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A Process Evaluation Of A Relationship Strengthening Hiv Prevention Intervention: The Partners In Life Curriculum Amongst Adolescent Parents In New Haven, Connecticut

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENT

ABSTRACT

Background

In impoverished urban areas in the Northeast, the prevalence of HIV among heterosexuals is more than 28 times greater than the prevalence in the general U.S. heterosexual population.[1,70] In the United States, America's youth (ages 15-24) account for half of all new STIs occurring among young men and women (Center for Disease Control and Prevention, 2013).[1] Numerous couple-based HIV studies have found that couple-based approaches are generally efficacious in promoting safer sex behaviors (El-Bassel et al., 2010).[4] This project aims to examine the implementation (Campbell et al., 2000)[1] of the Partners in LIFE curriculum to identify successes and limitations of the intervention in order to inform future health promotion interventions and evaluations (Nguyen et al., 2013).[2]

Methods

This paper examines a couple based interventions, Partners in LIFE (PiL), a randomized control trial of 49 couples (n=98) in New Haven, Connecticut from 2012-2014. The intervention was evaluated based on the level of completeness of activity implementation, fidelity of implementation, utilization of program activities and staff and participant reaction.

Results

The process evaluation suggests that the PiL curriculum was implemented with a high degree of completeness, fidelity and utilization that translated to positive reactions from participants, facilitators and observers. Factors that enabled participant engagement include interacting with facilitators, interacting with other couples and logistical factors such as transportation and food.

Conclusion:

The intervention appeared successful in allowing participants to interact with other couples. Improvements include ensuring that facilitators are well prepared with the material before the session and ensuring that disruptive children are not present during the session. Limitations include the use of self-reported data being subject to bias and low attendance making it difficult to effectively assess completeness, fidelity and utilization. This intervention highlighted the need for process evaluations to determine the modality and dose at which to implement these interventions.

1.0 BACKGROUND AND SIGNIFICANCE

According to the Center for Disease Control and Prevention (CDC), there are about 20 million new sexually transmitted infections in the United States each year, costing the American healthcare system nearly $16 billion in direct medical costs alone (Center for Disease Control and Prevention, 2013).[3] In particular, young urban minority adults (ages 15-24) bear the greatest burden of human immunodeficiency virus (HIV) and sexually transmitted infections (STIs) with Hispanics and African Americans making up 80% of HIV/AIDS cases among adolescents and young adults in the U.S.[4]

In the United States, America's youth (ages 15-24) account for half of all new STIs occurring among young men and women (Center for Disease Control and Prevention, 2013).[1]Among Blacks, the HIV prevalence is 8 times that of Whites, and among Hispanics, the prevalence is 3 times that of Whites. Further, the rate of heterosexually acquired HIV continues to rise (90%), among African American and Latina women (Center for Disease Control and Prevention, 2001), with 31% of HIV infections being transmitted through heterosexual contact, compared to the 12% of HIV spread through intravenous drug use.[5]

To date, few studies have examined whether couple-based interventions are effective in reducing HIV/STI risk among both men and women.[6] Research has shown that among pregnant/parent adolescents, 29% get an incident STI during pregnancy and in the postpartum period.[7,8] In addition, adolescent mothers are twice as likely to get an incident STI compared to their nulliparous sexually active peers (Meade et al., 2005; Ickovics et al., 2003).[5,6] These statistics are important to consider as partner concurrency has been found to increase HIV risk within a partner's sexual network and within the dyad. (Elliot et al., 2009).[9]

In the battle against the spread of HIV and other STIs, youth represent an important target group (Coyle et al., 1996).[10] Among heterosexuals, sexual transmission of HIV occurs most

frequently in the context of intimate relationships, a fact that underscores the need for couple-based HIV prevention involving both intimate sex partners (El-Bassel., 2010; Burton et al., 2010).[11,12] Additionally, young parents (ages 14-25) are a group that are at risk because the behaviors that put them at risk for pregnancy also put them at risk for HIV/STIs (Meade et al., 2005, Ickovics et al., 2003).[13,14] Although a 2008 surveillance report by the CDC indicates that 86% of new HIV cases in the United States were attributed to sexual transmission, most HIV prevention efforts in the United States have continued to focus on individual or group interventions, neglecting the critical role partners may play in transmission (El-Bassel et al., 2010).[4] In addition, a systematic review of couple-based HIV studies found that couple-based approaches are generally efficacious in promoting safer sex behaviors (El-Bassel et al., 2010).[4]

To address these shortcomings, couple-oriented HIV/STI prevention intervention models have been developed and evaluated (Allen et al., 1992; Deschamps et al., 1991; Ehrhardt and Exner, 2000; El-Bassel et al., 2003; Harvey, 2000; Higgins et al., 1991; Musaba et al., 1998; Padian et al., 1993; Voluntary HIV-1 Counseling and Testing Efficacy Study Group, 2000; Wingood and DiClemente, 2000).[15,16,17,18,19,20,21,22,23,24] It has been shown that relationship-based approaches to HIV/STI prevention may better address the context of gender and power in relationships and facilitate the development of couple communication skills that enable long-term intimate partners to negotiate condom use (El-Bassel et al., 2003; El-Bassel et al., 2001; Kalichman et al., 1993; Misovich et al., 1997; O'Leary, 2000).[16,25,26,27,28]

A relationship-based intervention delivered to the couple together may be more effective for several reasons (El-Bassel et al., 2005).[10] First, research suggests that individuals acting unilaterally to introduce safer sex practices may be confronted with negative reactions including isolation, threats to terminate the relationship, or physical violence (Harlow et al., 1993;

Kalichman et al., 1998; Wingood and DiClemente, 1998).[29,30,31] Second, the expectation that an individual participating alone in an intervention can convey new knowledge and skills to a sexual partner assumes s/he have the requisite relationship-specific communication skills (Wingood and DiClemente, 1998).[29] Third, the supportive environment of couple counseling may enable intimate partners to feel safer disclosing highly personal information (e.g., extra-dyadic relationships, STI histories) to their partners that will enable them to gain a more realistic appraisal of their risks for HIV/STI transmission as a couple (Remien, 1997).[32] Fourth, unlike other health behaviors, sexual risk directly involves two people and most often occurs in romantic relationships. (Misovich et al., 1997).[25] Emotions and relational factors such as attachment, intimacy, relationship functioning have been neglected in HIV research, but play an important role in understanding sexual risk behaviors (El-Bassel et al., 2001; El-Bassel et al., 2003; Furman et al., 2003).[16,23,33] Poor relationship functioning can lead to engagement in concurrent relationships (Alasma et al., 2004; Choi et al., 1994).[34,35] and relationship dissolution (Ott et al., 2011; Gee et al., 2003).[36,37]. In addition, relationship dissolution leads to new partnerships, which increase HIV/STD risk (Ott et al., 2014; Niccolai et al., 2004).[34,38] Therefore, stable, strong, and long-lasting relationships may be protective by limiting concurrency and number of sexual partners.[39,40,41] With this in mind, interventions focusing on improving interpersonal/relational skills are more likely to reduce number of partners and concurrency.[42]Thus, there is a clear need for effective couple-based interventions that can further reduce concurrency and number of partners.

