia (Koenig et al., 2014). The study highlights the high prevalence of both depressive symptoms (78.6%) and PTSD symptoms (75.6%) among abused women in the primary health care setting. Thus, primary care workers, including nurses must assess, recognize, manage, and support individuals with mental health issues as well as provide appropriate referrals. Motivated

and skilled nurses are needed in primary health care in order to realize improvements in mental health (World Health Organization, World Organization of National Colleges, Academies, & Academic Associations of General Practitioners/Family Physicians, 2008). Neglecting mental health issues can lead to detrimental effects in women's physical health (such as chronic pain). It is critical to address both PTSD and depressive symptoms in the management of women's chronic pain.

Furthermore, substantial work needs to be dedicated to enhancing the quality of mental health care in general for Saudi women. Mental health problems are still stigmatized in Saudi Arabia, which acts as a barrier for Saudi individuals to seek and receive necessary health care (Qureshi, Al-Habeeb, & Koenig, 2013). Addressing the stigma associated with mental health problems could be initiated by nurses (Ross & Goldner, 2009; Sartorius, 2007). Nurses could take on the role of "de-stigmatizers" of mental illness by having authentic reflections and self-confident action and advocating for non-stigmatizing mental health services for women. In addition, nurses need to take a first step in adopting a trauma-informed approach to care, which is based on realizing the nature and effects of abuse on women's lives and health (Elliot, Bjelajac, Fallot, Markoff, & Reed, 2005) in mental health services and beyond. Herman's (1992) three stage model of healing may be a helpful guide in considering practice interventions. The stages include: a) establishment of safety and stabilization, in which providers focus on creating physical and psychological safety and on assisting women to feel understood within the therapeutic environment, b) remembrance and mourning, in which providers help women in remembering the details of what happened and grieving potentials that were lost and c) reconnection with everyday life, in which providers supporting women in reconnecting

intimacy with others, seeing the positive changes formed by the traumas, and celebrating the survivor self.

The findings of this study also highlight the need to implement comprehensive interventions in most healthcare settings. The World Health Organization recommends clinical interventions in response to IPV because evidence shows that various interventions are promising in improving abused women's health (World Health Organization, 2013). For example, Sharps et al. (2016) assessed the effectiveness of the Domestic Violence Enhanced Home Visitation Program (DOVE) IPV intervention by conducting a multisite randomized control trial. The study showed significant improvements in IPV because women in the DOVE intervention group reported a larger decrease in IPV in comparison with the control group (Sharp et al., 2016). A randomized control trial with women in Hong Kong showed that abused women who received empowerment training reported higher physical functioning, less psychological and physical abuse, and lower depression scores (Tiwari, Leung, Leung, Humphreys, Parker & Ho, 2005). Similarly, reviewing the evidence shows that intensive advocacy intervention for women who experience IPV results in improving women's quality of life, decreased physical abuse, and provides short-term mental health improvements (Rivas et al., 2015). Health interventions could involve cognitive-behavioral therapy to mitigate mental and physical health problems (Iverson et al., 2011). Health-based interventions may also need to draw on women's social networks to help them manage women's mental health symptoms, because the study findings suggest that increased perceptions of social support may improve women's mental health symptoms. Researchers found that interventions for IPV survivors increased women's perceived

social support (Hansen, Eriksen, & Elklit, 2014) which were effective in mental health outcomes (Constantino, Kim, & Crane, 2005). In addition, interventions that aim to encourage reporting of IPV and educate the public about the ways in which abuse exposure affects women's physical and mental health are highly needed to begin shifting public perceptions about IPV.

Nursing Education

While the incorporation of IPV-related content in nursing curriculum is still limited (Connor, Nouer, Speck, Mackey, & Tipton, 2013; Woodtli & Breslin, 2002), the findings of this study could be utilized to inform nursing education by raising awareness about the importance of including abuse as a significant health issue. Theoretical knowledge and clinical experiences related to IPV must be integrated into basic nursing curricula (Registered Nurses Association Ontario, 2006). Healthcare providers who receive formal education about IPV are able to detect IPV cases more often (Johnson, 2015; McGrath et al., 1997). A review of the literature reveals that lack of education regarding IPV is a barrier to assessing, identifying, and intervening to support women experiencing IPV when they enter healthcare settings (D'Avolio, 2011). Nurses often feel inadequacy related to IPV knowledge and also perceive lack of competence related to assessing and intervention for IPV (Tufts, Clements, & Karlowicz, 2009). Education supports the development of best practices in IPV (Bournnell & Prosser, 2010) and is the most efficient and effective approach for addressing IPV in the healthcare settings (Connor et al., 2013). Given the high prevalence of wife abuse/IPV (40.2%) in this current sample, intimate partner violence must be addressed as a core element in Saudi nursing education.

Thus, nurses must have a comprehensive understanding about the dynamics and consequences of IPV in order to develop the required skills for identifying abused women and providing safe and effective care. In addition, education related to IPV should be a continuing education requirement for all nurses and health care providers in order to meet competency requirements (Roark, 2010). Workplace education programs that address the healthcare professionals' attitudes and prejudices toward IPV also need to be implemented. This strategy could help the nurses to be more informed and eager to take a leap forward in the direction of addressing this phenomenon in the healthcare settings, since it promotes health care providers' self-efficacy (Goff, Shelton, Byrd, & Parcel, 2001; Johnson et al., 2009).

The conceptual framework around which nursing education is organized influences the way nurses think. The current study findings reinforce the unity of mind and body as abuse experiences lead to chronic pain through mental health and perceived social support affects mental health. Thus, the nursing curriculum must emphasize the dynamic interaction among physiologic, psychological, and social factors. Enhancing the understanding about how health is shaped by biopsychosocial factors can influence health care workers beliefs and attitudes toward chronic pain (Domenech, Sánchez-Zuriaga, Segura-Ortí, Espejo-Tort, & Lisón, 2011). Furthermore, the adoption of a biopsychosocial perspective would allow nurses to offer more comprehensive and holistic care for women who have experienced abuse. Diffusion of the biopsychosocial model in the nursing education could be the forefront of efforts to accept and adopt this model in the health care settings.

Implications for Future Research

Findings of this study raise a number of opportunities for future research. More research is needed to refine, replicate, and further elaborate the findings. Additional studies are required to assess PTSD symptoms among women who have experienced IPV using PCL-C or different measures and also using different samples to confirm the latent structure of PTSD. Developing consensus about a model of PTSD symptoms that holds up for women from varied backgrounds and across time is important for IPV research. Further research is also needed to test and examine the factor structure of the 27-item Arabic CAS since the analysis completed in this study was exploratory in nature. Cross-validating the final measurement model of Arabic CAS in larger independent community and clinic samples is highly recommended.

An area of study worth pursuing is testing the hypothesized models with larger samples of Saudi women and using longitudinal data. Researchers should consider adding concepts to these models that are known to affect health (such as socioeconomic status, resiliency, personal resources, and risk behaviors) in order to better understand the impacts of abuse on the health of Saudi women. It might be fruitful in future studies to use multiple data collection methods, including adopting biophysical measures that capture the physiological pathways between abuse and chronic pain (for example, cortisol).

Research about IPV and associated health consequences remains a work in progress in Saudi Arabia. Thus, researchers should focus on launching large-scale surveillance studies at national level to gain full understanding of the prevalence of IPV at a population level and the most salient health impacts. Studies in the Saudi context

need to base their research on using valid and reliable instruments and methodologies that address important ethical and safety issues related to IPV research. In addition, research is needed in the Saudi context that informs the design and delivery of interventions.

Evaluation research on the effects of programs that aim to prevent and respond to IPV is also required.

Implications for Policy

The study findings have implications for policy reform or development of new policies that address abused women's health and safety in Saudi Arabia. Policy makers urgently need to appreciate the complexity of the health issues among women who have experienced IPV. Both governmental and non-governmental agencies need to be created with the aim of supporting women who are dealing with IPV. For example, wife abuse centers that have significant resources dedicated to addressing abused women's needs could be established throughout Saudi Arabia. Currently, few shelters have been built in the country with limited resources for abused women. Policies that focus on ensuring women's safety could be a platform for expanding the number of shelters and enhance women's access to these safe shelters or other programs. Workers in the social services (e.g. shelters) should work with women to increase their access to social support as well as mental health programs. Social policy should be re-oriented to support women who have experienced IPV by offering long-term or permanent income assistance and/or housing as they are struggle with mental and physical health issues. Polices are needed that mandate criminal justice reforms by focusing on counseling, restraining, and punishing the abusive husbands while being woman-centered. Woman-centered policy

that respond to individual women's requirements and offers them advocacy and social support is an effective approach.

The prevention of IPV should be given high priority on the national policy agenda. IPV is an indicator of gender inequality that requires action at the policy level. Therefore, improving women's legal and socioeconomic status is a salient intervention. Women need an easier access to divorce and a system that favour their custody of children following separation. National media needs to be used to raise awareness about IPV in the country and to present it as a major chronic health problem. The media could be a power vehicle for creating cultural changes and alterations in public attitudes and social norms. Moreover, developing interventions for men and women focusing on social norms of gender relations are needed, because promising evidence highlights the effectiveness of interventions that address social norms related to masculinity and the use of violence (Jewkes, Flood, & Lang, 2015).

Conclusion

This was the first study of its kind to examine the mechanisms through which abuse lead to mental (PTSD and depressive symptoms) and chronic pain among Saudi women. Findings from this study indicate that mental health symptoms (PTSD and depressive symptoms) fully mediated the effects of IPV severity and child abuse severity on chronic pain. Perceived family support had a partial mediating effect on depressive symptoms, but not on PTSD symptoms. The study also provides evidence of the reliability and validity of two Arabic versions of two imporatr self-report measures: the PCL-C and Composite Abuse Scale. Results of this study have relevant implication for nursing practice and education as well as future research and policy.

References

- Almalki, M., FitzGerald, G., & Clark, M. (2011). Health care system in Saudi Arabia: an overview/Aperçu du système de santé en Arabie saoudite. *Eastern Mediterranean health journal*, *17*(10), 784.
- Almosaed, N. (2004). Violence against women: A cross-cultural perspective. *Journal of Muslim Affairs*, *24* (1), 67- 88, DOI: 10.1080/1360200042000212124.
- Anderson, D., & Saunders, D. (2003). Leaving an abusive partner: An empirical review of predictors, the process of leaving, and psychological well-being. *Trauma, Violence, & Abuse*, *4*(2), 163-191.
- Banks, M.E. (2007). Overlooked but critical: Traumatic brain injury as a consequence of interpersonal violence. *Trauma, Violence & Abuse*, *8*(3), 290-298.
- Bernstein, D., & Fink, L. (1998). Childhood Trauma Questionnaire: A Retrospective Self-Report. New York: The Psychological Corporation.
- Bournnell, M., & Prosser, S. (2010). Increasing identification of domestic violence in emergency departments: a collaborative contribution to increasing the quality of practice of emergency nurses. *Contemporary nurse*, *35*(1), 35-46.
- Butler, T. T. (2015). The Times: Are They a-Changin'? Saudi Law Finally Addresses Domestic Violence with Its Regulation on Protection from Abuse. *Iowa Law Review*, *100*(3).
- Campbell, J. C. (2002). Health consequences of intimate partner violence. *Lancet*, *359*(9314), 1331–1337.
- Carney, R., & Freedland, K. (2007). Depression and coronary heart disease: More pieces of the puzzle. *American Journal of Psychiatry*, *164*(9), 1307-1309.

- Coker, A. L., Smith, P. H., Whitaker, D. J., Le, B., Crawford, T. N., & Flerx, V. C. (2012). Effect of an in-clinic IPV advocate intervention to increase help seeking, reduce violence, and improve well-being. *Violence Against Women, 18*(1), 118-131.
- Connor, P. D., Nouer, S. S., Speck, P. M., Mackey, S. N., & Tipton, N. G. (2013). Nursing students and intimate partner violence education: improving and integrating knowledge into health care curricula. *Journal of Professional Nursing, 29*(4), 233-239.
- Constantino, R., Kim, Y., & Crane, P. A. (2005). Effects of a social support intervention on health outcomes in residents of a domestic violence shelter: A pilot study. *Issues in mental health nursing, 26*(6), 575-590.
- D'Avolio, D. A. (2011). System issues: Challenges to intimate partner violence screening and intervention. *Clinical Nursing Research, 20*(1), 64-80.
- Domenech, J., Sánchez-Zuriaga, D., Segura-Ortí, E., Espejo-Tort, B., & Lisón, J. F. (2011). Impact of biomedical and biopsychosocial training sessions on the attitudes, beliefs, and recommendations of health care providers about low back pain: a randomised clinical trial. *Pain, 152*(11), 2557-2563.
- Duterte, E. E., Bonomi, A. E., Kernic, M. A., Schiff, M. A., Thompson, R. S., & Rivara, F. P. (2008). Correlates of medical and legal help seeking among women reporting intimate partner violence. *Journal of Women's Health, 17*(1), 85-95.
- El-Gilany, A. H., & Mostafa Amr, M. D. (2010). Students' attitudes toward psychiatry at Al-hassa medical college, Saudi Arabia. *Academic Psychiatry, 34*(1), 71.

- Elhai, J. D., de Francisco Carvalho, L., Miguel, F. K., Palmieri, P. A., Primi, R., & Frueh, B. C. (2011). Testing whether posttraumatic stress disorder and major depressive disorder are similar or unique constructs. *Journal of Anxiety Disorders, 25*(3), 404-410.
- Elliot, D., Bjelajac, P., Fallot, R., Markoff, L., & Reed, B. (2005). Trauma-informed or trauma-denied: Principles and implementation of trauma-informed services for women. *Journal of Community Psychology, 33*(4), 461-477.
- Follette, V. M., Polusny, M. A., Bechtle, A. E., & Naugle, A. E. (1996). Cumulative trauma: The impact of child sexual abuse, adult sexual assault, and spouse abuse. *Journal of traumatic stress, 9*(1), 25-35.
- Ford-Gilboe, M., Varcoe, C., Noh, M., Wuest, J., Hammerton, J., Alhalal, E., & Burnett, C. (2015). Patterns and predictors of service use among women who have recently left abusive partners. *Journal of Family Violence, 30*(4), 419-431.
DOI:10.1007/s10896-015-9688-8 (Open Access).
- Ford-Gilboe, M., Varcoe, C., Wuest, J., & Merritt-Gray, M. (2010). Intimate partner violence and nursing practice. In J. Humphreys, & J. C. Campbell (Eds.) *Family Violence and Nursing Practice*. Springer Publishing Company.
- Ford-Gilboe, M., Wuest, J., Varcoe, C., Davies, L., Merritt-Gray, M., Campbell, J., & Wilk, P. (2009). Modelling the effects of intimate partner violence and access to resources on women's health in the early years after leaving an abusive partner. *Social science & medicine, 68*(6), 1021-1029.
- Gatchel, R. J. (2004). Comorbidity of chronic pain and mental health: The biopsychosocial perspective. *American Psychologist, 59*, 792-794.

- Goff, H., Shelton, A. J., Byrd, T., & Parcel, G. (2003). Preparedness of health care practitioners to screen women for domestic violence in a border community. *Health care for women international, 24*(2), 135-148.
- Greenfield, E.A., Lee, C., Friedman, E.L., & Springer, K.W. (2011). Childhood abuse as a risk factor for sleep problems in adulthood: Evidence from a US national study. *Annals of Behavioral Medicine, 42*(2), 245–256.
- Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: Review of the evidence. *Journal of Child Psychology and Psychiatry, 45*(2), 260-273.
- Hansen, N., Eriksen, S., & Elklit, A. (2014). Effects of an intervention program for female victims of intimate partner violence on psychological symptoms and perceived social support. *European Journal of Psychotraumatology, 5*, Article 24797-Article 24797. doi:10.3402/ejpt.v5.24797
- Heim, C., Newport, D. J., Mletzko, T., Miller, A. H., & Nemeroff, C. B. (2008). The link between childhood trauma and depression: insights from HPA axis studies in humans. *Psychoneuroendocrinology, 33*(6), 693-710.
- Herman, J. (1992). *Trauma and recovery: The Aftermath of Violence—from Domestic Abuse to Political Terror*. New York: Basic Books.
- Humphreys, J., Tsoh, J. Y., Kohn, M. A., & Gerbert, B. (2011). Increasing discussions of intimate partner violence in prenatal care using Video Doctor plus Provider Cueing: a randomized, controlled trial. *Women's health issues, 21*(2), 136-144.

- International Center for Research on Women. (2009). *Intimate partner violence: High costs to households and communities*. Washington, D.C: International Center for Research on Women.
- Iverson, K. M., Gradus, J. L., Resick, P. A., Suvak, M. K., Smith, K. F., & Monson, C. M. (2011). Cognitive-behavioral therapy for PTSD and depression symptoms reduces risk for future intimate partner violence among interpersonal trauma survivors. *Journal of Consulting and Clinical Psychology, 79*(2), 193.
- Jewkes, R., Flood, M., & Lang, J. (2015). From work with men and boys to changes of social norms and reduction of inequities in gender relations: a conceptual shift in prevention of violence against women and girls. *The Lancet, 385*(9977), 1580-1589.
- Johnson, L. (2015). Intimate partner violence (IPV) policy and education curriculum for healthcare providers leads to a reduction in barriers and improvements in screening practices for victims/survivors of IPV. In *2015 APHA Annual Meeting & Expo*. APHA. Retrieved from:
<https://apha.confex.com/apha/143am/webprogram/Paper326042.html>
- Johnson, N. L., Klingbeil, C., Melzer-Lange, M., Humphreys, C., Scanlon, M. C. & Simpson, P. (2009). Evaluation of an intimate partner violence curriculum in a pediatric hospital. *Pediatrics, 123*(2), 562- 568, doi: 10.1542/peds.2007-3121.
- Jones, R. C., Harding, S. A., Chung, C., & Campbell, J. (2009). The prevalence of posttraumatic stress disorder in patients undergoing pulmonary rehabilitation and changes in PTSD symptoms following rehabilitation. *Journal of cardiopulmonary rehabilitation and prevention, 29*(1), 49-56.

- Koenig, H. G., Al Zaben, F., Sehlo, M. G., Khalifa, D. A., Al Ahwal, M. S., Qureshi, N. A., & Al-Habeeb, A. A. (2014). Mental health care in Saudi Arabia: Past, present and future. *Open Journal of Psychiatry, 4*(02), 113.
- Lang, A.J., Stein, M.B., Kennedy, C.M., & Foy, D.W. (2004). Adult psychopathology and intimate partner violence among survivors of childhood maltreatment. *Journal of Interpersonal Violence, 19*(10), 1102–1118.
- Lewandowski, W. (2004). Psychological factors in chronic pain: A worthwhile undertaking for nursing?. *Archives of Psychiatric Nursing, 18*(3), 97-105.
- Lin, E., Diaz-Granados, N., Stewart, D. E., Rhodes, A. E., Yeritsyan, N., Johns, A. Duong-Hua, M., & Bierman, A.S. (2009). Depression. In A. S. Bierman (Ed.). *Project for an Ontario Women's Health Evidence-Based Report: Volume 1*. Toronto.
- McFarlane, J., & Parker, B. (1994). Preventing abuse during pregnancy: An assessment and intervention protocol. *Maternal Child Nursing, 19*(6), 321–324.
- McFarlane, J., Parker, B., Soeken, K., Silva, C. & Reel, S. (1998). Safety behaviours of abused women after an intervention during pregnancy. *Journal of Obstetrics, Gynecological and Neonatal Nursing, 27*(1), 64-69.
- McGrath, M. E., Bettacchi, A., Duffy, S. J., Peipert, J. F., Becker, B. M., & Angelo, L. S. (1997). Violence against women: Provider barriers to intervention in emergency departments. *Academic Emergency Medicine, 4*(4), 297-300.
- Mize, K., Shackelford, T., & Shackelford, V. (2009). Hands-on killing of intimate partners as a function of sex and relationship status/state. *Journal of Family Violence, 24*(7), 463-470.

- Mutso, A. A., Radzicki, D., Baliki, M. N., Huang, L., Banisadr, G., Centeno, M. V., ... & Apkarian, A. V. (2012). Abnormalities in hippocampal functioning with persistent pain. *The Journal of Neuroscience*, *32*(17), 5747-5756.
- Newman, M. (1994). *Health as Expanding Consciousness (2nd ed.)*. New York, NY: National League for Nursing Press.
- Ouellet-Morin, I., Fisher, H. L., York-Smith, M., Fincham-Campbell, S., Moffitt, T. E., & Arseneault, L. (2015). Intimate partner violence and new-onset depression: A longitudinal study of women's childhood and adult histories of abuse. *Depression and anxiety*, *32*(5), 316-324.
- Parker, B., & McFarlane J. (1991). Nursing assessment of the battered pregnant woman. *American Journal of Maternal Child Nursing*, *16*(3), 161–164.
- Pearlin L. I. (1999). The stress process revisited. In: *Handbook of the Sociology of Mental Health* (eds C. Aneshensel & J. Phelan), pp. 395–415. Kluwer Academic/Plenum, New York.
- Pearlin L.I. (1989). The sociological study of stress. *Journal of Health and Social Behavior*, *30*(3), 241–256.
- Pearlin, L. I., Aneshensel, C. A., & LeBlanc, A. J. (1997). The forms and mechanisms of stress proliferation: the case of AIDS caregivers. *Journal of Health and Social Behavior*, *38*(3), 223–236.
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, *22*(4), 337-356.

- Qureshi, N. A., Al-Habeeb, A. A., & Koenig, H. G. (2013). Mental health system in Saudi Arabia: An overview. *Neuropsychiatric Disease and Treatment*, 2013, 1121-1135.
- Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385-401.
- Ramsay, J., Richardson, J., Carter, Y. H., Davidson, L. L., & Feder, G. (2002). Should health professionals screen women for domestic violence? Systematic review. *British Medical Journal*, 325(7359), 314.
- Registered Nurses Association Ontario. (2006). *Best Practice Guidelines: Shaping the Future of Nursing. Establishing Therapeutic Relationships*. Retrieved September 28, 2011 from: http://www.rnao.org/Storage/15/936_BPG_TR_Rev06.pdf
- Richardson, C. & Wade, A. (2010). Islands of safety: Restoring dignity in violence-prevention work with Indigenous families. *First Peoples Child & Family Review* 5, 137–145.
- Rivara, F. P., Anderson, M. L., Fishman, P., Bonomi, A. E., Reid, R. J., Carrell, D., & Thompson, R. S. (2007). Healthcare utilization and costs for women with a history of intimate partner violence. *American journal of preventive medicine*, 32(2), 89-96.
- Rivas, C., Ramsay, J., Sadowski, L., Davidson, L.L., Dunne, D., Eldridge, S..... Feder G. (2015). Advocacy interventions to help women who experience intimate partner abuse to access community resources. *Cochrane Database of Systematic Reviews*, 12, DOI: 10.1002/14651858.CD005043.pub3

- Roark, S. V. (2010). Intimate partner violence: Screening and intervention in the health care setting. *the Journal of Continuing education in Nursing, 41*(11), 490-495.
- Ross, C. A., & Goldner, E. M. (2009). Stigma, negative attitudes and discrimination towards mental illness within the nursing profession: a review of the literature. *Journal of Psychiatric and Mental Health Nursing, 16*(6), 558-567.
- Sartorius, N. (2007). Stigma and mental health. *The Lancet, 370*(9590), 810-811.
- Schoening, A. M., Greenwood, J. L., McNichols, J. A., Heermann, J. A., & Agrawal, S. (2004). Effect of an intimate partner violence educational program on the attitudes of nurses. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 33*(5), 572-579.
- Scott-Storey, K. A. (2013b). *Lifetime Abuse as a Risk Factor for Cardiovascular Disease among Women*. (Unpublished doctoral dissertation). University of New Brunswick, Canada.
- Sharps, P. W., Bullock, L. F., Campbell, J. C., Alhusen, J. L., Ghazarian, S. R., Bhandari, S. S., & Schminkey, D. L. (2016). Domestic violence enhanced perinatal home visits: The DOVE randomized clinical trial. *Journal of Women's Health, 25*(11): 1129-1138. doi:10.1089/jwh.2015.5547.
- Sidani, S., Guruge, S., Miranda, J., Ford-Gilboe, M., & Varcoe, C. (2010). Cultural adaptation and translation measures: an integrated method. *Research in Nursing & Health, 33*(2), 133-143.
- Tiwari, A., Fong, D. Y. T., Chan, C., & Ho, P. (2013). Factors mediating the relationship between intimate partner violence and chronic pain in Chinese women. *Journal of*

Interpersonal Violence, 28(5), 1067-1087.

doi:<http://dx.doi.org/10.1177/0886260512459380>

- Tiwari, A., Leung, W.C., Leung, T.W., Humphreys, J., Parker, B., & Ho, P.C. (2005). A randomized controlled trial of empowerment training for Chinese abused pregnant women in Hong Kong. *British Journal of Obstetrics and Gynecology*, 112(9), 1-8.
- Trevillion, K., Agnew-Davies, R., & Howard, L. M. (2011). Domestic violence: responding to the needs of patients. *Nursing Standard*, 25(26), 48-56.
- Tufts, K. A., Clements, P. T., & Karlowicz, K. A. (2009). Integrating intimate partner violence content across curricula: Developing a new generation of Nurse Educators. *Nurse Education Today*, 29(1), 40-47.
- Turner, R. J. (2009). Understanding health disparities: The promise of the stress process model. In *Advances in the Conceptualization of the Stress Process* (pp. 3-21). Springer New York.
- Usta, J., Antoun, J., Ambuel, B., & Khawaja, M. (2012). Involving the health care system in domestic violence: what women want. *The Annals of Family Medicine*, 10(3), 213-220.
- Von Korff, M., Ormel, J., Keefe, F. J., & Dworkin, S. F. (1992). Grading the severity of chronic pain. *Pain*, 50(2), 133-149.
- Weathers, F.W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *PTSD Checklist—Civilian version*. Boston: National Center for PTSD, Behavioral Science Division.
- Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the psychometric properties of the PTSD checklist (PCL) military, civilian, and specific versions. *Depression and Anxiety*, 28(7), 596-606. doi:10.1002/da.20837

- Wilson, D. (2015). Editorial: Practising with our hearts and minds: Nurses and intimate partner violence. *Journal of clinical nursing*, 24(15-16), 2055-2056.
- Wong, J., & Mellor, D. (2014). Intimate partner violence and women's health and wellbeing: Impacts, risk factors and responses. *Contemporary nurse*, 46(2), 170-179.
- Woods, A. B., Page, G. G., O'Campo, P., Pugh, L. C., Ford, D., & Campbell, J. C. (2005). The mediation effect of posttraumatic stress disorder symptoms on the relationship of intimate partner violence and IFN- γ levels. *American journal of community psychology*, 36(1-2), 159-175.
- Woods, S. J., Wineman, N. M., Page, G. G., Hall, R. J., Alexander, T. S., & Campbell, J. C. (2005). Predicting immune status in women from PTSD and childhood and adult violence. *ANS. Advances in Nursing Science*, 28(4), 306.
- Woodtli, M. A., & Breslin, E. T. (2002). Violence-related content in the nursing curriculum: A follow-up national survey. *Journal of Nursing Education*, 41(8), 340-348.
- World Health Organization, World Organization of National Colleges, Academies, & Academic Associations of General Practitioners/Family Physicians. (2008). *Integrating mental health into primary care: a global perspective*. World Health Organization.
- World Health Organization. (2013). *Responding to intimate partner violence and sexual violence against women: WHO clinical and policy guidelines*. World Health Organization.

- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Varcoe, C., Lent, B., Wilk, P., & Campbell, J. (2009). Abuse-related injury and symptoms of posttraumatic stress disorder as mechanisms of chronic pain in survivors of intimate partner violence. *Pain Medicine, 10*(4), 739-747.
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Wilk, P., Campbell, J. C., Lent, B., ... & Smye, V. (2010). Pathways of chronic pain in survivors of intimate partner violence. *Journal of Women's Health, 19*(9), 1665-1674.
- Wuest, J., Merritt-Gray, M., Ford-Gilboe, M., Lent, B., Varcoe, C., & Campbell, J. C. (2008). Chronic pain in women survivors of intimate partner violence. *Journal of Pain, 9*(11), 1049-1057.
- Wuest, J., Merritt-Gray, M., Lent, B., Varcoe, C., Connors, A., & Ford-Gilboe, M. (2007). Patterns of medication use among women survivors of intimate partner violence. *Canadian Journal of Public Health, 98*(6), 460-464.

APPENDIX A

Pilot Study Summary

The purpose of the pilot study was to translate three self-report scales, which are PTSD checklist- version (PCL-C) and Chronic Pain Grade (CPG) and Childhood Trauma Questionnaire, from English to Arabic and assess their reliability.

Method

An integrated method for exploring conceptual equivalence within the process of translating measures was used to produce a linguistic and cultural translation of the scales (Sidani, Guruge, Miranda, Ford-Gilboe, & Varcoe, 2010). It includes assessment of conceptual equivalence, forward translation, and finally testing of the set of items for comprehension and cultural validity (Sidani et al., 2010).

For assessing the conceptual equivalence of the three measures, the researcher was collaborate with two health professionals, who are bicultural and bilingual individuals. These health professionals have knowledge about the concepts (PTSD, chronic pain, and sexual abuse) and Arab culture. The health professionals were asked to individually read all items and to consider the content of each item for relevance to Arab culture and provided with a scale (10-point numeric rating scale anchored with not at all and very much) to rate the comprehension and cultural relevance of each item. A group meeting was held to clarify the meaning and relevance of the items' content to Arab culture and identify items in the three measures that require modification to enhance their relevance to Arab culture. The items were accepted without modification as they were rated easy to understand (i.e., comprehension >5) and culturally relevant to Arab culture (i.e., cultural relevance >5).

The forward translation was conducted by one certified translators who is bilingual and has medical background and two health professionals who are bilingual and bicultural. They independently completed an initial translation of all items. Prior to translation, the translators were reminded that it is important to keep the meaning of the concept in the source measure with incorporating the corresponding cultural expressions and using terms that are simple and easy to understand. After the translation was done, a meeting was held with the two translators (health professionals) to discuss the extent to which the measures were difficult to translate and share opinions about the adequacy of the translations of each item in terms of its correspondence to the source item, its inclusion of culturally relevant expression, and its ease of understanding by Arab culture. Discrepancies in the translations were identified and the translators tried to find alternative wording of the item in Arabic to come to an agreement regarding the most appropriate wording.

In the literature, there is a recommendation to conduct backward translation by translating the measures from the target language back into the source language. However, the worthiness of this step has been questioned (Martinez, Marin, & Sohoua-Glusberg, 2006) and this phase has been proposed as an optional phase in the process of adapting and translating measures (Sidani et al., 2010). Therefore, the backward translation was not conducted in this study.

Sample and Setting

The item pool was tested for comprehension and cultural validity in a convenience sample of 30 adult, Arab women from the Middle East, who are above 18

years old, refugees and/or legal immigrants. Women must speak Arabic and have been living in Canada for less than four years, because estimates of the prevalence of health problems, such as PTSD in adult refugees have found to be higher in the first four years of displacement (Fazel, Wheeler, & Danesh, 2005). Thirty is a recommended sample size for piloting instruments in both social science and health research (Hill, 1998; Johanson & Brooks, 2010; Julious, 2005; van Belle, 2002).

Women were recruited from Cross Cultural Learner Centre (CCLC) in London, Ontario, Canada. The CCLC is suitable place for recruiting refugees or/and immigrants women, because it serves a new Immigrant or Refugee who need help to settle, adapt and integrate in London. Counselors at the center was given the flyer to eligible participants with information on contacting the researcher. Participants who demonstrate interest in taking part in the study contacted the researcher directly. Some women also agreed to being contacted by the researcher, so their phone numbers were given to the researcher by a counselor who has obtained their consent to do so. The researcher spoke with each participant to describe the pilot study and invite participation. The written consent was obtained from each woman who were interested to participate at the beginning of the interview.

The mean age of women was 38.1 years ($SD = 12.02$, range 18–70) and more than half (63.3%, $n = 19$) are married. Women had been in Canada an average of 29.7 months ($SD = 15.64$, range 2–48). The majority of women (86.7%, $n = 26$) were refugees, with 83.3% ($n = 25$) emigrating from Iraq. Although 10% had only completed elementary school, 40% had earned a bachelor's degree. Almost half (46.7%) of women were unemployed, while 26.7% are were English as Second Language (ESL) students.

Data Collection Procedure

Structured Interviews (SI) was used to get information from women on the translated version of PTSD Checklist, Chronic Pain Grade, and Childhood Trauma Questionnaire. Interviews were conducted in a private room in the CCLC or another private location selected by the women. During and after the interview, a debriefing was conducted with each woman using a standard protocol.