The first year postpartum is a time of stress and transition that can strain relationships leading to conflict and relationship dissolution (Florsheim et al., 2003; Cox et al., 1999).[43,44] The first year postpartum, however, is also a time when young men and women are motivated to

make positive life changes for the well-being of their child. A couple-based HIV prevention during the first year postpartum capitalizes on the increased motivation of young parents to make positive health and relationship changes (Meade et al., 2005).[5] With this in mind, an intervention targeting young urban minority heterosexual parents is needed.

The process evaluation methods used in Partners in LIFE were based on a model for process evaluation that was proposed by Baranowski and Stables (2000).[45] Process evaluations are necessary in order to assess the quality of the intervention implementation, completeness of intervention delivery, the extent to which participants engaged, and participant's reactions (Plummer et al., 2007).[46] In addition, process evaluation data can be used to ensure interventions were conducted as intended, thus avoiding a type III error: evaluating a program that has not been adequately implemented (Basch and others, 1985; Resnicow and others, 1998).[47,48] Additionally, by employing the use of these evaluations, process evaluations can help explain the program's outcomes and identify ways to improve and replicate the results (Plummer et al., 2007).[44] For example, if there are unsatisfactory outcomes, it is important to understand whether this is due to poor programme design, inadequate implementation or special contextual factors (Dane et al., 1998; Pawson et al., 1997). [49,50]

The function of the process evaluation is to measure each of these components: (1) the recruitment and maintenance of participants, (2) the context within which the program functions, (3) the resources available to the program and the participants, (4) implementation of the program, (5) the receipt of materials by the target population, (6) the barriers to implementing the program, (7) the initial use of the program activities, and (8) the continued use of the program (Davis et al., 2014).[51]

In order to understand more about how and why the intervention worked, these components were used in order to assess The Partners in LIFE (PiL) Curriculum amongst adolescent parents in New Haven, Connecticut. Quantitative and qualitative data used to answer these questions were obtained from demographic data, facilitator surveys, observational surveys, attendance data and participant interviews (Steckler et al., 1989).[52] This project examines the intervention implementation (Campbell et al., 2000)[53], and identifies success and limitations of the intervention in order to inform future health promotion interventions and evaluations (Nguyen et al., 2013).[54]

2.0 METHODS

2.1 Partners in LIFE Intervention

Data for this study come from a randomized clinical trial (RCT) of young low-income, minority couples. From 2012-2014, 49 couples (n=98) were recruited from community-based organizations, clinics, and community sites in New Haven, Connecticut. Eligible participants were identified and research staff explained the study in detail. Written informed consent and contact information for both members of the couple were obtained at the time of the baseline assessment. Inclusion criteria were: (1) women's age between 14 and 25 and men's age 14 or older; (2) a biological child that is 0-5 years old; (3) both members of the couple name the other as their main partner or themselves as a romantic couple; (4) not known to be HIV positive; and (5) English-speaking. Over three waves, 25 couples were assigned to the intervention and 24 couples to the active control group, with the use of a computer-generated randomization sequence.

Two community-based facilitators led each group. Prior to implementation, the facilitators received comprehensive training. Facilitators received 40-hours of training in the intervention led by the PI. Training consisted of a discussion of the purpose of the intervention and the theory behind the development of the intervention, guided instruction and modeling of group facilitation techniques, and role-plays and detailed feedback on each intervention session. Further, an example of each session was video-taped and posted on a secure YouTube channel for the intervention in order to provide facilitators with a resource to watch a successfully modeled example of each session. Facilitators were not permitted to implement the intervention unless they demonstrated their ability to perform based on criteria already outlined. Facilitators that needed additional training received one-on-one training until performance was met. In addition, session observers were trained by shadowing senior observers for 2-3 sessions. Each observer training session included a discussion of how to complete the observations and factors to look for. Once senior observers were comfortable, junior observers attended sessions individually.

The Partners in LIFE (PiL) intervention consisted of 15 weekly 1.5-hour group sessions, with activities focusing on relationship strengthening, parenting skills and sexual health. The relationship strengthening intervention consisted of activities based on the Attachment theory and principles of Emotion Focused Therapy (Greenberg & Goldman, 2008), with an emphasis on improving attachment, intimacy, communication, equity/power, conflict resolution, and emotion regulation among couples as well as sexual risk reduction components including sexual communication, risk assessment, and sexual risk prevention techniques (condom use). The active control group was given only the Nurturing Families Program, with a focus on information related to parent education. The intervention group and active control group had the same

amount of total contact time (22.5 hours). A detailed description of the sessions for PiL is presented in (Table1).

Participants were assessed at baseline, 4 months, and 8 months. Assessments lasted between 30-40 minutes and were conducted using audio computer assisted self-interviewing (A-CASI). Participants were followed regardless of whether the couples broke up and regardless of the ongoing participation of the other member of the dyad.

Table 1. Outline of The Partners in LIFE Curriculum

Session	Session Description
1	**WE ARE FAMILY: AN INTRODUCTION TO PARTNERS IN LIFE** ❷❷ Introduce program structure and goals. ❷❷ Get to know each other and set group expectations. ❷❷ Identify strengths of our relationships. ❷❷ Discuss how our relationships affect our parenting.
2	**IT'S SO HARD: PARENTING AND RELATIONSHIP CHALLENGES** ❷❷ Learn about what causes stress as a parent. ❷❷ Learn about what causes stress as a partner. ❷❷ Learn how to understand the stress your partner is dealing with. ❷❷ Learn how to help your partner deal with stress.
3	**CAN YOU HEAR ME NOW: COMMUNICATION AND LISTENING** ❷❷ Learn to acknowledge your partner's needs. ❷❷ Help to develop new communication patterns. ❷❷ Improve communication skills. ❷❷ Improve listening skills.
4	**I SECOND THAT EMOTION: COMMUNICATION AND EMOTIONS** ❷❷ Identify positive emotions and how they are expressed by men and women. ❷❷ Learn how to talk to your partner about emotions. ❷❷ Start to become aware of emotions.
5	**ONCE MORE WITH FEELING: UNDERSTANDING AND EXPRESSING FEELINGS** ❷❷ Learn how to identify emotions. ❷❷ Learn how to manage negative emotions. ❷❷ Learn how to turn negative emotions into positive emotions. ❷❷ Learn how to talk about emotions.