Ethics approval for the study design, procedures, and questionnaires was obtained from the Research Ethics Board at Western University.

Results

For each scale, item analysis was conducted to examine the degree of inter-item correlation, and item-total score correlations, and internal consistency reliability (Cronbach's alpha) was estimated. The majority of items were straightforward and easy to understand. At the PCL-C, a few women had misinterpreted the meaning of item 8 "Trouble remembering important parts of a stressful experience from the past". In terms of sexual abuse items at the CTQ, women were comfortable with reporting their sexual abuse experiences.

The mean PCL-C score for the total sample was 49.0 ($SD = 21.26$) with a range of 21–85. Of the 30 women, 66.7% have PTSD symptoms using 35 cut score. The internal consistency of the PCL-C for the whole sample as measured by Cronbach's coefficient was .96 for the total score, .94 for re-experiencing sub-scale's items, .88 for avoidance sub-scale's items, and .84 for hyperarousal sub-scale's items. Subscale scores were highly interrelated, with correlation coefficients ranged 0.76 to 0.79. Corrected item-total correlations were over 0.4 for the PCL-C total scale. Item-total coefficients for PCL

subscale scores ranged from .78 to .88 for re-experiencing symptoms, from .44 to .85 for avoidance symptoms, and from .59 to .73 for hyperarousal symptoms. It indicates that the item is consistent with the total score of scale or/and sub-scale. The reliability of the PCL would decrease if any of the items were dropped from the test, except the reliability would not change if item 8 was deleted from the test.

The pain intensity on average was 51.2 ($SD= 33.75$; 0-100) and the pain disability on average was 46.7 ($SD= 40.02$; 0-100). Only 10% of women were pain free. The internal consistency as measured by Cronbach's coefficient was .93 for pain intensity sub-scale's items and .97 pain disability sub-scale's items. Both pain intensity and pain disability sub-scales were highly correlated ($r= .83$). The corrected item-total correlations were high for both pain intensity ($\leq .80$) and pain disability ($\leq .85$). Inter-item correlation coefficients ranged from .774 to .897 on the pain intensity and from .878 to .94 on the pain disability. The reliability of both sub-scales would decrease if any of the items were dropped from the test.

Among 30 women, the majority of women did not experience child abuse. Cronbach's alpha was .87 for Emotional Abuse, .92 for Physical Abuse, .92 for Sexual Abuse, .88 for Physical Neglect, and .82 for Emotional Neglect. Inter-item correlation coefficients ranged from .37 to .80 ($M = .59$) on the Emotional abuse, .48 to .95 ($M= .73$) on Physical Abuse, .55 to 1 ($M= .74$) on Sexual Abuse, .40 to .88 ($M= .63$) on Physical Neglect, and .37 to .68 ($M= .47$) on Emotional Neglect. Corrected item-total correlations were range from .58 to .84 for Emotional Abuse, .57 to .91 for Physical Abuse, .75 to .92 for Sexual Abuse, .51 to .71 for Emotional Neglect, and .57 to .87 for Physical Neglect. The correlation coefficients for the subscales ranged from .59 to .85.

The pilot study provided evidence that the PCL-C, CPG, and CTQ are reliable measures of PTSD, chronic pain, and child abuse among Arab population. The result also suggests the compatibility of these Arabic versions with English versions. All items seem to be clear and understandable for women, with the exception of item 8 at the PCL. Therefore, a slight revision of item 8 was done in a consultation with the translators.

APPENDIX B

Ethics Approval for Phase 1

Western University Health Science Research Ethics Board
HSREB Delegated Initial Approval Notice

Principal Investigator: Dr. Marilyn Ford-Gilboe
Department & Institution: Health Sciences/Nursing, Western University

HSREB File Number: 105833
Study Title: Assessing the reliability of Arabic translations of 3 self-report measures
Sponsor:

HSREB Initial Approval Date: November 28, 2014
HSREB Expiry Date: November 28, 2015

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol		2014/10/13
Letter of Information & Consent	Letter of Information and Consent	2014/09/21
Other	Debriefing protocol-Received Sept 22, 2014	
Instruments	Study Instrument & Demographic-Received Sept 22, 2014	
Recruitment Items	Eligibility and enrollment form-Received Sept 22, 2014	
Advertisement	Recruitment Flyer-Received Sept 22, 2014	
Instruments	Assessment of Suicidal risk.-Received Sept 22, 2014	


The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above named study, as of the HSREB Initial Approval Date noted above.

HSREB approval for this study remains valid until the HSREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review. If an Updated Approval Notice is required prior to the HSREB Expiry Date, the Principal Investigator is responsible for completing and submitting an HSREB Updated Approval Form in a timely fashion.


The Western University HSREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Guideline for Good Clinical Practice Practices (ICH E6 R1), the Ontario Personal Health Information Protection Act (PHIPA, 2004), Part 4 of the Natural Health Product Regulations, Health Canada Medical Device Regulations and Part C, Division 5, of the Food and Drug Regulations of Health Canada.

Members of the HSREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 0000940.


Ethics Officer, on behalf of Dr. Joseph Gilbert, HSREB Chair

Ethics Officer to Contact for Further Information

 Erika Basile	Grace Kelly	Mina Melhail	Vikki Traa
--	-------------	--------------	------------

This is an official document. Please retain the original in your files.

APPENDIX C

Recruitment Flyer for Phase 1

Western

Recruitment Flyer: English

Assessing the reliability of Arabic translations of 3 self-report measures

A team of researchers from the School of Nursing at Western University have translated questions about women's health and childhood experiences from English to Arabic.

In this study, we would like to assess the reliability of these new Arabic questions created to gather information about chronic pain, stress responses, and experiences in childhood. We hope to improve the availability of reliable, culturally-appropriate research measures for Arabic speaking women.

Women who take part in this study will be interviewed and asked questions about their health and childhood experiences. The interview will take 15 to 20 minutes and is confidential.

You are eligible if you

- Are a women 18 years old or over.
- Were born in the Middle East.
- Speak Arabic
- Have lived in Canada for less than 4 years.

If you are interested in taking part in this study please contact:

Eman Alhalal
Western University

T [REDACTED]
[REDACTED]

Version: September 22, 2014



Recruitment Flyer: Arabic

تقييم مصداقية الترجمة للغة العربية لثلاثة مقاييس

فريق من الباحثين قام بترجمة ثلاثة مقاييس (اثنين متعلقين بالصحة ومقياس واحد للتجارب خلال فترة الطفولة) من الإنجليزية إلى العربية.

في هذه الدراسة، نود تقييم مصداقية هذه المقاييس المترجمة والتي تم إنشاؤها لجمع المعلومات حول الألام المزمنة، واستجابات التوتر، والتجارب في مرحلة الطفولة. نحن نأمل من هذه الدراسة على تحسين توافر مقاييس عربية مناسبة للمرأة العربية.

النساء اللواتي يشاركن في هذه الدراسة سوف يجرون مقابلة للاجابة عن أسئلة متعلقة بصحتهم. سوف تستغرق المقابلة 15 إلى 20 دقيقة.

انت مؤهلة إذا كنت

- امرأة وفوق 18 سنة.
- ولدت في الشرق الأوسط.
- تتكلمين اللغة عربي.

إذا كنت ترغبين في المشاركة في هذه الدراسة يرجى الاتصال ب:

إيمان الحلال (Eman Alhalal)

رقم الهاتف:

[Redacted]

بريد إلكتروني:

[Redacted]

APPENDIX D

Eligibility and Enrollment Form for Phase 1

Western

Assessing the reliability of Arabic translations of 3 self-report measures

Eligibility and Enrollment Form: English

Eligibility Screening Questions	YES	NO
Q1. Are you a woman over the age of 18?		
Q2. Do you speak Arabic?		
Q3. Were you born in the Middle East?		
Q4. Have you lived in Canada for less than 4 years?		

Eligible if: YES to the four questions.

IF WOMAN DOES NOT QUALIFY: Thank her for her interest.

IF WOMAN DOES QUALIFY: proceed to the letter of information.

Version: September 22, 2014



Assessing the reliability of Arabic translations of 3 self-report measures

Eligibility and Enrollment Form: Arabic

تقييم مصداقية الترجمة للغة العربية لثلاث مقاييس
أستمارة الأهلية و التسجيل

لا	نعم	أسئلة فحص الأهلية
		س1- هل عمرك فوق الـ 18 سنة؟
		س2- تتكلمين عربي؟
		س3- هل ولدتى بالشرق الاوسط؟
		س4- هل عشت فى كندا لمدة تقل عن 4 سنوات؟

المرأه مؤهلة: إذا كانت الإجابات بنعم لجميع الخيارات أعلاه

إذا كانت المرأه غير مؤهلة للإشتراك فى البحث: يتم شكرها لرغبتها بالمشاركة

إذا كانت المرأه مؤهلة للإشتراك : تُقدم البينة للمشاركة للدراسة

APPENDIX E

Letter of Information and Consent Form for Phase 1**Assessing the reliability of Arabic translations of 3 self-report measures****Letter of Information: English**

Project Title: Assessing the reliability of Arabic translations of 3 self-report measures

Investigators: Marilyn Ford-Gilboe, PhD, RN, FAAN, Arthur Labatt Family School of Nursing, Western University.

Carol A. Wong, RN, PhD, Arthur Labatt Family School of Nursing, Western University.

Eman Alhalal, RN, MScN, PhD students, Arthur Labatt Family School of Nursing, Western University.

Fadia AlBuhairan, MD, King Abdulaziz Medical City & King Saud bin Abdulaziz University for Health Sciences.

You are being invited to take part in a research study. The purpose of this study is to assess the quality of new Arabic versions of standard questions used by researchers to gather information about chronic pain, stress responses, and experiences in childhood. Before we can use these questions with confidence in a larger study, we need to determine whether they are appropriate for Arab women. Thirty adult Arab women living in London Ontario, Canada, will take part in this study. This letter will provide you with information to help you make an informed decision about taking part in this research.

Who is Eligible to Take Part

You are Eligible to take part if you:

- are a woman who is 18 years old or older.
- were born in the Middle East.
- speak Arabic.
- have lived in Canada for less than 4 years.

What Taking Part Means

If you agree to take part, you will meet with a bilingual interviewer once in a private office at the Cross Cultural Learner's Center. The interviewer will ask you to answer questions about your level of chronic pain, how you respond to stressful events, and experiences in your childhood. She will also ask you to provide some basic background information, such as whether you have children or not and your level of education, in order to describe group of women who take part in

Version: September 21, 2014

this study. The interviewer will record your answer on a paper copy of the questions. The confidential interview will take 15 to 20 minutes.

Possible Risks and Harms

The risks of taking part in this study are small. You may become upset by some questions if you recall painful experiences. If you become upset, the interview will be stopped and support will be provided. The interviewer will talk with you about things you can do if you feel upset after the interview. A counselor will be available to you for follow up if you wish.

Possible Benefits

You may not benefit directly from taking part in this study. If you wish, the interviewer may be able to provide information about community services you may find helpful. Your responses to the interview questions will help us develop high quality, culturally appropriate questions to ask Arabic speaking women in future studies.

Compensation

You will not be compensated for taking part in this research.

Voluntary Participation

Taking part in this study is voluntary. You may refuse to take part or answer any questions. You may withdraw from the study at any time with no effect on the services provided to you at the Cross Cultural Learner's Center.

Confidentiality

The information you provide is confidential. Your answers will be recorded on a paper copy of the questions and then stored on a password protected computer or memory stick. Your answers will be identified by a code number. Your name and other identifying information will be kept separate from your answers to the study questions.

The information you provide will be stored in a locked cabinet in a secure office at Western University which only the researchers can access. If you drop out of the study, the information you have provided will not be kept.

What we learn in this study might be shared in research journals, magazines, newspapers, and public talks. Your name or identifying information will not be used.

Representatives of Western University Health Sciences Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

Contacts for Further Information

If you require any further information about this research project or taking part in the study, you may contact:

Dr. Marilyn Ford-Gilboe Phone: [REDACTED] Email: [REDACTED]

OR

Eman Alhalal Phone: [REDACTED] Email: [REDACTED]

Version: September 21, 2014

If you have also any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics (519) 661-3036, email: ethics@uwo.ca.

Consent:

If you agree to take part in this study, please sign the attached consent form.

This letter is yours to keep for future reference.



Western

Consent Form: English

- Project Title:** Assessing the reliability of Arabic translations of 3 self-report measures
- Investigators:** Marilyn Ford-Gilboe, PhD, RN, FAAN, Arthur Labatt Family School of Nursing, Western University.
 Carol A. Wong, RN, PhD, Arthur Labatt Family School of Nursing, Western University.
 Eman Alhalal, RN, MScN, PhD students, Arthur Labatt Family School of Nursing, Western University.
 Fadia AlBuhairan, MD, King Abdulaziz Medical City & King Saud bin Abdulaziz University for Health Sciences.

I have read the letter of information, have had the nature of the study explained to me and I agree to take part. All questions have been answered to my satisfaction.

Participant's Name (Please Print): _____

Participant's Signature: _____

Date: _____

Person Obtaining Informed Consent (Please Print): _____

Signature: _____

Date: _____

Version: September 21, 2014

Letter of Information: Arabic

تقييم مصداقية الترجمة للغة العربية لثلاث مقاييس بيئة للمشاركة في الدراسة

يتم دعوتك للمشاركة في دراسة بحثية ، لأنك تتحدث العربية وتفهم الثقافة العربية. الغرض من هذه الدراسة هو تقييم مصداقية الترجمة العربية الجديدة لثلاث مقاييس التي أنشئت لجمع المعلومات عن الألم المزمن، واستجابات التوتر، والتجارب في مرحلة الطفولة قبل أن تتمكن من استخدام هذه الأسئلة بثقة في دراسة أكبر حيث نحن بحاجة لتحديد ما إذا كانت مناسبة للمرأة العربية حوالي 30 امرأة عربية تعيش في لندن أو نارتريو، كندا سوف تشارك في هذه الدراسة. هذه الرسالة سوف توفر لك المعلومات التي تساعدك على اتخاذ قرار مستنير بشأن المشاركة في هذا البحث

معايير الإدراج:

المشاركون في هذه الدراسة سوف يكونون نساء الواتي اعمارهن فوق 18 سنة، ولدت في الشرق الأوسط، وتستطيع أن تتكلم اللغة العربية. سيكون المشاركون عملاء لدى مؤسسة تخدم المهاجرين الجدد واللاجئين أثناء عملية التوطين. سيكون المشاركون إما متزوجة أو غير متزوجة، مطلقة و / أو أرملة من مختلف الخلفيات الاقتصادية والشخصية والاجتماعية، والتعليمية.

ما تتطلب المشاركة:

إذا وافقت على المشاركة، سوف تجتمعين مع باحثة تتحدث الغتين (الإنجليزية والعربية) مرة واحدة في مكتب خاص. خلال المقابلة سوف يطلب منك الأجابة على أسئلة حول مستوى الألم المزمن، و الأحداث المجهدة، والخبرات في طفولتك. كما سوف يتم سؤالك عن بعض المعلومات الأساسية، مثل ما إذا كان لديك أطفال أم لا، ومستوى تعليمك، وذلك لوصف مجموعة من النساء اللواتي يشاركن في هذه الدراسة. سوف يتم تسجيل إجابتك على نسخة ورقية من الأسئلة. المقابلة سوف تكون سرية وقد تستغرق 15 إلى 20 دقيقة.

المخاطر والانتزاعات المحتملة:

مخاطر المشاركة في هذه الدراسة صغيرة. قد تشعرين بالضيق من قبل بعض الأسئلة إذا كنت تذكر التجارب المؤلمة. إذا شعرت بالضيق، سيتم إيقاف المقابلة، وسيتم توفير الدعم، وسوف يكون متاحا على الفور مستشار في مكتب المقابلة للمتابعة. إذا كنت ترغبين سنقدم لك معلومات لمساعدتك في العثور على خدمات الدعم.

الفوائد المحتملة:

قد لا تستفيدين مباشرة من المشاركة بالدراسة. ولكن إذا كنت تعاني من مشاكل صحية، قد توفر لك المقابلة فرصة لتحدث عن هذه التجربة ومعرفة كيفية الوصول إلى الدعم. قد تساعد هذه الدراسة على توفر المقاييس العربية المناسبة للمرأة العربية لاستخدامها في المستقبل.

البدائل عن المشاركة:

لن يتم تعويضك على المشاركة في هذا البحث.