6	**OUT WITH THE BAD, IN WITH THE GOOD: INCREASING OUR POSITIVE EMOTIONS** ❷❷ Learn how to manage negative emotions. ❷❷ Learn how to increase positive emotions. ❷❷ Learn how to turn negative emotions into positive emotions. ❷❷ Learn how to talk about emotions.
7	**I FEEL YOU: INTIMACY AND EMOTIONS** ❷❷ Develop empathy skills. ❷❷ Learn how to listen and communicate with your partner about how you feel.
8	**LOVE IS STRONGER THAN PRIDE** ❷❷ Learn how to better nurture your partner. ❷❷ Learn how to better appreciate your partner.
9	**WHY CAN'T WE JUST GET ALONG: UNDERSTANDING AND ACCEPTANCE** ❷❷ Understanding conflict patterns. ❷❷ Understanding underlying emotions and needs behind those patterns.
10	**NO MORE DRAMA: CONFLICT RESOLUTION** ❷❷ Identify conflict issues between partners. ❷❷ Discuss usual strategies for dealing with conflict. ❷❷ Discuss how men and women deal with conflict.
11	**THE QUIET STORM: NOT TALKING WHEN WE SHOULD** ❷❷ Better understand triggers to arguments in your relationships. ❷❷ Better understand topics you do and don't talk about in your relationships. ❷❷ Practice communication and empathy skills.
12	**LET'S TALK ABOUT SEX BABY, LET'S TALK ABOUT YOU AND ME** ❷❷ Understand what you need and want in bed. ❷❷ Understand what your partner needs and wants in bed. ❷❷ Learn how to communicate with your partner about sex.
13	**STAY SAFE: PROTECTING YOURSELF AND YOUR PARTNER** ❷❷ Understand risks for pregnancy, HIV, and STDs. ❷❷ Understand barriers to protecting yourself from unintended pregnancy, HIV, and STDs.
14	**MOVING ONWARD AND UPWARD** ❷❷ Learn how to communicate with your partner about family planning. ❷❷ Develop family planning goals.
15	**IT'S NOT THE END, IT IS JUST THE BEGINNING** ❷❷ Review everything we have covered over the last 14 sessions. ❷❷ Celebrate everything we have accomplished.

2.2 Goal of Process Evaluation

Four implementation factors were used to guide the process evaluation (Table 2) (Coyle et al., 1996).[55] The Partners in LIFE curriculum was assessed according to the level of completeness, fidelity, utilization and participant reaction to the program (Coyle et al., 1996).[53]

2.2.1 Completeness of activity implementation

Completeness was operationalized as the percentage of curriculum activities taught (Basen-Engquist et al., 1994).[56] Facilitator and observational forms data provided a measure of implementation across all sessions (Coyle et al., 1996).[53] Averaging scores for question number 1 assessed session completeness (Table 2). This question asked if all activities for the session were completed, for which the response was a binary yes or no. In addition, quotes from facilitators and observers were used to highlight successes and implementation improvements across all curriculum sessions and activities (Coyle et al., 1996).[53]

2.2.2 Fidelity of implementation

Fidelity was operationalized as the extent to which program activities (the mean for classroom observations) adhered to the recommended content and methods (Basen-engquist et al., 1994).[54] Averaging scores for questions 2, 3 and 4 assessed fidelity (Table 2). Question 2 asked if all session materials had been used, for which the response was a binary yes or no. Question 3 asked if the group met all session objectives, for which the response was a binary yes or no. Question 4 asked if there were any participant concerns (i.e., unruly behavior, participant offended), for which the response was a binary yes or no. In addition, quotes were used to

highlight successes and implementation improvements across all curriculum sessions and activities (Coyle et al., 1996).[53]

2.2.3 Utilization of program activities

Utilization provides a useful means of evaluating participant exposure to an intervention (Coyle et al., 1996).[53] Utilization was operationalized as the extent to which the target population (percentage of participants) participated in or received program activities (Rossi and Freeman, 1993).[57] Attendance data was used to determine the number of couples who attended each session. If participants did not attend a session, they were asked open-ended questions as to why. Further, averaging scores for questions 5 and 6 assessed utilization (Table 2). Question 5 asked how engaged and interested participants were, for which the response was a 4-point likert scale ranging from not at all (1) to very well (4). Question 6 asked how much did participants seem to understand the material, for which the response was a 4-point likert scale ranging from not at all (1) to very well (4). Lastly, a bivariate analysis was conducted in order to determine demographic predictors of attendance.

2.2.4 Reaction to activities

Reaction was operationalized as the target population's satisfaction with and reaction to program activities (Coyle et al., 1996).[53] In addition, observer and facilitator satisfaction and reaction to program activities was also evaluated. Averaging scores for question 7 assessed reaction. Question 7 asked for the overall rating of the session, for which the response was a 4-point likert scale ranging poor (1) to excellent (4). In addition, participant interviews, completed following each cycle, assessed reaction (Table 2).

For the exit interviews, participants were asked 11 open-ended questions in order to evaluate their satisfaction. Questions include (1) What were some things we talked about and covered in the sessions that you really liked? (2) What were some things we talked about and covered in these sessions that you didn't like? (3) How were the things we talked about relevant or relatable to your life and your background? (4) What would you like to change about the sessions? (5) What are some things you would like to take away? (6) How did the facilitators do? (7) How do you think these sessions will help you improve your relationships? (8) In what ways do you think these sessions will influence your sexual risk and why? (9) In what ways do you think these sessions will influence your parenting and why? (10) What about the setup of the program made it easy to attend regularly? And (11) How do you think having this program in an online format would work? Responses were coded using Nvivo in order to highlight key themes.

Table 2. Components of the process evaluation and methods used to assess them

COMPONENTS	METHODS USED
COMPLETENESS	| Question 1- Did you complete all activities for this session?
FIDELITY	| Question 2- Did you use all session material? | Question 3-Do you think the group met all session objectives? | Question 4- Were there any participant concerns (i.e., unruly behavior, participant offended)?
Utilization	| Attendance data | Question 5- How engaged and interested were participants? | Question 6- How much did participants seem to understand the material?
REACTION	| Quotes from facilitator and observation forms | Question 1- What were some things we talked about and covered in the sessions that you really liked? | Question 2- What were some things we talked about and covered in these sessions that you didn't like? | Question 3-How were the things we talked about relevant or relatable to your life and your background? | Question 4- What would you like to change about the sessions? | Question 5- What are some things you would like to take away? | Question 6- How did the facilitators do?

	| Question 7- How do you think these sessions will help you improve your relationships?
	| Question 8- In what ways do you think these sessions will influence your sexual risk and why?
	| Question 9- In what ways do you think these sessions will influence your parenting and why?
	| Question 10- hat about the setup of the program made it easy to attend regularly?
	| Question 11- How do you think having this program in an online format would work?