المشاركة التطوعية:

المشاركة في هذه الدراسة طوعيه وإذا قررت عدم المشاركة فانك لن تتعرض لأي مضايقات أو لفقدان حقاك المشروع في المعالجة فان المشاركة إختيارية و الإنسحاب منها في أي وقت و رفض الإجابة عن أي سؤال هو خيار المشارك وحده.

السرية:

المعلومات التي تقدمها سرية. سيتم تسجيل إجاباتك على نسخة ورقية من الأسئلة ومن ثم تخزينها على جهاز الكمبيوتر أو عصا الذاكرة مع كلمة مرور آمنة ومحمية. المعلومات الخاصة بك سيتم الاحتفاظ بهم منفصلاً عن إجاباتك على أسئلة الدراسة. سيتم تخزين المعلومات الخاصة بك في خزانة مؤمنة في مكتب أمن فقط يمكن للباحثين الوصول إليها. إذا قررت التوقف عن الدراسة، لن يتم الاحتفاظ بالمعلومات التي قمت بتقديمها. ما نتعلمه في هذه الدراسة قد تنشر في مجلات البحوث، والمجلات، والصحف، والمحادثات العامة ولكن اسمك وهويتك لن تستخدم.

يجوز لممثلي غرب جامعة غير مجلس أخلاقيات البحوث الطبية بالاتصال بك أو تتطلب الوصول إلى السجلات المتعلقة دراستك لمراقبة سير الأبحاث.

اتصالات لمزيد من المعلومات

إذا كنت بحاجة إلى أي معلومات أخرى بخصوص هذا المشروع البحثي أو مشاركتك في الدراسة يمكنك الاتصال: المحقق الرئيسي الدكتورة مارلين فورد كيلبو (Marilyn Ford-Gilboe)، الهاتف [REDACTED] البريد الإلكتروني: [REDACTED]

أو

إيمان الحلال (Eman Alhalal) بريد إلكتروني: [REDACTED]

إذا كان لديك أي أسئلة أيضاً عن حقوقك كمشارك في البحث أو إجراء هذه الدراسة، يمكنك الاتصال بمكتب أخلاقيات البحوث [REDACTED]، بريد إلكتروني: [REDACTED].

نشر

إذا تم نشر نتائج هذه الدراسة، لن تستخدم اسمك. إذا كنت ترغب في الحصول على نسخة من أي نتائج الدراسة المحتملة، يرجى تقديم اسمك ورقم الاتصال على قطعة من الورق منفصلة عن نموذج الموافقة.



Western

Consent Forma: Arabic

موافقة خطية على بيئة للمشاركة في الدراسة

لقد قرأت بيئة المشاركة في الدراسة، فقد أوضحت الدراسة بالنسبة لي وأنا أوافق على المشاركة.

جميع المعلومات اللازمة قد تم توضيحها بدقة قبل توقيعني

اسم المشارك بالكامل

التاريخ

توقيع المشارك

توقيع الباحث

APPENDIX F

Structured Interview for Phase 1

There are 3 sections in this interview that contain questions about: your health, childhood experiences, and background information such as your age. It usually takes between 15 and 20 minutes to complete the interview. I will read each of the questions with you and mark your answers. If you need to stop the interview at any time, please let me know. If there are questions you don't want to answer just tell me. Recall that all of your answers are CONFIDENTIAL.

PTSD CheckList – Civilian Version (PCL-C)

Below is a list of problems and complaints that individuals sometimes have in response to stressful life experiences. Please indicate how much you have been bothered by that problem *in the last month*.

In the past month, how much you have been bothered by:

No.	Response	Not at all	A little bit	Moderately	Quite a bit	Extremely
1.	Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?	1	2	3	4	5
2.	Repeated, disturbing <i>dreams</i> of a stressful experience from the past?	1	2	3	4	5
3.	Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening</i> again (as if you were reliving it)?	1	2	3	4	5
4.	Feeling <i>very upset</i> when <i>something reminded</i> you of a stressful experience from the past?	1	2	3	4	5
5.	Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, or sweating) when <i>something reminded</i> you of a stressful experience from the past?	1	2	3	4	5
6.	Avoid <i>thinking about</i> or <i>talking about</i> a stressful experience from the past or avoid <i>having feelings</i> related to it?	1	2	3	4	5
7.	Avoid <i>activities</i> or <i>situations</i> because they <i>remind you</i> of a stressful experience from the past?	1	2	3	4	5
8.	Trouble <i>remembering important parts</i> of a stressful experience from the past?	1	2	3	4	5
9.	Loss of <i>interest in things that you used to enjoy</i> ?	1	2	3	4	5
10.	Feeling <i>distant</i> or <i>cut off</i> from other people?	1	2	3	4	5
11.	Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
12.	Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?	1	2	3	4	5
13.	Trouble <i>falling or staying asleep</i> ?	1	2	3	4	5
14.	Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	1	2	3	4	5

15.	Having <i>difficulty concentrating</i> ?	1	2	3	4	5
16.	Being " <i>super alert</i> " or watchful on guard?	1	2	3	4	5
17.	Feeling <i>jumpy</i> or easily startled?	1	2	3	4	5

Chronic Pain Grade (CPG) scale

<u>Pain intensity items</u>												
1.	How would you rate your pain on a 0-10 scale at the present time, that is right now, where 0 is 'no pain' and 10 is 'pain as bad as could be'?	0	1	2	3	4	5	6	7	8	9	10
2.	In the past 6 months, how intense was your worst pain rated on a 0-10 scale where 0 is 'no pain' and 10 is 'pain as bad as could be'?"?	0	1	2	3	4	5	6	7	8	9	10
3.	In the past 6 months, on the average, how intense was your pain rated on a 0-10 scale where 0 is 'no pain' and 10 is 'pain as bad as could be'?"? (That is, your usual pain at times you were experiencing pain.)	0	1	2	3	4	5	6	7	8	9	10
<u>Pain Disability items</u>												
4.	About how many days in the last 6 months have you been kept from your usual activities (work, school or housework) because of pain?											
5.	In the past 6 months, how much has pain interfered with your daily activities rated on a 0-10 scale where 0 is 'no interference' and 10 is 'unable to carry on any activities'?	0	1	2	3	4	5	6	7	8	9	10
6.	In the past 6 months, how much has pain changed your ability to take part in recreational, social and family activities where 0 is 'no change' and 10 is 'extreme change'?"?	0	1	2	3	4	5	6	7	8	9	10
7.	In the past 6 months, how much has pain changed your ability to work (including housework) where 0 is 'no change' and 10 is 'extreme change'.	0	1	2	3	4	5	6	7	8	9	10

Childhood Trauma Questionnaire

These questions ask about some of your experiences growing up as a child.

When I was growing up	Never true	Rarely true	Sometimes true	Often true	Very often true
1-I was hit so hard that I had to see a doctor or go to the hospital.					
2-Family hit me so hard that it left me with bruises or marks.					
3-I was beaten so badly it was noticed by a teacher/neighbor/doctor					
4-I was punished with a belt/board/cord/other hard object					
5-I believe that I was physically abused					
6-Someone in my family helped me feel important or special.					
7-I felt loved.					
8-People in my family looked out for each other.					
9-People in my family felt close to each other.					
10-My family was a source of strength and support.					
11-People in my family called me "stupid," "lazy," or "ugly."					
12-I thought that my parents wished I had never been born.*					
13-People in my family said hurtful or insulting things to me.					

14-I felt that someone in my family hated me.					
15-I believe that I was emotionally abused.					
16-I didn't have enough to eat.					
17-I knew there was someone to take care of me and protect me.					
18-My parents were too drunk or high to take care of the family.					
19-I had to wear dirty clothes.					
20-There was someone to take me to the doctor if I needed it.					
21-Someone tried to touch me in a sexual way/made me touch them.					
22-Someone threatened me unless I did something sexual.					
23-Someone tried to make me do/watch sexual things.					
24-Someone molested me.					
25-I believe that I was sexually abused.					
26-I felt loved.					
27-People in my family looked out for each other.					
28-People in my family felt close to each other.					

Demographic form

1. What is your age? _____
 2. What is the highest level of education which you have completed? _____
 3. What is your marital status?
 - Single (never married)
 - Married
 - Widowed
 - Separated or Divorced
 4. Do you have children? No _____ Yes _____
If yes: How many children do you have? _____
 5. Are you employed outside the home? No _____ Yes _____
If yes:
 - Employed full-time (20 or more hours per week)
 - Employed part-time (less than 20 hours per week)
 6. What is your country of origin? _____
 7. How long have you been in Canada? _____
 8. What is your status in Canada?
 - Canadian citizen
 - Landed immigrant
 - Refugee Claimant
- Other _____

Structure interview: Arabic

هناك 3 أقسام أو مقاييس في هذه المقابلة التي تحتوي على أسئلة حول: صحتك، تجاربك خلال فترة الطفولة، ومعلومات تختص بك مثل عمرك. عادة ما تستغرق هذه المقابلة ما بين 15 إلى 20 دقيقة. سأقرأ كل الأسئلة معك وسوف ادون إجاباتك. إذا كنت بحاجة إلى التوقف عن المقابلة في أي وقت، اسمحي لي أن أعرف. إذا كان هناك أسئلة لا تريد الإجابة عليها فقط أخبريني. تذكرني أن كل إجاباتك سرية....

أدناه قائمة من المشاكل والشكاوى التي يعاني منها الأفراد في بعض الأحيان نتيجة لتجارب الحياة المؤلمة. يرجى قراءة كل مشكلة وشكوى بعناية ووضع علامة "X" في المربع للإشارة إلى مدى انزعاجك من هذه المشكلة في الشهر الماضي.

في الشهر الماضي، ما هو مدى انزعاجك من:

ت	الاستجابة	لا على الإطلاق	قليلاً	باعتدال	لا بأس	كثير جداً
1.	نكريات وأفكار متكررة ومزعجة أو صور لتجربة مؤلمة أو صعوبة نفسياً من الماضي؟					
2.	أحلام متكررة ومزعجة لتجربة مؤلمة أو صعوبة نفسياً من الماضي؟					
3.	تصرف أو شعور مفاجئ كما لو كانت تجربة مؤلمة أو صعوبة نفسياً تحدث لك مرة أخرى (كما لو كنت تعيشها مرة ثانية)؟					
4.	الشعور بالضيق كثيراً عندما يكون هناك شيء يذكرك بتجربة مؤلمة أو صعوبة نفسياً من الماضي؟					
5.	حصول ربود فعل بدنية (مثل زيادة دقات القلب أو صعوبة في التنفس أو التعرق) عندما يكون هناك شيء يذكرك بتجربة مؤلمة أو صعوبة نفسياً من الماضي؟					
6.	تجنب التفكير أو الحديث عن تجربة مؤلمة أو صعوبة نفسياً من الماضي أو تجنب المشاعر المتعلقة بها؟					
7.	تجنب الأنشطة أو المواقف التي تذكرك بتجربة مؤلمة أو صعوبة نفسياً من الماضي؟					

					8. صعوبة في تذكر أجزاء مهمة من تجربة مؤلمة أو صعوبة نفسياً من الماضي؟
					9. فقدان الاهتمام في الأشياء التي كنت تستمتع بها بالعادة؟
					10. الشعور بالبعد أو العزلة عن الآخرين؟
					11. الشعور باللامبالاة العاطفية أو عدم القدرة على البوح بمشاعر محبة للمقربين لك؟
					12. الشعور كما لو أن مستقبلك سوف يكون قصيراً بطريقة ما ؟
					13. صعوبة الدخول بالنوم أو البقاء نائماً؟
					14. الشعور بتعكر المزاج أو وجود حالات غضب؟
					15. وجود صعوبة في التركيز؟
					16. تصبح "منتبهاً للغاية" أو يقطاً ؟
					17. الشعور بالتقلب أو الجفل بسهولة؟

هذه الأسئلة متعلقة ببعض التجارب التي قد تكونين مررتي بها في فترة الطفولة....

الرقم	العبارة	غير صحيح مطلقا	صحيح نادرا	صحيح أحيانا	صحيح غالبا	صحيح على الأغلب
1	في طفولتي كنت أتعرض للحرمان بما في ذلك الحرمان من الطعام	•	•	•	•	•
2	في طفولتي كنت أحظى بالعناية والرعاية ممن هم حولي	•	•	•	•	•
3	في طفولتي كان بعض أفراد عائلتي يعتونني بألقاب نابية بشكل منتظم	•	•	•	•	•
4	في طفولتي كانا والدي لاهيان عنا لدرجة انهما لم يستطيعا العناية بالعائلة	•	•	•	•	•
5	في طفولتي كان هناك أحد أفراد عائلتي يحسنني باني مهم أو مميز	•	•	•	•	•
6	في طفولتي لم أجد إلا ملابس باليه لارتديها	•	•	•	•	•
7	في طفولتي شعرت بأنني محبوب	•	•	•	•	•
8	في طفولتي شعرت بان والدي تمنيا بأنني لم اخلق	•	•	•	•	•
9	في طفولتي تعرضت إلى ضرب مبرح من أحد أفراد عائلتي احتجت على أثرها إلى عناية طبية	•	•	•	•	•
10	في طفولتي لم أتمنى بأنني ولدت لأبوين آخرين	•	•	•	•	•
11	في طفولتي كان بعض أفراد عائلتي يضربني بقسوة مما ترك اثر لعلامات وكدمات على جسمي	•	•	•	•	•
12	في طفولتي كنت أعاقب بربطي بلوح أو حبل أو أي شيء آخر صلب	•	•	•	•	•
13	في طفولتي كان أفراد عائلتي حريصين على بعضهم البعض	•	•	•	•	•
14	في طفولتي كان أفراد عائلتي يقولون لي كلام مؤلم ومهين	•	•	•	•	•
15	في طفولتي أسئنت معاملتي جسديا هل تذكر من الذي فعل ذلك؟..... وكم كان عمرك آنذاك تقريبا؟.....	•	•	•	•	•
16	في طفولتي عشيت طفولة ممتازة	•	•	•	•	•
17	في طفولتي ضربت بشكل سيئ لوحظ علي من قبل المعلم أو الجار أو الطبيب	•	•	•	•	•

•	•	•	•	•	18	في طفولتي شعرت بان أحد أفراد عائلتي يكرهني
•	•	•	•	•	19	في طفولتي كان أفراد عائلتي يشعرون بالتقارب فيا بينهم
•	•	•	•	•	20	في طفولتي كنت اشعر بان عائلتي من افضل العوائل.
•	•	•	•	•	21	.حاول شخص ما أن يلمسني لدوافع أو بوادر جنسية / أو جعلني المسه.
•	•	•	•	•	22	
•	•	•	•	•	23	
•	•	•	•	•	24	.شخص ما تحرش بي.
•	•	•	•	•	25	. أعتقد أنني تعرضت للاعتداء الجنسي.
•	•	•	•	•	26	في طفولتي أظن بان مشاعري قد أهينت هل تذكر من الذي فعل ذلك؟..... وكم كان عمرك آنذاك تقريبا؟.....
•	•	•	•	•	27	في طفولتي كان هناك من يأخذني للطبيب عندما احتاج إليه
•	•	•	•	•	28	في طفولتي كانت عائلتي مصدر دعم وقوة لي

Demographic Questions: Arabic

س1- كم عمرك؟

س2- ما هو أعلى مستوى من التعليم الذي كنت قد أكملت؟ _____

س3- ما هو وضعك العائلي؟

واحدة (لم يتزوج قط)

أعزب

ارمل

مطلق أو مطلقة

س4- هل لديك أطفال؟ لا _____ نعم _____

إذا كان الجواب نعم: كم عدد الأطفال لديك؟ _____

س5- هل تعمل خارج المنزل؟ نعم _____ لا _____

إذا كان الجواب نعم:

العاملين بدوام كامل (20 ساعة أو أكثر في الأسبوع)

المشتغلين بدوام جزئي (أقل من 20 ساعة في الأسبوع)

س6- ما هو بلدك الأصلي؟ _____

س7- منذ متى وانت تم في كندا؟ _____

س8- ما هو وضعك في كندا؟

مواطن كندي

المهاجر القادم

اللاجئ المدعي

غير _____

APPENDIX G

Ethics Approval for Phase 2 from Western University Ethics Board



Western
Research

Research Ethics

Western University Health Science Research Ethics Board
HSREB Full Board Initial Approval Notice

Principal Investigator: Dr. Marilyn Ford-Gilboe
Department & Institution: Health Sciences/Nursing, Western University

HSREB File Number: 106081
Study Title: The health consequences of family violence among Saudi women
Sponsor:

HSREB Initial Approval Date: March 30, 2015
HSREB Expiry Date: March 27, 2016

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Recruitment Items	Eligibility and Enrollment Form	2014/11/19
Letter of Information & Consent		2015/01/14
Instruments	Structured Interview	2015/01/14
Instruments	Assessment for suicidal risk	2014/09/29
Instruments	Study measures	2015/01/14
Other	Debriefing Protocol	2015/01/14
Western University Protocol		2015/03/24
Other	Safety Guidelines	2015/03/10

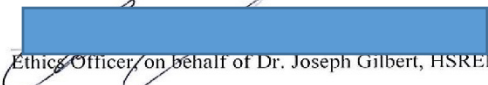
The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above named study, as of the HSREB Initial Approval Date noted above.

HSREB approval for this study remains valid until the HSREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review.

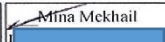
The Western University HSREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Guideline for Good Clinical Practice Practices (ICH E6 R1), the Ontario Personal Health Information Protection Act (PHIPA, 2004), Part 4 of the Natural Health Product Regulations, Health Canada Medical Device Regulations and Part C, Division 5, of the Food and Drug Regulations of Health Canada.

Members of the HSREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.


Ethics Officer, on behalf of Dr. Joseph Gilbert, HSREB Chair

Ethics Officer to Contact for Further Information

 Erika Basile	 Grace Kelly	 Mina Mekhail	 Vikki Tran
--	---	---	--

This is an official document. Please retain the original in your files.

Ethics Approval from Ministry of Health in Saudi Arabia

Kingdom of Saudi Arabia
Ministry of Health
King Fahad Medical City
(162)



المملكة العربية السعودية
 وزارة الصحة
 مدينة الملك فهد الطبية
 (١٦٢)

IRB Registration Number with KACST, KSA: H-01-R-012
 IRB Registration Number with OHRP/NIH, USA: IRB00008644
 Approval Number Federal Wide Assurance NIH, USA: FWA00018774

April 28, 2015
IRB Log Number: 15-190E
 Department: External
 Category of Approval: EXEMPT

Dear Eman Alhalal,

I am pleased to inform you that your submission dated April 27, 2015 for the study titled '**The health consequences of family violence among Saudi women**' was reviewed and was approved. Please note that this approval is from the research ethics perspective only. You will still need to get permission from the head of department or unit in KFMC or an external institution to commence data collection.

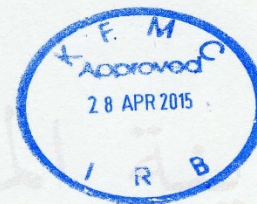
Please submit the results of this research to the Ministry of Health for review before any publication in the mass media.

We wish you well as you proceed with the study and request you to keep the IRB informed of the progress on a regular basis, using the IRB log number shown above.

If you have any further questions feel free to contact me.

Sincerely yours,

Prof. Omar H. Kasule
 Chairman Institutional Review Board--IRB.
 King Fahad Medical City, Riyadh, KSA.
 Tel: + [REDACTED]
 E-mai [REDACTED]



King Fahad Medical City

Ethics Approval from King Abdullah International Medical Research Center

Kingdom of Saudi Arabia
Ministry of National Guard - Health Affairs



المملكة العربية السعودية
وزارة الحرس الوطني - الشؤون الصحية



King Abdullah International Medical Research Center
(KAIMRC)



14572



1515



14527


irb@ngha.med.sa

IRB Office

MEMORANDUM

Reference #: IRBG/379/15

Date: (G) 18 JUNE 2015
(H) 1 Ramadan 1436

To: **DR. FADIA AL BUHAIRAN**
Principal Investigator – SP15/089
Assistant Professor
King Saud Bin Abdulaziz University for Health Sciences
King Abdulaziz Medical City
Ministry of National Guard Health Affairs

Subject: **RESEARCH PROTOCOL: SP15/089 – “The Health Consequences of Family Violence against Saudi Women”**

This is in reference to your subject proposal which has been reviewed by the IRB on the 18th of June 2015 through the expedited review process. Upon recommendation of the Research Committee, and following the review of the IRB on the ethical aspects of the proposal, you are granted permission to conduct your study. Funding of your project is subject for approval by the KAIMRC Funding Research Funding Committee.

Your research proposal is **approved for one year** commencing from the above memo date with the following conditions:

TERMS OF APPROVAL:

- Annual Reports:** Continued approval of this project is dependent on the submission of Annual Report. Please provide IRB with an Annual Report **determined by the date of your letter of approval.**
- Amendments to the approved project:** Changes to any aspect of the project require the submission of a Request for Amendment to IRB and must not begin without an approval from IRB. Substantial variations may require a new application.
- Future correspondence:** Please quote the project number and project title above in any further correspondence.
- Monitoring:** Projects may be subject to an audit or any other form of monitoring by KAIMRC at any time.
- Retention and storage of data:** The PI is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.
- A copy of consent must be given to participant after signing of PI and original must be filed in source data file.

Prof. Amin Kashmeery
Chairman, Institutional Review Board (IRB)
Ministry of National Guard Health Affairs

Dr. Ahmed Alaskar
Executive Director, KAIMRC
Ministry of National Guard Health Affairs

Dr. Bandar Al Knawy
Chief Executive Officer
Ministry of National Guard Health Affairs

AK/AS/mda

APPENDIX H

Eligibility and Enrollment Form for Phase 2

The health consequence of family violence among Saudi women

Eligibility and Enrollment Form: English

Date: _____ Site: _____

Researchers are working on a study to learn more about the health of women who have experienced family violence. Before I tell you more about the study, I need to ask you a few questions to make sure you would be eligible:

SECTION A:

Eligibility Screening Questions	YES	NO
Q1. Are you a woman between the age of 18 and 65?		
Q2. Are you married?		
Q3. Do you have Saudi nationality?		

IF NO to any Section A questions = NOT ELIGIBLE.

Say, "Thank you for your interest but we can only include Saudi women who are 19 or older and who are married."

IF YES TO ALL SECTION A QUESTIONS: Continue to Section B...

SECTION B:

Eligibility Screening Questions	YES	NO
Q3 Is your husband waiting for you outside?		
Q4. Is there any child over the age of 2 years coming with you today?		

IF YES to any of the Section B questions = NOT ELIGIBLE.

Say, "Thank you for your interest, but we can only include women who are not accompanied to the center by their husbands or children over the age of 2 years."

IF NO TO ALL SECTION B QUESTIONS: Continue to Section C...

Version: November 19, 2014



SECTION C:

The next question are about experiences which you may have had in your relationship with your husband.

Q6. Has your husband EVER.....	YES	NO	In the past 12 months?	
			YES	NO
a) Hit, kick, or otherwise physically hurt you?				
b) Forced you to have sexual activities against you will?				
c) Done things to make you feel afraid of him?				
d) Done things to try to intimidate you or to control your thoughts, feelings or actions?				

- IF NO TO ALL ABUSE QUESTIONS IN PAST 12 MONTHS = NOT ELIGIBLE.**

Say, "Thank you for your interest, but only women who have been experiencing abuse from a husband in the past 12 months are eligible to take part in this study."

- IF YES TO AT LEAST ONE ABUSE QUESTION IN THE PAST 12 MONTHS = ELIGIBLE**

Say, "You are eligible to take part in this study". **Begin Informed Consent Procedures.**

OBTAIN INFORMED CONSENT

You are eligible to take part in this study. I would like to give you some information so that you can make an informed decision about whether you would like to take part or not.

[Read Letter of Information, checking in with the woman as you go to ask if she understands or has questions]

Say: *Do you have any other questions about this study?* [provide answers]

Are you interested in taking part? Yes No

IF NO: Thank you for your interest in this study. It would be very helpful to know why you decided not to take part. Would you mind sharing this with me?

Version: November 19, 2014



IF YES: Are you able to complete the interview now? Yes No

IF NO: When would it be safe for you to complete the interview?

Version: November 19, 2014



The health consequence of family violence among Saudi women
Eligibility and Enrollment Form: Arabic

أستمارة الأهلية و التسجيل

التاريخ: _____ الموقع: _____

فريق من الباحثون يعملون على دراسة لمعرفة الحالة الصحية للمرأة التي تعيش مشاكل أسرية. قبل أن أشرح لك الدراسة بودي أن أسأل بعض الأسئلة للتأكد ما إذا كنت مؤهلة أم لا:

قسم أ:

لا	نعم	أسئلة فحص الأهلية
		س1- هل عمرك بين الـ 18 و 65 سنة؟
		س2- هل أنت متزوجة؟
		س3- هل تحملين الجنسية السعودية؟

إذا كانت الإجابات بـ لا لجميع الخيارات إعلاه (القسم أ) = غير مؤهلة.
ويقال، "شكرا لاهتمامك لكننا يمكن أن تشمل فقط النساء السعوديات الذين هم 19 عاما أو أكثر و المتزوجات."
 إذا نعم لكل الأسئلة من قسم أ إستمر لقسم ب

القسم ب:

لا	نعم	أسئلة فحص الأهلية
		س4- هل زوجك ينتظرك في الخارج الآن؟
		س5- هل يرافقك طفل عمرة أكثر من سنتين؟

إذا كانت الإجابات بـ نعم لجميع الخيارات إعلاه (القسم ب) = غير مؤهلة.

إذا لا لكل الأسئلة من قسم ب إستمر لقسم ت



القسم ت:

لا	نعم	هل سبق لزوجك....
		ان عمل اشياء ليرعبك او يتحكم بتصرفاتك وافكارك و يسيء معاملتك معنوياً
		ان ضربك أو ركلك أو أذاك جسدياً
		جبرك على الجماع
		عمل اشياء جعلك تخافين منه

إذا كانت الإجابات بـ لا لجميع الخيارات أعلاه: يتم شكرها لرغبتها بالمشاركة

إذا أُجيب بنعم لأحد الأسئلة أعلاه: تُقدم البيئة للمشاركة للدراسة

الحصول على الموافقة:

أنت مؤهلة للمشاركة في هذه الدراسة. أود أن أقدم لكم بعض المعلومات حتى تتمكن من اتخاذ قرار بشأن ما إذا كنت ترغب في المشاركة أم لا.

[اقرأ بيئة المشاركة و تأكد ما إذا كانت المشاركة في الدراسة فهمت أو لديها أي تساؤلات]

قل: هل لديك أي أسئلة أخرى حول هذه الدراسة؟ [تقديم أجوبة]

هل تحب أن تشارك؟ نعم لا

إذا كان الجواب لا: شكراً لك على اهتمامك في هذه الدراسة. وسيكون من المفيد جداً أن نعرف لماذا قررت عدم المشاركة. هل تودين إخبارنا عن السبب؟

إذا كان الجواب نعم: هل أنت قادرة على إكمال المقابلة الآن؟ نعم لا

إذا كان الجواب لا: متى سيكون أمناً بالنسبة لك لإكمال المقابلة؟

APPENDIX I

Letter of Information and Consent Form for Phase 2

Western

Letter of Information: English

Project Title: The Health Consequences of Family Violence among Saudi Women.

Investigators: Eman Alhalal, RN, MScN, PhD Candidate, Arthur Labatt Family School of Nursing, Western University.
 Marilyn Ford-Gilboe, PhD, RN, FAAN, Arthur Labatt Family School of Nursing, Western University.
 Carol A. Wong, RN, PhD, Arthur Labatt Family School of Nursing, Western University.
 Fadia AlBuhairan, MD, King Abdulaziz Medical City & King Saud bin Abdulaziz University for Health Sciences.

You are being invited to take part in a research study to learn about the health of women who have experienced family violence. About 300 adult Saudi women will take part in this study. This letter will provide you with information to help you make an informed decision about taking part in this research.

Who is Eligible to Take Part?

You are Eligible to take part if you:

- are a woman who is between the age of 18 and 65 years old.
- are a Saudi national.
- are married.
- have experienced wife abuse in the past year.

What Taking Part Means

If you agree to take part, you will be interviewed and asked questions about your health, your experiences of abuse, and your background, such as your age and whether you have children.

At the end of this interview, your height and waist circumference will be measured using a measuring tape and your weight will be taken using a standard scale.

The confidential interview will take 45 to 60 minutes to complete. It will take place in a private room in the primary health care center.



Possible Risks and Harms

The risks of taking part in this study are small. You may become upset by some questions if you recall painful experiences. If you become upset, the interview will be stopped and support will be provided. A counselor will be available to you for follow up if you wish.

Your husband may become angry if he discovers that you have taken part in this study. We will only interview you if your partner is not present or waiting for you. We will not disclose that you have taken part in this study to anyone.

The risk of losing your data is very minimal. Your identification information will be stored securely in a locked file. Your responses to questions will also be stored securely in a separate locked file.

Possible Benefits

You may not benefit directly from taking part in this study. Some women find that talking about their situation helps them to understand their life or health. Your responses to the interview questions will help health care workers to understand and help women who have experienced abuse in the future. If you wish, we will provide information about supports for women who are experiencing wife abuse.

Compensation

You will receive a gift certificate by 50 Saudi Arabian Riyal (equivalent of \$15 Canadian) from a local store in appreciation for the time needed to complete the study interview.

Voluntary Participation

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time without any effect on your health care.

Confidentiality

The information you provide is confidential. Your answers will be recorded on a hard copy of the interview. This information will be entered later into a laptop computer and will be identified by a code number. To protect your identity, your name and other identifying information will be kept separate from your answers to the study questions.

Your information will be taken securely to the researcher's home with locked files and then transferred securely to Canada to be stored in a locked cabinet in a secure office that only the researchers can access. Even if you drop out of the study, the information you have provided will be kept and may be used in this and other related studies.

All study records will be kept for at least 5 years. After that time, computer files *will* be deleted and paper files shredded.



Western

Representatives of the University of Western Ontario Health Sciences Research Ethics Board may look at the study records or access your research information to make sure the study has followed proper laws and guidelines.

What we learn in this study will be shared in research journals, magazines, newspapers, and public talks. Neither your name nor identifying information will be used.

Contacts for Further Information

If you require any further information about this research project or taking part in the study, you may contact:

Eman Alhalal Phone: Email: [REDACTED]

If you have also any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics [REDACTED]

Consent:

If you agree to take part in this study, please sign the attached consent form.

This letter is yours to keep for future reference. If you do not wish to keep this letter for safety reasons, it will be filed confidentially at the health center. You can come and review it privately if you wish



Western

Consent Form: English

- Project Title:** The Health Consequences of Family Violence among Saudi Women.
- Investigators:** Eman Alhalal, RN, MScN, PhD Candidate, Arthur Labatt Family School of Nursing, Western University.
 Marilyn Ford-Gilboe, PhD, RN, FAAN, Arthur Labatt Family School of Nursing, Western University.
 Carol A. Wong, RN, PhD, Arthur Labatt Family School of Nursing, Western University.
 Fadia AlBuhairan, MD, King Abdulaziz Medical City & King Saud bin Abdulaziz University for Health Sciences.

I have read the letter of information, have had the nature of the study explained to me and I agree to take part. All questions have been answered to my satisfaction.

I agree on using my data in another related study _____

Participant's Name (Please Print): _____

Participant's Signature: _____

Date: _____

Person Obtaining Informed Consent (Please Print): _____

Signature: _____

Date: _____



Letter of Information: Arabic

المشاكل الصحية الناتجة من العنف الأسري بين النساء السعوديات

بيئة للمشاركة في الدراسة

يتم دعوتك للمشاركة في دراسة بحثية لمعرفة المشاكل الصحية الناتجة من العنف الأسري على المرأة السعودية. عند موافقة المشترك للمشاركة بالدراسة ستجري مقابلة تتضمن أسئلة عن الصحة و عن العلاقات الإجتماعية و العائلية. قد تستغرق المقابلة ما بين أربعين إلى ستين دقيقة و ستكون في غرفة خاصة في وحدة الرعاية الصحية الأولية.

الغرض من هذه البيئة هو أن نقدم لك المعلومات المطلوبة بالنسبة لك لاتخاذ قرار مستنير بشأن المشاركة في هذه البحث.

معايير الإدراج:

أنتي مؤهلة إذا كنت:

- امرأة بين عمر 18 و 65 سنة
- سعودية الجنسية.
- متزوجة
- عشت حياة المعنفة خلال السنة الماضية

إجراءات الدراسة (المطلوب مني خلال هذا البحث العلمي):

إذا وافقت على المشاركة، سيتم مقابلتك و سؤالك حول صحتك و ما عشتيه من سوء المعاملة، والخلفية الخاصة بك، مثل عمرك، و ما إذا كان لديك أطفال. وسيتم معاينتك من خلال قياس الطول، الوزن، ومحيط الخصر. سوف تستغرق المقابلة السرية 45 إلى 60 دقيقة. ستكون في غرفة خاصة في مركز وحدة الرعاية الصحية الأولية.