3.0 RESULTS

3.1 Participant characteristics

Baseline data revealed no significant demographic differences between PiL and NF

participants on age, race, relationship status, educational status or sources of financial support

(Table 3). Due to a low participation rate amongst cycle 2 couples, the intervention did not

continue post session 7. In addition, participants of cycle 1 and 3 were only included in the

analysis used to assess completeness, fidelity, utilization and reaction.

Table 3. Baseline characteristics of intervention and control groups[a]

Characteristic		Partners in Life (N=50)[b]	Nurturing Families (N=48)[b]	P[c]
Age (years)				
Female	20.8 ±2.6	20.7±2.2	20.9±3.0	0.8
Male	22.9±5.3	22.7±5.2	23.0±5.5	0.8
Race/Ethnicity				0.8
American Indian or	2 (2.0%)	1 (2.0%)	1 (2.1%)	
Alaska Native	2 (2.0%)	1 (2.0%)	1 (2.08%)	
Black or African American	60 (61.2%)	29 (58%)	31 (64.58%)	
White	10 (10.2%)	5 (10%)	5 (10.4%)	
Hispanic/Latino	32 (32.7%)	20 (40.0%)	12 (25.0%)	
Other	5 (5.1%)	2 (4.0%)	3 (6.3%)	

Relationship status				0.2
Single and never have been married	27 (267.6%)	14 (28.0%)	13 (27.1%)	
Not married but living with partner	59 (60.2%)	27 (54.0%)	32 (66.7%)	
Married	10 (10.20%)	8 (16.0%)	2 (4.2%)	
Separated/Divorced	1 (1.0%)	1 (2.0%)	1 (2.1%)	
Widowed	1 (1.0%)			
Educational status				0.1
Attending school	30 (30.6%)	31 (62.0%)	37 (77.1%)	
Not attending school	68 (69.4%)	19 (38.0%)	11 (22.9%)	
Number of Years of Schooling				0.6
9 years of education	5 (5.1%)	3 (6.0%)	2 (4.2%)	
10 years of education	15 (15.3%)	9 (18.0%)	6 (12.5%)	
11 years of education	12 (12.2%)	6 (12.0%)	6 (12.5%)	
12 years of education	41 (41.8%)	20 (40.0%)	21 (43.8%)	
13 years of education	19 (19.4%)	11 (22.0%)	8 (16.7%)	
14 years of education	2 (2.0%)	1 (2.0%)	1 (2.1%)	
15 years of education	1 (1.0%)		1 (2.1%)	
16 years of education	3 (3.0%)		3 (6.3%)	
Employment status				0.17
Full-time	21 (21.4%)	11 (22.0%)	10 (20.8%)	
Part-time	24 (24.5%)	16 (32.0%)	8 (6.7%)	
Unemployed	53 (54.1%)	23 (46.0%)	30 (62.5%)	
Sources of financial support				0.1
Currently employed	35 (35.7%)	20(40.0%)	15 (31.3%)	
Partner	28 (28.6%)	16 (32.0%)	12 (25.0%)	
Parent or Guardian	25 (25.5%)	13 (26.0%)	12 (25.0%)	
Other relatives	7 (7.1%)	4 (8.0%)	3 (6.3%)	
Public assistance	27 (27.6%)	11 (22.0%)	16 (33.3%)	

Other	22 (22.5%)	10 (20.0%)	12 (25.0%)	
Household income				0.7
$0-$4,999	9 (23.7%)	13 (26.0%)	21 (43.8%)	
$5,000-$9,999	8 (21.1%)	9 (18.0%)	6 (12.5%)	
$10,000-$14,999	5 (13.2%)	7 (14.0%)	3 (6.3%)	
$15,000-$19,999	2 (5.3%)	4 (8.0%)	2 (4.2%)	
$20,000-$24,999	2 (5.3%)	4 (8.0%)	3 (6.3%)	
$25,000-$34,999	3 (7.9%)	3 (6.0%)	3 (6.3%)	
$35,000-$49,999	2 (5.3%)	2 (4.0%)	3 (6.3%)	
$50,000 or more	2 (5.3%)	2 (4.0%)	2 (4.2%)	
Benefits received				0.7
Welfare	12 (12.2%)	5 (10.0%)	7 (14.6%)	
WIC	52 (53.1%)	27 (54.0%)	25 (52.1%)	
Food Stamps	52 (53.1%)	25 (50.0%)	27 (56.3%)	
Section 8-Housing Assistance	7 (7.1%)	4 (8.0%)	3 (6.3%)	
Disability	5 (5.1%)	2 (4.0%)	3 (6.3%)	
Unemployment	7 (7.1%)	6 (12.0%)	1 (2.1%)	
Child Support	2 (2.0%)	1 (2.0%)	1 (2.1%)	
Other	3 (3.1%)	10 (20.0%)	2 (4.2%)	
None of these	21 (21.4%)		11 (22.9%)	
Years at current residence				0.9
Less than 6 months	36 (36.7%)	21 (42.0%)	15 (31.3%)	
6 months-11 months	17 (17.4%)	6 (12.0%)	11 (22.9%)	
1-2 years	19 (19.4%)	8 (16.0%)	11 (22.9%)	
More than 2 years	26 (26.5%)	15 (30.0%)	11 (22.9%)	
Have a child with the person you came in with today				0.6
No	68 (69.4%)	8 (19.1%)	9 (23.7%)	
Yes	30 (30.6%)	34 (80.9%)	29 (76.3%)	
Number of children				0.8
0	7 (7.1%)	4 (8.0%)	3 (6.3%)	
1	52 (53.1%)	23 (46.0%)	29 (60.4%)	

2	32 (32.7%)	21 (42.0%)	11 (22.9%)
3	5 (5.1%)	2 (4.0%)	3 (6.3%)
5	1 (1.0%)		1 (2.1%)
6	1 (1.0%)		1 (2.1%)

[a] Table values are mean ± SD for continuous variables and n (column %) for categorical variables.
[b] Percentages may not sum to 100% due to rounding.
[c] P-value is for t-test (continuous variables) or χ^2 test (categorical variables).

3.2 Completeness of activity implementation

When assessing session completeness, facilitators and observers mostly agreed with facilitators having slightly higher ratings. Observers reported 91.7% of activities were implemented. Themes that emerged when assessing why activities were not implemented as intended include time management and needing to adapt sessions to the number of participants due to low attendance (Figure 1).

3.2.1 Time management

Time management was stated as a constraint to why sessions were not implemented as intended. Observer 1 described "Only the first half of the session was completed due to time. All activities up until practicing empathy were completed." In addition, a delay in start time was noted as a factor that contributed to session activities not being completed. Lastly, group discussions would carry over with some participants needing more clarification on the activities.

3.2.2 Low attendance

Due to low attendance, facilitators needed to adapt components to meet the number of participants. One facilitator described, "One of the activities called for multiple groups to participate. The card activity had to be rearranged to accommodate the number of participants."

Furthermore an observer stated, "Activities were changed, though, to fit the small number of people, 1.5 couples."

3.3 Fidelity of implementation

When assessing session fidelity, facilitators and observers mostly agreed. Observers stated 95.0% of all objectives were met and 96.5% of all session materials were used as intended. However, observers reported participant concerns occurred 76.6% of the time. Themes that emerged when assessing whether session objectives and materials were met related to group management. Group management was defined as the degree to which facilitators were able to adapt to participant concerns. These concerns included dealing with disruptive children, disruptive couples and participants who dominated the discussion.

3.3.1 Group management

Group management was stated as a factor to why session materials were used and why session objectives were met. Facilitators were described as an important aspect to the implementation of activities. One observer highlighted,

> "Facilitator 1 facilitated a good discussion of listening skills and when participants started to talk over each other, she brought it back to the discussion. Facilitator 1 and facilitator 2 both performed engaging role-plays and facilitator 2 encouraged the women to speak up and participate more."

An observer stated, "too many children in the room at once and side conversations with participants." In addition, observers also noted ensuring that facilitators respond to each statement, "Both facilitators had difficulty controlling the group. There were many instances in which participant raised an important issue relevant to conflict cycles that was overlooked by the facilitators because it was not in the curriculum."

3.3.2 Disruptive children

The session environment was a dominant aspect when describing whether session objectives were met. Children were present during the sessions and often proved as a distraction during activities. An observer highlighted during session 1, "2 couples had children with them (total 4 children present) so participants were yelling, telling kids to be quiet." Another highlighted during session 1, "too many kids in the room at once, none were overly distracting but 3 toddlers at one time."

3.3.3 Disruptive participants

Interaction with other couples proved distracting during some sessions. A facilitator stated during session 4, "One couple talked more than other couples and had quite a bit of side conversations." An observer stated during session 8, "Some arguments, and accusatory comments, wanted to divide the room by gender." Another observer stated during session 9, "An abundance of disrespectful comments/behavior between couples and individual participants." While some participants would have side conversations during the session, facilitators were able to redirect the conversation and get back on task. A facilitator stated during session 11, "Participants went off on side bar but facilitator was able to redirect."

3.4 Utilization of program activities

Overall the average attendance rate was 29.8% with 30.9% of women and 28.8% of men attending all PiL sessions (Figure 1). In addition, the average sessions attended across participants were 6.3 sessions as compared to control participants that attended an average of 9.5 sessions. The top 6 reasons for an absence included working (n=121), scheduling conflict (n=65), no reason given (n=44), fight with a partner or breakup (n-39), sick (n=25) and being evicted (n=20).
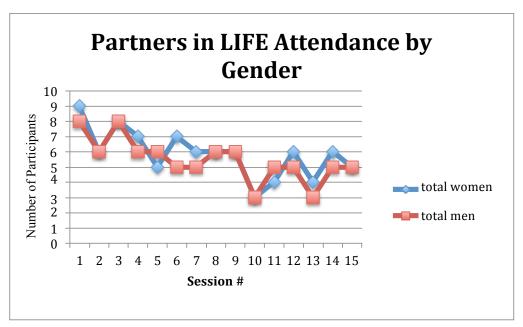
Figure 1. Partners in LIFE attendance by gender

A bivariate analysis was conducted in order to determine demographic predictors of attendance. Age, race, relationship status, education status, years of schooling, employment status, sources of financial income, household income or benefits received were not significant.
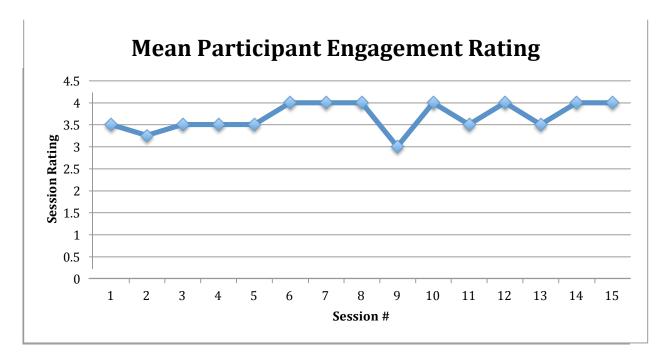
Sessions that had the lowest engagement include session 2 and session 9. Sessions that had the lowest participant understanding include session 2, 7 and 9. Session 2 focused on parenting and relationship challenges while session 7 focused on intimacy and emotions. In addition, session 9 focused on understanding and acceptance in relationships.

Multiple factors enabled participants understanding of the material but also detracted from their engagement with other couples and facilitators. These included program structure enabling discussion amongst participants and effective facilitation such as applicability of session activities to participant's own life.

3.4.1 Participant engagement

When assessing utilization, facilitators and observers mostly agreed. Participants were noted as being very engaged with a rating of 3.7 (Figure 2).

Figure 2. Mean participant engagement rating by session

Participant engagement was stated as an indication of participant's exposure to the material. When assessing ways in which to engage participants, observers stated ensuring that everyone is participating. One observer stated, "Should circulate around the room during activities-many of the activities would be better if couples talked, but few were." In addition, observers stated that discussions could be expanded of how they are going to help with their partner's challenges.

While on average session components were conducted effectively, the inability for participants to grasp a topic impacted their engagement as well. In addition, problems facilitating an activity contributed to participant's knowledge of the material. One observer states, "Too rushed in choosing relationship characteristic that they need to work on as a couple." Ultimately by not incorporating the key components of the activity, this led to poor discussion and the inability for participants to provide examples in later sessions. One observer described, "Many key components of Listen Up was not used in role plays or discussed in group." Listen Up are a
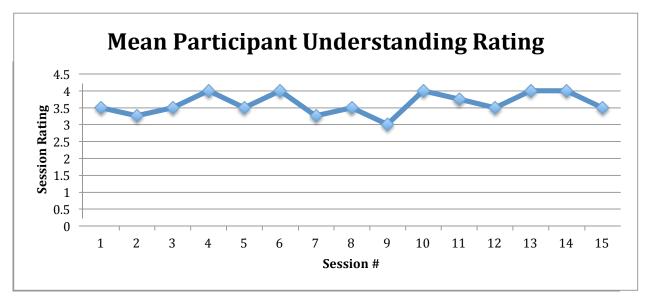
set of rules for engaging in empathetic listening. By not adequately explaining Listen Up, it was

hard for participants to understand subsequent activities.