المخاطر والانزعاجات المتوقعة من المشاركة في هذا البحث العلمي:

المخاطر و الإنزعاجات في هذه الدراسة ليست بالكبيرة , و لكن قد تنزعج من بعض الأسئلة المطروحة و التي تذكرك بالتجارب الأليمة. إذا تم ذلك , المقابلة ستتوقف و ستحصلين على الدعم اللازم.

الفوائد المحتملة:

قد لا تستفيدين مباشرة من المشاركة بالدراسة. مشاركتك ستفيد بالإرتقاء بعمل الطاقم الطبي بفهمهم لحالة و صحة المرأة المعنفة لمساعدتها في المستقبل. بعض النساء يفهمون حالتهم الصحية و الحياتية عند تحدثهم عن مشاكلهم.



البدائل عن المشاركة (اجر مقابل المشاركة في هذا البحث العلمي):
كل إمراه مشاركة ستمنح بطاقة شراء بقيمة خمسون ريالاً سعودياً مقدّمة من سويز ماركت
المشاركة التطوعية:

المشاركة في هذا البحث العلمي هي بمحض اختيارك. يمكنك أن تختار المشاركة أو لا. إذا قررت أن تشارك في هذا البحث العلمي، يمكنك التوقف في أي وقت تشاء. وإذا لم تشارك لن تكون هناك أي عقوبة لك، ولا تتأثر الرعاية الطبية المقدّمة لك بسبب هذا القرار.

السرية:

معلوماتك الشخصية سيتم الحفاظ عليها بسرية تامة. ولا تعطي إلا إذا اقتضى الأمر وذلك في حدود النظم والقوانين المطبقة بهذا الخصوص. معلوماتك الشخصية لن تستخدم في أي تقارير. سيتم تخزين إجاباتك إلكترونياً مع كلمة مرور آمنة ومحمية. المعلومات الخاصة بك سيتم الاحتفاظ بهم منفصلاً عن إجاباتك على أسئلة الدراسة. سيتم تخزين المعلومات الخاصة بك في خزانة مؤمنة في مكتب أمن فقط يمكن للباحثين الوصول إليها. إذا قررت التوقف عن الدراسة، لن يتم الاحتفاظ بالمعلومات التي قمت بتقديمها. ما نتعلمه في هذه الدراسة قد تنتشر في مجلات البحوث، والمجلات، والصحف، والمحادثات العامة ولكن اسمك وهويتك لن تستخدم. سيتم الاحتفاظ بجميع سجلات الدراسة لمدة 5 سنوات على الأقل. بعد ذلك قد يتم حذف ملفات الكمبيوتر والملفات الورقية قد تمزق.

الاتصال إذا كان لديك أسئلة أو مشاكل:

إذا كانت لديك أسئلة عن هذا البحث العلمي، يمكنك الاتصال بالباحث الرئيس (إيمان الحلال) على هذا الرقم إذا كانت لديك أي تساؤلات حول "حقوق الأشخاص موضوع البحث، " يمكنك الاتصال برئيس لجنة أخلاقيات البحث العلمي (IRB) على الرقم إذا كان لديك مكالمة طارئة اتصل ب

نشر:

إذا تم نشر نتائج هذه الدراسة، لن تستخدم اسمك. إذا كنت ترغب في الحصول على نسخة من أي نتائج الدراسة المحتملة، يرجى تقديم اسمك ورقم الاتصال على قطعة من الورق منفصلة عن نموذج الموافقة.

الرسالة لك للرجوع لها في المستقبل. إذا كنت لا ترغبين بالحفاظ على هذه الرسالة لأسباب تتعلق بالسلامة، سيتم الاحتفاظ بها بشكل سري في المركز الصحي. يمكنك أن تأتي لمراجعتها بخصوصية تامة إن كنت ترغب بذلك



Western

Consent Forma: Arabic

موافقة خطية على بيئة للمشاركة في الدراسة

أقر بأن هذا البحث العلمي وإجراءاته قد تم شرحها لي. لقد سمح لي بأن أسأل كل سؤال لدي الآن. ويمكنني أن أسأل أي أسئلة إضافية في أي وقت لاحق. كما يمكنني إنهاء المشاركة في هذا البحث العلمي في أي وقت دون أن تتأثر الرعاية الصحية المقدمة لي. سأحصل على نسخة موقعة من الإقرار بالموافقة.

اسم المشارك بالكامل

التاريخ

توقيع المشارك

الباحث: أقر بأنني قد شرحت بصورة كاملة، طبيعة هذا البحث العلمي والغرض منه وما ينطوي عليه من مخاطر. ولقد أجبته على جميع الأسئلة بقدر الإمكان. سأعطي نسخة موقعة من الإقرار بالموافقة للمشارك المذكور أعلاه.

توقيع الباحث

التاريخ

APPENDIX J

Structured Interview for Phase 2

There are 7 sections in this interview that contain questions about: your health, your childhood experiences, your marital relationship, your social support, your physical activity, and background information such as your age. At the end of the interview I will do some physical assessments. I'll measure your height, weight, and waist circumference. It usually takes between 45 and 60 minutes to complete the interview.

I will read each of the questions with you and mark your answers. If you need to stop the interview at any time, please let me know. If there are questions you don't want to answer just tell me. Recall that all of your answers are CONFIDENTIAL.

SECTION 1: YOUR HEALTH AND FEELINGS

In this first section, I am going to ask some questions about your physical and mental health.

Chronic Pain Grade

Thinking about any PHYSICAL PAIN that you might be experiencing...

<u>Pain intensity items</u>												
1.	How would you rate your pain on a 0-10 scale at the present time, that is right now, where 0 is 'no pain' and 10 is 'pain as bad as could be'?	0	1	2	3	4	5	6	7	8	9	10
2.	In the past 6 months, how intense was your worst pain rated on a 0-10 scale where 0 is 'no pain' and 10 is 'pain as bad as could be'?	0	1	2	3	4	5	6	7	8	9	10
3.	In the past 6 months, on the average, how intense was your pain rated on a 0-10 scale where 0 is 'no pain' and 10 is 'pain as bad as could be'?" (That is, your usual pain at times you were experiencing pain.)	0	1	2	3	4	5	6	7	8	9	10
<u>Pain Disability items</u>												
4.	About how many days in the last 6 months have you been kept from your usual activities (work, school or housework) because of pain?											
5.	In the past 6 months, how much has pain interfered with your daily activities rated on a 0-10 scale where 0 is 'no interference' and 10 is 'unable to carry on any activities'?	0	1	2	3	4	5	6	7	8	9	10
6.	In the past 6 months, how much has pain changed your ability to take part in recreational, social and family activities where 0 is 'no change' and 10 is 'extreme change'?"	0	1	2	3	4	5	6	7	8	9	10
7.	In the past 6 months, how much has pain changed your ability to work (including housework) where 0 is 'no change' and 10 is 'extreme change'.	0	1	2	3	4	5	6	7	8	9	10

The 20-item Center for Epidemiologic Studies-Depression (CESD) Scale

Please listen to each statement and tell me how often you have felt or behaved this way
IN THE PAST WEEK

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	0	1	2	3
2. I did not feel like eating; my appetite was poor.	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
4. I felt that I was just as good as other people.	0	1	2	3
5. I had trouble keeping my mind on what I was doing.	0	1	2	3
6. I felt depressed.	0	1	2	3
7. I felt that everything I did was an effort.	0	1	2	3
8. I felt hopeful about the future.	0	1	2	3
9. I thought my life had been a failure.	0	1	2	3
10. I felt fearful.	0	1	2	3
11. My sleep was restless.	0	1	2	3
12. I was happy.	0	1	2	3
13. I talked less than usual.	0	1	2	3

14. I felt lonely.	0	1	2	3
15. People were unfriendly.	0	1	2	3
16. I enjoyed life.	0	1	2	3
17. I had crying spells.	0	1	2	3
18. I felt sad.	0	1	2	3
19. I felt that people dislike me.	0	1	2	3
20. I could not get “going.”	0	1	2	3

The PTSD checklist-Civilian version (PCL-C)

Below is a list of problems and complaints that individuals sometimes have in response to stressful life experiences. Please indicate how much you have been bothered by that problem *in the past month*.

In the past month, how much you have been bothered by:

No.	Response	Not at all	A little bit	Moderately	Quite a bit	Extremely
18.	Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?	1	2	3	4	5
19.	Repeated, disturbing <i>dreams</i> of a stressful experience from the past?	1	2	3	4	5
20.	Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening</i> again (as if you were reliving it)?	1	2	3	4	5
21.	Feeling <i>very upset</i> when <i>something reminded</i> you of a stressful experience from the past?	1	2	3	4	5
22.	Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, or sweating) when <i>something</i>	1	2	3	4	5

	<i>reminded</i> you of a stressful experience from the past?					
23.	Avoid <i>thinking about</i> or <i>talking about</i> a stressful experience from the past or avoid <i>having feelings</i> related to it?	1	2	3	4	5
24.	Avoid <i>activities</i> or <i>situations</i> because they <i>remind you</i> of a stressful experience from the past?	1	2	3	4	5
25.	Trouble <i>remembering important parts</i> of a stressful experience from the past?	1	2	3	4	5
26.	Loss of <i>interest in things that you used to enjoy</i> ?	1	2	3	4	5
27.	Feeling <i>distant</i> or <i>cut off</i> from other people?	1	2	3	4	5
28.	Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
29.	Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?	1	2	3	4	5
30.	Trouble <i>falling</i> or <i>staying asleep</i> ?	1	2	3	4	5
31.	Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	1	2	3	4	5
32.	Having <i>difficulty concentrating</i> ?	1	2	3	4	5
33.	Being “ <i>super alert</i> ” or watchful on guard?	1	2	3	4	5
34.	Feeling <i>jumpy</i> or easily startled?	1	2	3	4	5

Have you EVER had a *problem* with any of the following:

Type 2 diabetes	YES	NO
High blood pressure	YES	NO
High cholesterol level	YES	NO
Stroke	YES	NO
Chest pain	YES	NO
Migraine	YES	NO
Fatigue	YES	NO
Swollen/ painful joints	YES	NO
General aches and Pains	YES	NO
Muscle soreness	YES	NO
Difficulty sleeping	YES	NO
Upset stomach/heartburn	YES	NO
Unplanned pregnancies	YES	NO
Any others health Problems (list):		
• _____		
• _____		
• _____		

--	--	--

SECTION 2: PHYSICAL ACTIVITY

The short form of International Physical Activity Questionnaires (IPAQ-SF)

Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

_____ **days per week**

No vigorous physical activities **→** *Skip to question 3*

2. How much time did you usually spend doing **vigorous** physical activities on one of those days?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

_____ **days per week**

No moderate physical activities **➔** *Skip to question 5*

4. How much time did you usually spend doing **moderate** physical activities on one of those days?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

_____ **days per week**

No walking **➔** *Skip to question 7*

6. How much time did you usually spend **walking** on one of those days?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

SECTION 3: SOCIAL SUPPORT

The Multidimensional Scale of Perceived Social Support (MSPSS)

Indicate how you feel about each statement.

	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1. My family really tries to help me.	1	2	3	4	5	6	7
2. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
3. My friends really try to help me.	1	2	3	4	5	6	7
4. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
5. I can talk about my problems with my family.	1	2	3	4	5	6	7
6. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
7. My family is willing to help me make decisions.	1	2	3	4	5	6	7
8. I can talk about my problems with my friends.	1	2	3	4	5	6	7

SECTION 4: CHILDHOOD EXPERIENCES

The Childhood Trauma Questionnaire (CTQ)

These questions ask about some of your experiences growing up as a child and a teenager. Although these questions are of a personal nature, please try to answer as honestly as you can. For each question, circle the number of the response that best describes how you feel.

When I was growing up...	Never True	Rarely True	Sometimes True	Often True	Very Often True
1. I didn't have enough to eat.					
2. I knew that there was someone to take care of me and protect me.					
3. People in my family called me things like "stupid", "lazy", or "ugly".					
4. My parents were too drunk or high to take care of the family.					
5. There was someone in my family who helped me feel that I was important or special.					
6. I had to wear dirty clothes.					
7. I felt loved.					
8. I thought that my parents wished I had never been born.					
9. I got hit so hard by someone in the family that I had to see a doctor or go to the hospital.					
10. There was nothing I wanted to change about my family.					
11. People in my family hit me so hard that it left me with bruises or marks.					
12. I was punished with a belt, a board, a cord, or some other hard object.					
13. People in my family looked out for each other.					
14. People in my family said hurtful or insulting things to me.					
15. I believe that I was physically abused.					
16. I had the perfect childhood.					

17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbour, or doctor.					
18. I felt that someone in my family hated me.					
19. People in my family felt close to each other.					
20. Someone tried to touch me in a sexual way or tried to make me touch them.					
21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.					
22. I had the best family in the world.					
23. Someone tried to make me do sexual things or watch sexual things.					
24. Someone molested me.					
25. I believe that I was emotionally abused.					
26. There was someone to take me to the doctor if I needed it.					
27. I believe that I was sexually abused.					
28. My family was a source of strength and support.					

SECTION 5: MARITAL RELATIONSHIP

Composite Abuse Scale (CAS)

We would like to know if you have experienced any of the actions listed below from your husband. Choose a number to show how often each of these things happened to you in the past 12 months.

In the past 12 months, my husband.....

Actions	Never	Only Once	Several Times	Once/ Month	Once/ Week	Daily
1. Told me that I wasn't good enough	0	1	2	3	4	5
2. Kept me from medical care	0	1	2	3	4	5

3. Followed me	0	1	2	3	4	5
4. Tried to turn my family, friends and children against me	0	1	2	3	4	5
5. Locked me in the bedroom	0	1	2	3	4	5
6. Slapped me	0	1	2	3	4	5
7. Raped me	0	1	2	3	4	5
8. Told me that I was ugly	0	1	2	3	4	5
9. Tried to keep me from seeing or talking to my family	0	1	2	3	4	5
10. Threw me	0	1	2	3	4	5
11. Hung around outside my house	0	1	2	3	4	5
12. Blamed me for causing their violent behaviour	0	1	2	3	4	5
13. Harassed me over the telephone	0	1	2	3	4	5
14. Shook me	0	1	2	3	4	5
15. Tried to rape me	0	1	2	3	4	5
16. Harassed me at work	0	1	2	3	4	5
17. Pushed, grabbed or shoved me	0	1	2	3	4	5
18. Used a knife or gun or other weapon	0	1	2	3	4	5
19. Became upset if dinner/housework wasn't done when they thought it should be	0	1	2	3	4	5
20. Told me that I was crazy	0	1	2	3	4	5
21. Told me that no one would ever want me	0	1	2	3	4	5

22. Took my wallet and left me stranded	0	1	2	3	4	5
23. Hit or tried to hit me with something	0	1	2	3	4	5
24. Did not want me to socialize with my female friends	0	1	2	3	4	5
25. Put foreign objects in my vagina	0	1	2	3	4	5
26. Refused to let me work outside the home	0	1	2	3	4	5
27. Kicked me, bit me or hit me with a fist	0	1	2	3	4	5
28. Tried to convince my friends, family or children that I was crazy	0	1	2	3	4	5
29. Told me that I was stupid	0	1	2	3	4	5
30. Beat me up	0	1	2	3	4	5

When was the first time you experienced these actions from your husband?

Do you believe that your husband is abusive to you? Yes No Unsure

SECTION 6: DEMOGRAPHIC QUESTIONS

1. What is your current age? _____

2. What is the highest level of education which you have completed? _____

3. How long have you been married? _____

4. Do you have children? No _____ Yes _____

If yes: How many children do you have? _____

5. Are you employed outside the home? No _____ Yes _____

6. What is your total personal income? _____

7. What is your total household income? _____

SECTION 7: PHYSICAL HEALTH ASSESSMENT

Height (in cm): _____

Weight (Kg): _____

Waist Circumference (in cm): _____

STUDY INSTRUMENTS AND DEMOGRAPHIC Qs: Arabic

هناك 5 أقسام في هذه المقابلة التي تحتوي على أسئلة حول: صحتك، تجاربك خلال فترة الطفولة، علاقاتك الاجتماعية واهلك و اصدقائك ومعلومات تختص بك مثل عمرك. في نهاية المقابلة سوف اقوم باخذ طولك و وزنك و محيط خصرك. عادة ما تستغرق هذ المقابلة ما بين 40 الى 60 دقيقة. سأقرأ كل الأسئلة معك وسوف ادون إجاباتك. إذا كنت بحاجة إلى التوقف عن المقابلة في أي وقت، اسمحي لي أن أعرف. إذا كان هناك أسئلة لا تريد الإجابة عليها فقط اخبريني. تذكرني أن كل إجاباتك سرية....