3.4.2 Participant understanding

Participants were noted as understanding the material very well with an average rating of

3.6 (Figure 3).

Figure 3. Mean participant understanding by session

Participant understanding was stated as a factor to whether participants remained engaged during

the sessions. When highlighting factors that enabled participant understanding, factors that

enabled this include program activities. One observer stated:

"Participants were actively answering questions and gave clearly defined sites to reach

their goals. They addressed differences in how they thought they should handle their

anger and what actually ends up happening."

Another observer stated, "There was a high level of participation. Participants gave examples of

how topics related to their own lives." Although participants displayed a great level of

understanding, during some sessions, participants had difficulty grasping the concepts. One

observer stated, "The participants were unable to identify their own cycles of actions and

reactions. They were only interested in blaming their partner."

In addition to having great rapport with participants, observers also highlighted that ensuring all

materials are ready before the start of the session allowed for an engaging session. One observer

noted, "Facilitator 1 was very well prepared. All posters were pre-made. Emphasized

participation even when participants don't feel like it. Placed ownership of doing homework on

participants by saying it was meeting goals." Finally, facilitators ensured participants felt

comfortable sharing issues that were occurring in their relationship. One observer volunteered,

"Facilitators did a nice job engaging participants, encouraging participation and fostering a safe

space for sharing."

3.4.3 Participant interactions

When describing what factors enabled their understanding of the material, these include

program activities enabling discussion amongst couples and effective facilitating (Figure 2). For

session 3, an observer stated, "Participants were eager to volunteer for the role play. Were also

very engaged in the discussion about poor communication skills and the listen up skills." During

session 5, an observer noted, "Group members were responding to prompts but seemed to lack

energy." During session 7, a facilitator highlighted what strategies were used to enable

discussion amongst the couples. They highlighted, "We allowed them to talk about real issues in their relationship." During session 4, another facilitator highlighted, "Asked many follow up, processing questions about the material. It was clear that some participants personalized the session materials."

Although program activities enabled engagement amongst couples, some activities proved difficult for participants to grasp. Participant's refusal to engage in program activities also contributed to poor engagement during sessions. For instance, session 9 was noted as having low participant understanding during the session. One facilitator highlighted following session 9, "One they are not willing to do the role play, and two, and they are not willing to do the listen-up skills."

3.5 Reaction to activities

For all sessions, observers generally agreed with an average session rating of 3.5, good (Figure 4). Observers rated the sessions lower than facilitators for 43.33% of the total sessions while sessions received the same rating from observers and facilitators for 30.0% of all sessions.
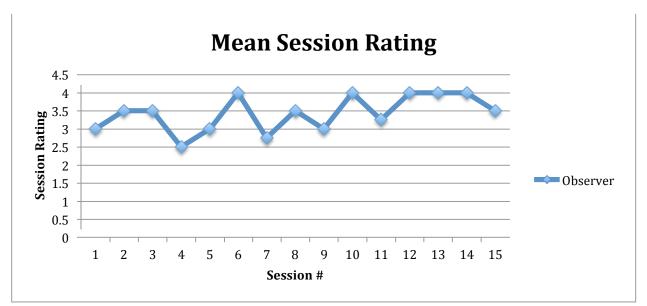
Figure 4. Men session rating by facilitators and observers for each session

Mean Session Rating

When assessing reaction, participants were very positive about their experience in the program. Not only did activities enable participants to interact with facilitators, it also enabled them to learn from other couples as well. Themes that emerged when assessing program success include logistical factors, being able to work through sensitive topics, working on communication, learning from others and being able to generalize lessons to other aspects of ones life (Figure 2).

3.5.1 Logistical Factors

Certain logistical components were key to ensuring participants were able to not only attend each session but ensuring they were engaged. These factors include transportation, food, childcare, location and format (Figure 2). Respondents described transportation as major aspect in ensuring they were able to bring their children and arrive on time. They volunteered:

" I just feel like that transportation, it really helped, really, because I'm not gonna even

lie. If I have to catch the bus, I might have didn't come a couple times because it's just

like, the kids, me, and stuff."

Another respondent highlighted that having one set day for which sessions occur will ensure that

people are aware and can plan accordingly. Another respondent stated that although inclement

weather can affect attendance, being able to have this experience enabled them to learn from

other couples. They volunteered:

"The pick-up, drop-off. The food, where we went to eat and that, you know, the kids

don't have to worry about being hungry or bored. Like I said, the people were nice. Also

the people in the group, the couples. They were, like, it was kinda easy, like, to relate to

some people. We had discussions before group started, when group ended. Yeah, so it

was good."

Although these factors ensured participant attendance and engagement, external factors

occurring in respondents own life that either made it difficult or easy for participants to attend.

One participant described, "On their end, I think everything's good, but on my end, I had issues.

I got pregnant again and got two jobs at the same time, so it became hard for me to attend the

way I really needed to. And that's something I actually really did need for my mental." Although

this was a factor for this participant, one highlighted being able to work around their school

schedule.

3.5.2 Relevance and reliability of program

Respondents enjoyed the opportunity to talk to the facilitators about sensitive topics as it

provided them with the opportunity to learn from their own experience. One participant

highlighted how welcome they made them feel, "They listen. Very good listeners. They keep the

structure of the class and everything. They don't make you feel, like, weird or out of place or anything like that. They make you feel welcome." Another participant highlighted how the lessons were translated into their home life:

"Yeah, like, for example, today when we was at the house, she wanted me to clean up. And she was like "Yeah, I'm about to start doing dishes." I told her I was busy with my son. She understood. Usually she'll be like you're always doing something when I ask you, but she actually understood. And I knew that I had to clean up right after, before I'd probably just brush it off and won't do it because she'd catch an attitude, and go along with the attitude, and won't ever do it. But I ended up doing it today, after I was done, and she waited with me to get done while using the skills."

In addition, respondents spoke of how facilitators were able to adapt and make the sessions interesting, "Things that they did that I liked were they were all friendly. They were welcoming. They had a good sense of humor. They pretty much just made the best of it, although the size of the group was maybe 3 people or 20 people. They always made it, you know, interesting." Another affirmed this sentiment by stating, "They did a great job. And I was actually – I was able, like – I actually went to group a little upset at times with my partner and I think I actually was able to talk it out right there and them having, you know, stuff to say to me, some positive stuff, and we actually fixed whatever was going in that moment, they was able of, like, helping us, talking to us and we actually left the place happy."