القسم 1: المشاكل الصحية و الاحساس

تلي لائحة بالمشاعر أو التصرفات التي قد تكون قمت بها. الرجاء تحديد عدد المرات التي شعرت أو تصرفت بها على هذا الشكل خلال الأسبوع الماضي وذلك بوضع دائرة حول الرقم المناسب من بين الأرقام التي تلي كل عبارة. استعن بالمقياس التالي

خلال الأسبوع الماضي:

العبارة	نادراً أو أبداً (أقل من يوم واحد)	في بعض الأوقات أو قليلاً (يوم واحد أو يومين)	أحياناً أو خلال مدة معتدلة من الوقت(3-4 أيام)	في معظم أو في كل الأوقات(5-7 أيام)
1. أزعجتني أمور لا تزعجني عادةً.	0	1	2	3
2. لم أرغب في تناول الطعام. كانت شهيتي ضعيفة.	0	1	2	3
3. شعرت أنني لم أستطع أن أتخلص من كآبتي حتى بمساعدة عائلتي وأصدقائي.	0	1	2	3
4. شعرت أنني بمثابة الآخرين.	0	1	2	3
5. وجدت صعوبة في التركيز على ما أفعل.	0	1	2	3
6. شعرت بالكآبة.	0	1	2	3
7. شعرت أنّ القيام بأي عمل يجهدني.	0	1	2	3
8. كنت متفائلاً حول المستقبل.	0	1	2	3
9. شعرت أنّ حياتي كانت فاشلة	0	1	2	3

3	2	1	0	10. شعرت بالخوف.
3	2	1	0	11. أصبت بالأرق.
3	2	1	0	12. كنت سعيداً.
3	2	1	0	13. تكلمت أقل من العادة.
3	2	1	0	14. شعرت بالوحدة.
3	2	1	0	15. لم يكن الناس ودودين.
3	2	1	0	16. تمتعت بالحياة.
3	2	1	0	17. أصبت بنوبات بكاء.
3	2	1	0	18. شعرت بالحزن.
3	2	1	0	19. شعرت أن الناس لا تحبني.
3	2	1	0	20. لم أستطع الاستمرار.

أدناه قائمة من المشاكل والشكاوى التي يعاني منها الأفراد في بعض الأحيان نتيجة لتجارب الحياة المجهدة. يرجى قراءة كل مشكلة وشكاوى بعناية ووضع علامة "X" في المربع للإشارة إلى مدى انزعاجك من هذه المشكلة في الشهر الماضي.

في الشهر الماضي، ما هو مدى انزعاجك من:

ت	الاستجابة	لا على الاطلاق	قليلاً	باعتدال	لا بأس	كثير جداً
18.	تكريرات وأفكار متكررة ومزعجة أو صور تجربة مرهقة من الماضي؟					
19.	أحلام متكررة ومزعجة لتجربة مرهقة من الماضي؟					
20.	تصرف أو شعور مفاجئ كما لو كانت تجربة مرهقة تحدث لك مرة أخرى (كما لو كنت تعيشها مرة ثانية)؟					
21.	الشعور بالضيق كثيراً عندما يكون هناك شيء يذكرك بتجربة مرهقة من الماضي؟					
22.	حصول ربود فعل بطنية (مثل زيادة دقات القلب أو صعوبة في التنفس أو التعرق) عندما يكون هناك شيء يذكرك بتجربة مرهقة من الماضي؟					
23.	تجنب التفكير أو الحديث عن تجربة مرهقة من الماضي أو تجنب المشاعر المتعلقة بها؟					
24.	تجنب الأنشطة أو الحالات لأنها تذكرك بتجربة مرهقة من الماضي؟					
25.	صعوبة في تذكر أجزاء مهمة من تجربة مرهقة من الماضي؟					
26.	فقدان الاهتمام في الأشياء التي كنت تستمتع بها سابقاً؟					
27.	الشعور بالتباعد أو العزلة عن الآخرين؟					

					28.	الشعور بلامبالاة عاطفية أو عدم القدرة على البوح بمشاعر محبة للمقربين لك؟
					29.	الشعور كما لو أن مستقبلك أنقصر بطريقة ما؟
					30.	صعوبة النوم أو البقاء نائماً؟
					31.	الشعور بتعكر المزاج أو وجود نوبات الغضب؟
					32.	وجود صعوبة في التركيز؟
					33.	تصبح "منتبهاً للغاية" أو يقظاً كالحارس؟
					34.	الشعور بالتقلب أو الجفل بسهولة؟

عند التفكير في أي الألم الجسدي التي قد تكون تعانيين منه.

مواد شدة الألم										
										1. كيف تقيّم ألم لديك على مقياس من 0-10 في الوقت الحاضر، الذي تعاني منه الآن، حيث رقم 0 يعني "لا يوجد ألم" ورقم 10 يعني "الألم في أسوأ حالاته"؟
										2. في الـ 6 أشهر الماضية، كيف كانت شدة أسوأ ألم لديك على مقياس من 0-10، حيث رقم 0 يعني "لا يوجد ألم" ورقم 10 يعني "الألم في أسوأ حالاته"؟
										3. في الـ 6 أشهر الماضية، في المعدل، كم كانت شدة الألم على مقياس من 0-10، حيث رقم 0 يعني "لا يوجد ألم" ورقم 10 يعني "الألم في أسوأ حالاته"؟ (هذا هو الألم المعتاد الذي تعاني منه في تلك الأوقات).
مواد ألم الإعاقة										
										4. كم عدد الأيام في الـ 6 أشهر الماضية التي لم تمارس فيها الأنشطة المعتادة (العمل أو المدرسة أو العمل المنزلي) بسبب ألم الظهر / الصداع / الوجه؟
										5. في الـ 6 أشهر الماضية، كم كان ألم الظهر / الصداع / الوجه متداخلاً مع الأنشطة اليومية على مقياس من 0-10 حيث رقم 0 يعني "غير متداخل" ورقم 10 يعني "غير قادر على الاستمرار في أي أنشطة"؟
										6. في الـ 6 أشهر الماضية، كم كان ألم الظهر / الصداع / الوجه الذي غير قدرتك على المشاركة في الأنشطة الترويحية والاجتماعية والأسرية حيث رقم 0 يعني "لا يوجد تغيير" ورقم 10 يعني "يوجد تغيير كبير جداً"؟
										7. في الـ 6 أشهر الماضية، كم كان ألم الظهر / الصداع / الوجه الذي غير قدرتك على العمل (بما في ذلك الأعمال المنزلية) حيث رقم 0 يعني "لا يوجد تغيير" ورقم 10 يعني "يوجد تغيير كبير جداً"؟

هل كان لديك مشكلة مع أحد الاعراض التالية:

مرض السكري:	لا	نعم
ارتفاع ضغط الدم :	لا	نعم
ارتفاع مستوى الكوليسترول في الدم :	لا	نعم
السكتة الدماغية:	لا	نعم
ألم في الصدر:	لا	نعم
الصداع النصفي :	لا	نعم
التعب :	لا	نعم
تورم / المفاصل المؤلمة :	لا	نعم
آلام العامة :	لا	نعم
آلام / وجع العضلات :	لا	نعم
صعوبة النوم :	لا	نعم
اضطراب في المعدة / حرقة :	لا	نعم
حالات الحمل غير المخطط لها:	لا	نعم

أخرى: _____

القسم 2: النشاط الجسدي

الأسئلة التالية تركز حول الوقت الذي قضيته في ممارسة أنشطة بدنية خلال الأيام السبعة الماضية. فضلاً أجب عن كل سؤال من الأسئلة التالية حتى وإن كنت تعتبر نفسك غير نشيطاً. فكر في الأنشطة البدنية التي تمارسها خلال عملك، وكجزء من أعمالك المنزلية، وأثناء تنقلك من مكان لآخر، وتلك التي تقوم بها في وقت فراغك بغرض الترويح أو التمرين أو الرياضة.

الآن فكر في جميع الأنشطة البدنية التي تتطلب جهداً بدنياً مرتفع الشدة والتي قمت بممارستها خلال الأيام السبعة الماضية. الأنشطة البدنية مرتفعة الشدة هي تلك الأنشطة التي تجعل تنفسك أعلى بكثير من المعتاد، مثل رفع أشياء ثقيلة، أو حرق الأرض، أو ركوب الدراجة بسرعة عالية، أو الجري، أو ممارسة كرة القدم، أو كرة السلة، أو السباحة، أو نط الحبل. فكر فقط في الأنشطة البدنية مرتفعة الشدة التي قمت بممارستها لمدة 10 دقائق على الأقل في كل مرة.

1- خلال الأيام السبعة الماضية، كم يوماً مارست فيه نشاطاً بدنياً مرتفع الشدة؟
 _____ يوم في الأسبوع

لا أقوم بأي نشاط بدني مرتفع الشدة. ← انتقل مباشرة إلى السؤال رقم 3

2- في المعتاد، كم من الوقت قضيته في ممارسة نشاط بدني مرتفع الشدة في أحد تلك الأيام؟
 _____ ساعة في اليوم
 _____ دقيقة في اليوم

لا أدري / أو غير متأكد.

الآن فكر في جميع الأنشطة البدنية التي تتطلب جهداً بدنياً معتدلاً الشدة والتي قمت بممارستها خلال الأيام السبعة الماضية. الأنشطة البدنية المعتدلة الشدة هي تلك الأنشطة التي تجعل تنفسك أعلى من المعتاد إلى حد ما، ويمكن أن تتضمن رفع أشياء خفيفة، أو ركوب الدراجة بسرعة عادية، أو ممارسة كرة الطائرة، أو ممارسة تنس الطاولة، أو كنس المنزل، أو غسل الملابس يدوياً، أو غسل السيارة. لا تحسب المشي ضمن هذه الأنشطة. مرة أخرى، فكر فقط في الأنشطة البدنية المعتدلة الشدة التي قمت بممارستها لمدة 10 دقائق على الأقل في كل مرة.

3- خلال الأيام السبعة الماضية، كم يوماً مارست فيه نشاطاً بدنياً معتدلاً الشدة؟
 _____ يوم في الأسبوع

لا أقوم بأي نشاط بدني معتدلاً الشدة. ← انتقل مباشرة إلى السؤال رقم 5

4- في المعتاد، كم من الوقت قضيته في المشي خلال الأيام السبع الماضية، ويتضمن ذلك المشي إلى العمل، والمشي أثناء العمل، وفي البيت، وخلال انتقالك من مكان لآخر، أو أي نوع من أنواع المشي بغرض الترويح أو الرياضة.
 _____ ساعة في اليوم
 _____ دقيقة في اليوم

لا أدري / أو غير متأكد.

الآن فكر في الوقت الذي قضيته في المشي خلال الأيام السبع الماضية، ويتضمن ذلك المشي إلى العمل، والمشي أثناء العمل، وفي البيت، وخلال انتقالك من مكان لآخر، أو أي نوع من أنواع المشي بغرض الترويح أو الرياضة.

5- خلال الأيام السبعة الماضية، كم يوماً مارست فيه المشي لمدة 10 دقائق على الأقل في كل مرة؟

يوم في الأسبوع _____

لا أقوم بممارسة المشي إطلاقاً ← انتقل مباشرة إلى السؤال رقم 7

6- في المعتاد، كم من الوقت قضيته في ممارسة المشي في أحد تلك الأيام؟

ساعة في اليوم _____

دقيقة في اليوم _____

لا أدري/ أو غير متأكد.

الآن فكر في الوقت الذي قضيته جالساً خلال الأيام السبعة الماضية. أحسب وقت الجلوس في العمل، وفي المنزل، وفي الدراسة، وفي الترفيه. من الممكن أن يتضمن ذلك وقت الجلوس على المكتب، وأثناء العمل على الكمبيوتر، وأثناء زيارتك لصديق، وأثناء القراءة، والجلوس أو الاستلقاء لمشاهدة التلفزيون.

7- خلال الأيام السبعة الماضية، كم من الوقت قضيته جالساً في أحد هذه الأيام من غير أيام الإجازة الأسبوعية؟

ساعة في اليوم _____

دقيقة في اليوم _____

لا أدري/ أو غير متأكد

القسم 3: الدعم الاجتماعي

نحن مهتمين عن شعورك تجاه البيانات التالية. إقرأي كل بيان بعناية. أشيري إلى كيف تشعرين حول كل بيان

ضعي دائرة حول رقم واحد (1) إذا كنت لا توافقين

ضعي دائرة حول رقم اثنين (2) إذا كنت محايدة

ضعي دائرة حول رقم ثلاثة (3) إذا كنت توافقين

العبارة	لا توافقين	إذا كنت محايدة	إذا كنت توافقين
تُحاولُ عائلتي أن تُساعدني	1	2	3

3	2	1	أحصل على المساعدة العاطفية و الدعم الذي إحتأجه من عائلي
3	2	1	يُحاولُ أصدِقي مساعدتي
3	2	1	أعتمِدَ على أصدِقي عندما تسوء الامور معي
3	2	1	أَتحدَّثُ عن مشاكلي مع عائلي
3	2	1	عندي أصدِقاء أشارك فرحتي و أحزاني معهم
3	2	1	عائلي راغبة أن تُساعدني لاتخاذ قرارات
3	2	1	أَتحدَّثُ عن مشاكلي مع أصدِقي

القسم 4: تجارب مرحلة الطفولة

هذه الأسئلة متعلقة ببعض التجارب التي قد تكونين مررتي بها في فترة الطفولة....

الرقم	العبارة	غير صحيح مطلقا	صحيح نادرا	صحيح أحيانا	صحيح غالبا	صحيح على الأغلب
1	في طفولتي كنت أتعرض للحرمان بما في ذلك الحرمان من الطعام	•	•	•	•	•
2	في طفولتي كنت أحظى بالعناية والرعاية ممن هم حولي	•	•	•	•	•
3	في طفولتي كان بعض أفراد عائلتي ينعوتوني بألقاب نابية بشكل منتظم	•	•	•	•	•
4	في طفولتي كانا والدي لاهيان عنا لدرجة انهما لم يستطيعا العناية بالعائلة	•	•	•	•	•
5	في طفولتي كان هناك أحد أفراد عائلتي يحسنني باني مهم أو مميز	•	•	•	•	•
6	في طفولتي لم أجد إلا ملابس باليه لارتديها	•	•	•	•	•
7	في طفولتي شعرت بأنني محبوب	•	•	•	•	•
8	في طفولتي شعرت بان والدي تمنيا بأنني لم اخلق	•	•	•	•	•
9	في طفولتي تعرضت إلى ضرب مبرح من أحد أفراد عائلتي احتجت على أثرها إلى عناية طبية	•	•	•	•	•
10	في طفولتي لم أتمنى بأنني ولدت لأبوين آخرين	•	•	•	•	•
11	في طفولتي كان بعض أفراد عائلتي يضربني بقسوة مما ترك اثر لعلامات وكدمات على جسمي	•	•	•	•	•
12	في طفولتي كنت أعاقب بربطي بلوح أو حبل أو أي شيء آخر صلب	•	•	•	•	•
13	في طفولتي كان أفراد عائلتي حريصين على بعضهم البعض	•	•	•	•	•
14	في طفولتي كان أفراد عائلتي يقولون لي كلام مؤلم ومهين	•	•	•	•	•
15	في طفولتي أسئنت معاملتي جسديا هل تذكر من الذي فعل ذلك؟..... وكم كان عمرك آنذاك تقريبا؟.....	•	•	•	•	•
16	في طفولتي عشت طفولة ممتازة	•	•	•	•	•
17	في طفولتي ضربت بشكل سيئ لوحظ علي من قبل المعلم أو الجار أو الطبيب	•	•	•	•	•
18	في طفولتي شعرت بان أحد أفراد عائلتي يكرهني	•	•	•	•	•

•	•	•	•	•	19	في طفولتي كان أفراد عائلتي يشعرون بالتقارب فيما بينهم
•	•	•	•	•	20	في طفولتي كنت اشعر بان عائلتي من افضل العوائل.
•	•	•	•	•	21	حاول شخص ما أن يلمسني بطريقة جنسية / أو جعلني ألمسه.
•	•	•	•	•	22	شخص ما هددني إلا إذا فعلت شيء جنسي.
•	•	•	•	•	23	حاول شخص ما أن أفعل / أو أشاهد الأمور الجنسية.
•	•	•	•	•	24	شخص ما تحرش بي.
•	•	•	•	•	25	. أعتقد أنني تعرضت للاعتداء الجنسي.
•	•	•	•	•	26	في طفولتي أظن بان مشاعري قد أهينت هل تذكر من الذي فعل ذلك؟..... وكم كان عمرك آنذاك تقريبا؟.....
•	•	•	•	•	27	في طفولتي كان هناك من يأخذني للطبيب عندما احتاج إليه
•	•	•	•	•	28	في طفولتي كانت عائلتي مصدر دعم وقوة لي

القسم 5: العلاقة الزوجية

نود الان معرفة اذا كنت تعرضت لأي تصرف من التصرفات التالية وكم مرة حدثت لك خلال السنة الماضية. وفي حالة لم يسبق لك ان كنت في ارتباط خلال السنة الماضية، الرجاء إجابة الأسئلة عن اي ارتباط سابق في اي وقت مضى.