3.5.3 Relationships

Respondents highlighted ways in which skills taught enabled them to communicate with their partner and learn from other couples as well. A respondent explained, "Because a lot of

em', like I said, a lot of those topics touch upon my current issues with my relationship or, you know, I just also wanted to see what other people can relate to and if they were dealing with the same issues I was dealing with." In addition, another participant highlighted how a skill can be beneficial to their relationship. The stated, "I believe the LISTEN UP skills, that has everything to do with my relationship and the problems that we went through. I feel like that's actually perfect, because if you take into the consider- … the other person into consideration, then, it just helps." Sessions also allowed participants to gain a level of respect for their partner. One participant stated, "To show respect to one another, to show discipline to both of us, and the kids, to take care of them. Like when she needs help and I'll help her. That's all." Different types of communicating also gave participants insight as to how their partner may comprehend the same situation. One participant volunteered, "I guess you can think – like, you have to think. Okay, I might feel this way, but to a male, he might not see it in that same point of view, so you have to relax and explain yourself a little better. Communication was the main skill by which participants felt was the most useful. One participant stated, "Well, it kinda did come up. It kinda did fix our relationship, because before we used to always argue. Now we just, "See, this is what Tim was talking about," or, "That's why I can't wait to go to group, because this is just crazy."

3.5.4 Parenting

Although skills discussed during sessions pertained to communication and resolution amongst couples, respondents also saw how these skills can be generalized to other relationships in their life. A participant stated, "Oh. It was all relevant. It's not so much about – I notice these models aren't just about communications between partners, but just any two people, any relationship, whether it's spouse, parent/child, business associates, superior, employee. It's

everywhere. I liked it a lot." Participants stated that skills taught can also be translated their parenting skills. One participant highlighted, " Yeah, cause a lot of the stuff that they talk about can actually help with, like, stopping and listening, and so, because the kids they do blow up – they do blow up, and, but as long as you just stop, talk to them and listen everything is different." Another participant affirmed the same sentiment by stating, "Because the one big thing is like the parenting, you know, the child needs their father in their life. And the father plays a big part in it, so it'll improve my parenting by being there, being around for my daughter, and doing things for her that I need to. Ultimately, participants saw the benefit in using these skills in order to ensure they focus on being good parents for their children.

3.5.5 Sexual risk

In addition to understanding how session activities can affect their relationship with their partner and children, participants gained further insight as to how factors can affect their sexual risk. One participant stated, "Yeah. Because I found out different things, like, a few different ways, I guess you can protect yourself or whatever. Very informative. But it's nothing that I didn't know… but I did learn different ways to keep yourself protected and things like that." Another highlighted, "If you're stepping out with your partner, it's like you can get capable of getting diseases if you don't use protection. Then you end up bringing it back to your partner. Then basically one little mistake and you could catch something that you can't get rid of. I think it'll help me out a lot." Another participant highlighted how although there is a level of trust, ways in which to ensure the other person is safe. They highlighted,

"We discussed, like, sex and STDs and any type of diseases, it's like when it's a

big discussion, when it's not just us two talking, when it's other people talking

about it, it's

like – it really opens our eyes, like, to see that it's not safe sometimes. I do trust him. I believe he trusts me. But I think if we were to, like, step out, then we would wear condoms."

3.5.6 Program improvements

When discussing program changes, participant's noted logical changes such as having a female facilitator, longer sessions and including more couples in the sessions. Logistical factors such as time of the sessions, days sessions held and childcare were discussed as potential improvements for the future. A respondent highlighted the need for more consistent childcare that although participants were allowed to bring their children with them, there weren't enough people to watch them while they attend the session. A respondent volunteered:

"Because, I mean, I felt comfortable. The guys were good, you know, the staff's there, but maybe if they had a female because, see, at points, like, they wouldn't – I mean, I don't mind talking to a male, and especially not them, I felt real - how can I say it? I feel real comfortable around them, so I think, you know, sometime our people that's in relationship, they come in with, like, problems at that time and they're not speaking to their partner and maybe some people might not feel right speaking to a man because they have a problem with their man, so maybe a female – having a female there working will be a good thing because maybe she will feel more comfortable talking to a female than a male."

Low attendance was a common factor across all sessions as one respondent noted, "One thing that wasn't the actual program's fault, but what I didn't like was the fact that there weren't enough couples there for some of the activities. Sometimes it was kind of like, well, there's only one other couple in the room, so it's either us, which we would know, or it's not us, which we

would also know." Suggestions noted to improve attendance included sending business cards in the mail, having more frequent sessions in addition to longer sessions. A participant stated, "To make it easier to attend sessions regularly I would say it should be twice a week, like I said before, but the reason why it should be twice a week I would say because if you miss a session, you still have an opportunity to go to one that week, because I think it's very important that you go every week so you don't miss out." Participants also noted better group management as this may make participants feel as if they are wasting their time. They volunteered, "I know sometimes we, like, all discuss things, but sometimes it gets out of hand where everybody's having their side discussions. If everybody could just stay on task because it seemed like the groups go by so fast and then when everybody get out of, you know, start having their own little conversation, it's like time goes by and we're wasting time."

4.0 DISCUSSION

Overall, the process evaluation indicated the Partners in LIFE study had high levels of completeness, fidelity, utilization, and participants learned a lot from the program. The one area needing significant improvement was attendance.

4.1 Completeness of activity implementation

Process evaluation data suggest that The Partners in LIFE curriculum was implemented with a high degree of completeness (Coyle et al., 1996).[53] Ultimately, facilitator implementation may have been influenced by internal factors, such as self-efficacy, preparedness, and facilitator compatibility (Ross and others, 1991; Rohrbach, Graham, and Hansen, 1993).[58,59] Studies have shown that completeness of facilitator implementation is associated with participant outcomes (Basch and others, 1985; Bush and others, 1989; Tortu and Botvin, 1989; Botvin and others,

1990; Parcel and others, 1991; Ross and others, 1991; Rohrbach, Graham, and Hansen, 1993).[56,57,60,61,62,63, 64,65]

Qualitative and quantitative data such as information collected through the observation and facilitator forms highlighted facilitator's effort and allowed them to describe and reflect on factors that inhibited and accomplished activity implementation (Kegler et al., 2000).[66] In addition, the design allowed for a considerable amount of observation in order to ensure that program activities were implemented as intended.