الرجاء وضع دائرة حول الرقم الذي يناسب عدد مرات ما حدث لك خلال السنة الماضية.

كم مرة حدث لك؟

التصرف	لم يحدث اطلاقاً	مرة واحدة فقط	عدة مرات	مرة في الشهر	مرة في الاسبوع	في كل يوم
1. قال لي انني لم اكن جيدة بدرجة كافية	0	1	2	3	4	5
2. منعتني من طلب الرعاية الصحية	0	1	2	3	4	5
3. يَبْتَعَنِي	0	1	2	3	4	5

5	4	3	2	1	0	4. حاول ان يقلب عائلتي و اصدقائي و اطفالي ضدي
5	4	3	2	1	0	5. حبسني في غرفة النوم
5	4	3	2	1	0	6.صفعي
5	4	3	2	1	0	7. إغتصبني
5	4	3	2	1	0	8. قال انني قبيحة
5	4	3	2	1	0	9. حاول ان يمنعني من رؤية عائلتي او التحدث اليهم
5	4	3	2	1	0	10. طرحني أرضاً
5	4	3	2	1	0	11. يتلصص حول بيتي
5	4	3	2	1	0	12. يلوميني بأني سبب لتصرفاته العنيفة
5	4	3	2	1	0	13. هددني اثناء مكالمة هاتفية
5	4	3	2	1	0	14. هزني بعنف
5	4	3	2	1	0	15. حاول أن يغتصبني
5	4	3	2	1	0	16. هددني اثناء وقت عملي
5	4	3	2	1	0	17. دفعني, امسك بي بقوة
5	4	3	2	1	0	18. استعمل السكين, او المسدس او اي سلاح اخر
5	4	3	2	1	0	19. قال اني مجنونة
5	4	3	2	1	0	20. قال لي لن يقبل بك احد
5	4	3	2	1	0	21. اخذ محفظتي وتركني بلا شيء
5	4	3	2	1	0	22. ضربني او حاول ان يضربني بشيء ما
5	4	3	2	1	0	23. لا يريدني ان اجتمع مع صديقاتي
5	4	3	2	1	0	24. رفض ان اعمل خارج البيت
5	4	3	2	1	0	25. يزعج إذا لم يجهز العشاء او تُنجز اعمال البيت كما يجب

5	4	3	2	1	0	26. رفسني او عضني او ضربني بقبضة يده
5	4	3	2	1	0	27. حاول ان يقنع صديقاتي, عائلتي او اطفالي بأنني كنت مجنونة
5	4	3	2	1	0	28. قال لي اني غبية
5	4	3	2	1	0	29. ينهال علي ضرباً

القسم 6:

س1- كم عمرك؟

س2- ما هو أعلى مستوى من التعليم الذي كنت قد أكملت؟ _____

س3- كم سنة وانت متزوجة؟

س4- هل لديك أطفال؟ لا _____ نعم _____

إذا كان الجواب نعم: كم عدد الأطفال لديك؟ _____

س5- هل تعمل خارج المنزل؟ نعم _____ لا _____

س6- كم مدخولك الشهري؟

س7- كم مدخول الاسرة؟

القسم 7:

الوزن:

الطول:

محيط الخصر:

APPENDIX K

Safety Guidelines for the Interviewers

To maintain an environment safe for the interviewers, the following guidelines will be followed:

- The research study will be introduced to the clinic staff as a women's health study.
- Women will not be screened or interviewed in front of children older than 2 (only non-verbal children to be present during the interview).
- Interviews will be conducted only in a private room at the clinic which has a telephone.
- If the interview is interrupted, the interviewer will stop and/or change the subject of discussion.
- Women will be asked not to share the nature or the content of this interview with anyone.
- The letter of information will not be sent home with the woman but retained at the clinic.
- Carry a charged Cellular Phone (not in purse or case) to call for assistance if needed.
- The interviewer must be aware of her safety area (3 feet around her). If this space is threatened, or if she feel uncomfortable, she should take protective action:
 - o Go to a secure area of the clinic;
 - o Call the clinic security guard who will contact the police if there is a safety issue
 - o Leave the clinic if/when it is safe to do so
- When leaving the clinic, a male driver will be waiting for the interviewer outside the clinic and will transport her home.
- If the interview is concerned that she is being followed, she should report this to the security guard, or go to neutral site (e.g. coffee shop) rather than directly home.

Version: March 10 2015

APPENDIX L

Debriefing Protocol

1. Ask the participant:
How was it for you to answer these questions?
Were there any questions you would like to follow-up with?
2. Acknowledge that talking about/answering questions about their experiences of abuse may produce emotional distress:
“People sometimes have strong emotional reactions in the first few days after they have talked about the abuse they have experienced”
3. Reinforce that a stress reaction is *completely normal*. It does not imply that she is crazy or weak.
4. Review the signs of stress reaction

Physical	Emotional	Cognitive	Behavioural
nausea	fear	confusion	withdrawal
vomiting	guilt	nightmares	restlessness
dizziness	panic	hypervigilance	Loss of appetite
weakness	anxiety	Poor concentration	insomnia
palpitations	irritability	forgetfulness	Increased appetite
Sweating	grief	disorientation	Increased sleep
Difficulty breathing	anger	Intrusive images	Changes in activity
Chest pain	Loss of control	suspiciousness	Increased alcohol use

Feeling as if you are experiencing the same things again

5. Review the things that may help her deal with the signs of a stress reaction should they occur.
 - Physical exercise alternated with rest
 - Relaxation exercises
 - Listening to music
 - Eating well balanced, nourishing meals
 - Keeping busy: structure your time
 - Be aware that numbing the pain with alcohol /drugs will complicate things
 - Allowing yourself to feel rotten, and sharing your feelings with others
 - Keeping a journal
 - Talking to people: talk is the most healing medicine
 - Reaching out to others and spending time with them

6. Ensure that she has someone with whom she can talk about her experiences (family members, friends or professionals, including agency staff).

APPENDIX M

Assessment of Risk for Suicide

Assessment Factor	Low Risk (1 point)	Moderate Risk (2 points)	High Risk (3 points)
Suicidal ideation	No current thoughts	Intermittent or fleeting thoughts	Constant suicide thoughts
Prior suicide attempts	None	Past attempts – low lethality	Past attempts – high lethality
Suicide plan	No plan	Has plan but no access to planned method	Has thought out plan with access or potential access to method
Lethality of plan	Low: superficial scratching	Moderate: swallowing 20+ aspirin, reckless driving	High: hanging; gun; jumping; carbon monoxide; gas
Intention to Act	None (for the future)	Soon if situation deteriorates	Immediately
Has a counselor	Seeing one, aware of suicide ideas	Seeing counselor, not aware of suicide ideas	Not seeing one
Support system	Several friends, coworkers and relatives available	One or two friends, coworkers and relatives available	None available
Substance Use	None	Hx of substance abuse	Active use

Scoring Directions:

Assess each factor. Circle one best description for each factor.
Assign the points and add to calculate the score.

Scoring Key:

8-11 = low risk - no precautions
12-17 = moderate risk
18 or above = high risk

Total Score _____

Risk _____

Signature _____

Date and time _____

CURRICULUM VITAE

NAME: Eman Alhalal, RN, MScN, PhD Candidate.

EDUCATION

<u>Degree</u>	<u>University</u>	<u>Department</u>	<u>Year</u>
PhD	Western University, London, Ontario, Canada	Nursing Leadership in Health Promotion and Healing (community Health)	In progress
MScN	Western University, London, Ontario, Canada	Nursing Leadership in Health Promotion and Healing (community Health)	2011
BScN	University of Dammam, Eastern Region, Saudi Arabia	Nursing	2007

LEARNING AND TRAINING EXPERIENCES

Applied Suicide Intervention Skills Training	London, ON	2015
Mental Health First Aid Certification	Oshawa, ON	2015
National Institute of Health Web-based training course “Protecting Human Research Participants”	Online	2015
Leadership in Nursing & Health Care Systems course (Nursing Administration)	Western University, Canada	2011
An internship in the following area: Medical unit. Orthopedic unit Mother and baby unit (Ob/Gyn) Pediatric unit Surgical clinic Labour and delivery unit Behavioral and mental health unit. Administration rotation.	Dhahran Heath Center, Saudi Arabia	2006- 2007

EMPLOYMENT

Staff Nurse Dhahran Health Center, Saudi Arabia October 2007- January 2008

Staff Nurse Sadiq Hospital, Saudi Arabia February - May 2008

TEACHING AND RESEARCH EXPERIENCES

Full time Teaching Assistant (TA) for Nursing undergraduate courses: Western University, 2010- 2015
London ON, Canada

N2204: Professional Nursing Issues.

N3324A: Community Health Promotion.

N3371B: Promoting the Health of Families.

N2203B: Therapeutic Relationships in Nursing.

N1152: Intro to Professional Practice.

N2253: Self and Others: Developing a Personal Style of Helping.

N3340: Ways of Knowing: Data Analysis

N1101A: Introduction to Health & Illness

N2230A: Health Promotion & Caring Supporting Health

Evaluating the nursing curriculum for undergraduate program: Western University, 2014
London ON, Canada

Assisted in organizing and conducting a focus group for first year student to have their perspectives about the nursing program and their learning experiences.

Full time Graduate Research Assistant (GRA) Western University, 2012
London ON, Canada

Working on analyzing, organizing, and managing Women's Health Effect Study (WHES)'s data with Principle Investigator Dr. Marilyn Ford-Gilboe. The study is funded by Canadian Institutes of Health Research (CIHR).

Women's Health Effects Study, Participant's Meeting

Assisted in organizing and participating in a meeting of 60 women from Ontario who took part in a four year longitudinal study held to: a) share emerging results, b) foster networking among women, c) consult with women about dissemination of findings, recommendations for policies and services, and the need for a new health intervention (iHEAL) for women who have separated from an abusive partner.	London ON, Canada	2010
Reviewer for the 20th Nursing Network on Violence Against Women International (NNVAWI) Conference.	Atlanta, Georgia, USA	2014

HONOURS/AWARDS/SCHOLARSHIP

NNVAWI Conference Student Travel Scholarship based on peer review (\$500)

Faculty of Health Sciences, Western University, Graduate Student Conference Travel Award (\$500)

Excellent students' award from the Saudi Cultural Bureau, Ottawa, Canada (\$ 2100).

Research award, Sigma Theta Tau International Honor Society of Nursing, Iota Omicron Chapter (\$1500).

Irene E. Nordwich Foundation Doctoral Award (\$4000).

Excellent students' award from the Saudi Cultural Bureau, Ottawa, Canada (\$ 2100).

Faculty of Health Sciences, The University of Western Ontario, FHS Graduate Student Conference Travel Award (\$500)

Excellent students' award from the Saudi Cultural Bureau, Ottawa, Canada (\$ 1200).

Second Highest Average in 4th year of the undergraduate program, Dammam, Saudi Arabia.

Highest Average in 1st, 2nd, and 3rd Years of undergraduate program, Dammam, Saudi Arabia.

King Abdullah Scholarship from the Ministry of Higher Education to pursue graduate study abroad

VOLUNTER EXPERIENCE

Health Educator at Mother and Social Health Care Eastern Region, Saudi Arabia 2008

PROFESSIONAL MEMBERSHIP

Sigma Theta Tau International Honor Society of Nursing, Iota Omicron Chapter. 2013-Present

The Nursing Network on Violence Against Women, International. 2014-Present

Canadian Association for Nursing Research (CANR) 2015-Present

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Peer Reviewed Publications:

Alhalal, E., Ford-Gilboe, M., Kerr, M., & Davies, L. (2012). Identifying factors which predict women's inability to maintain separation from an abusive partner. *Issues Mental Health Nursing*, 33(12), 838-850. doi: 10.3109/01612840.2012.714054. [publication of master's thesis].

Ford-Gilboe, M., Varcoe, C., Noh, M., Wuest, J., Hammerton, J., **Alhalal, E.**, & Burnett, C. (2015). Patterns and predictors of service use among women who have separated from an abusive partner. *Journal of Family Violence*, 30 (4), 419-431

Peer Reviewed Conference Presentations

Alhalal, E., Ford-Gilboe, M., & Wong, C. (2016, October). The Factor Structure and the Reliability of the Arabic Version of Composite. Poster presented at the Nurses Network on Violence Against Women International Conference, Australia, Melbourne.

Alhalal, E., Ford-Gilboe, M., & Wong, C. (2016, October). Factors Mediating the Impacts of Child Abuse and Intimate Partner Violence on Chronic Pain among Saudi Women. Poster presented at the Nurses Network on Violence Against Women International Conference, Australia, Melbourne.

Alhalal, E., Ford-Gilboe, M., & Wong, C. (2016, October). The Arabic PTSD Checklist—Civilian Version: Confirmatory Factor Analysis. Paper presented at Annual Research Conference. Sponsored by School of Nursing, University of Western Ontario and Iota Omicron Chapter, Sigma Theta Tau, London, Ontario.

- Alhalal, E.,** Ford-Gilboe, M., Wong, C., & Albuhanian, F. (2015, April). Assessing the Reliability of Arabic Translations of Self-report Measures of Chronic Pain, Child Maltreatment and PTSD. Paper presented at the Nurses Network on Violence Against Women International Conference, Atlanta, GA.
- Alhalal, E.,** Ford-Gilboe, M., Wong, C., & Albuhanian, F. (2014, May). The health consequences of family violence among Saudi women: A review of the literature. Paper presented at Annual Research Conference. Sponsored by School of Nursing, University of Western Ontario and Iota Omicron Chapter, Sigma Theta Tau, London, Ontario.
- Alhalal, E.,** Ford-Gilboe, M., & Wong, C. (2014, March). The health consequences of family violence among Saudi women. Poster presented at Faculty of Health Science Research Day, Western University, London Ontario.
- Alhalal, E.,** Ford-Gilboe, M., Kerr, M., & Davies, L. (2012, May). Identifying Factors which Predict Women's Inability to Maintain Separation from an Abusive Partner. Paper presented at Annual Research Conference. Sponsored by School of Nursing, University of Western Ontario and Iota Omicron Chapter, Sigma Theta Tau, London, Ontario.
- Alhalal, E.,** Ford-Gilboe, M., Kerr, M., & Davies, L. (2012, March). Identifying Factors which Predict Women's Inability to Maintain Separation from an Abusive Partner. Poster presented at the Nurses Network on Violence Against Women International Conference, Charlottesville, VA.
- Varcoe, C., Ford-Gilboe, M., Wuest, J., Hankivsky, O., Burnett, C., **Alhalal, E.,** Hammerton, J., Wilk, P., & Campbell, J. (2011, February). *Patterns of Service Use and Associated Costs during Women's Transition Out of an Abusive Partner.* Nursing Network on Violence Against Women International (NNVAWI) Conference, Auckland, New Zealand.

CONFERENCES AND WORKSHOP ATTENDED

Think Tank: The Potential of the Ontario Common Assessment of Need (OCAN) to Advance Health Equity.	Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto.	March, 23, 2015.
23 rd Annual Research Conference, Promoting Excellence in Nursing Practice Through Research.	The Arthur Labatt Family School of Nursing and Sigma Theta Tau International Inc. Iota Omicron Chapter at London, ON.	April 30, 2010.

Women's Mental Health Conference: Building Networks and Research Capacity.	The University of Toronto.	October 1 st , 2010.
Moving Forward: Reducing the Risk of Lethal Domestic Violence Through Collaborative Threat Assessment and Risk Management	London, ON.	October 26 -27, 2010.
Qualitative Analysis Workshop	Western University, London, ON.	November 3, 2010
Systematic Literature Review Workshop	Western University, London, ON.	November 26, 2010