Facilitators were described as an important aspect to the implementation of activities. Through the process, they were able to highlight progress, accomplishments, and barriers in order to capture their successes and remain focused on the intervention (Kegler et al., 2000).[64] By ensuring that the facilitators were adequately trained, it provided an environment in which a couple can learn communication skills and practice them, and discuss gender differences (e.g., how men and women discuss sex, the meaning of requesting and/or refusing the use of condoms), gender power imbalances associated with sexual coercion and the inability to negotiate condom use, gender inequalities in risk practices (Basen–Engquist, 1992; El-Bassel et al., 2001; Fisher & Fisher, 1992; Kelly, 1995; Nadler & Fisher, 1992; Tannner & Pollack, 1988)[23,25,54,67,68,69], and sexual expectations (El-Bassel et al., 2010)[4]. Ultimately, this ensured the internal validity of the study and translated to a positive experience by the participants (Nguyen et al., 2013).[52]

Although facilitators implemented activities with a high level of completeness, time management was noted as a factor as to whether participants received all activities. In order to anticipate this, facilitators can ensure they are well prepared and knowledgeable of their material before a session. In addition, facilitators should ensure that sessions start on time in order to

ensure time is allotted effectively in case discussions carry over or there is low participant attendance.

4.2 Fidelity of implementation

Process evaluation data suggest that The Partners in LIFE curriculum was implemented with a high degree of fidelity (Coyle et al., 1996).[53] Studies have shown that fidelity of facilitator implementation is associated with participant outcomes (Basch and others, 1985; Bush and others, 1989; Tortu and Botvin, 1989; Botvin and others, 1990; Parcel and others, 1991; Ross and others, 1991; Rohrbach, Graham, and Hansen, 1993).[45,56,57,59,60,61,62] Group management was described as an important factor as to whether session objectives were met and all materials were used. Just as noted in completeness, adequate facilitator training ensures that they are well prepared and can easily adapt to issues that arise during the sessions. This is necessary in order to ensure that participants receive all aspects of the intervention at the appropriate session.

Factors that also affected intervention fidelity included disruptive children and participants. Babysitting was not offered consistently at each session and thus participants children needed to remain in the room. This proved as a distraction not just for participants but facilitators as well. In order to ensure that participants and facilitators are able to remain engaged, consistent childcare should be provided during each session.

Although children were disruptive at times during the session, interacting with other couples proved disruptive as well. Some couples were argumentative during the sessions and thus disrupted the facilitator and other couples. Solutions include facilitators establishing and reemphasizing the code of conduct for the group at each session. This allows the intervention to remain relevant and ensure that participants remain engaged once the problem has been

discussed. Additionally, facilitators can talk to the disruptive couples in private following the session.

4.3 Utilization of program activities

Process evaluation data suggest that The Partners in LIFE curriculum was implemented with a high degree of utilization (Coyle et al., 1996).[53] Although numerous successes were highlighted through this evaluation, there were limitations present in the study as well.

The average sessions attended by participants in the intervention group were very low compared to those in the control group. The primary reasons for their absence included external factors such as working and a scheduling conflict. Participants were low-income and had jobs where schedules frequently shifted or they needed to add shifts at the last minute. Further, given that the focus was on couples, many participants did not feel as comfortable attending if their partner could not make it.

In order to alleviate the burden of getting to the session location, logistical factors such as transportation and food were offered. Although these components were offered, this did not ensure that couples attended consistently. Ways in which to alleviate this might include offering sessions on multiple evenings during the week, offering an online component or streamlining incentives based on the number of sessions attended.

Although participants stated that an online format might be beneficial to participants who miss a session, they may also miss the benefit of being able to interact with other couples more intimately. By employing the use of an online format, participants might feel removed and may not invest as much time in attaining skills needed to maintain their relationship.

Sessions 2, 7 and 9 displayed low levels of participant engagement and understanding. These sessions should be reformulated and reevaluated in order to understand which activities

were confusing to participants. In addition, facilitators should be retrained on how to facilitate these sessions more effectively.

4.4 Reaction to activities

Participant reactions to the curriculum were generally positive (Coyle et al., 1996).[53] This study has a number of important methodological strengths (Roberto et al., 2007). First, the intervention was implemented and evaluated in a naturalistic setting (Roberto et al., 2007).[70] It showed the advantages of bringing couples together in that it sends a message that responsibility of HIV risk reduction falls on both members of the dyad and underscores that both men and women can put each other at risk for HIV (El-Bassel, 2010).[4] By providing a supportive environment, this may enable couples to safely disclose to each other extra dyadic sex partners, a history of STIs, a history of injection drug use, or past experiences in abusive relationships (El-Bassel et al., 2001)[23], this ensured a greater level of external validity in results obtained (Roberto et al., 2007).[68]

Secondly, the design showed that participants saw the usefulness of the intervention, enjoyed being with facilitators and other couples and felt it was a relevant intervention to them Although exit interviews provided a thorough way of capturing participants likes and dislikes of the intervention, participants did not state any components they did not like. In order to capture this information, a short anonymous survey at the end of each session can be used in order to see which components they liked and did not like during the session. In addition, surveys can be utilized in order to quantify which activities participants found particularly helpful and which ones were not exactly clear to them. Lastly in order to measure impact, homework can be collected and assessed in order to ensure that participants are practicing skills learned outside of the intervention to assess if changes in their relationship are in fact due to the intervention.

Although participants were recommended to complete homework assignments following each session, these assignments were not collected and thus could not be evaluated in order to measure the changes and impact of the skills learned during the sessions. Second, self-report information from participants and observers may be subject to biases such as a tendency to respond positively based on demand characteristics associated with being in the intervention group or observing the intervention group (Campbell et al., 2000).

5.0 CONCLUSION

When assessing other couples-based HIV prevention interventions, they targeted the intimate relationship as the focus of change. In a study conducted by El-Bassel et al., 2014, they asked women to practice communication, negotiation and condom skills. This process translated to women and their intimate partners being able to discuss sexual issues and explore together how they can protect themselves from HIV/STDs. Ultimately, Partners in LIFE aligns with other couple based interventions in that it demonstrated the willingness of heterosexual men to be part a of an HIV/STD intervention study. Although the science of couples-based HIV/STI prevention interventions in the United States are still in its early stages, process evaluations will be beneficial in determining the modality and dose at which to implement these interventions.

6.0 REFERENCES

[1] Campbell, M., Fitzpatrick, R., Haines, A., & Kinmonth, A. L. (2000). Framework for design and evaluation of complex interventions to improve health. *British medical journal*, *321*(7262), 694.

[2] Nguyen, P., Gold, J., Pedrana, A., Chang, S., Howard, S., Ilic, O., ... & Stoove, M. (2013). Sexual health promotion on social networking sites: a process evaluation of The FaceSpace Project. *Journal of Adolescent Health*,*53*(1), 98-104.

[3] Incidence, Prevalence, and Cost of Sexually Transmitted Infections in the United States. 2013. (Accessed on March 20th, 2016, at http://www.cdc.gov/std/stats/sti-estimates-fact-sheet-feb-2013.pdf).

[4] HIV/AIDS surveillance in adoelscents and young adults (through 2007). 2009. (Accessed March 20th, 2016 at http://www.cdc.gov/hiv/topics/surveillance/resources/slides/adolescents/slides/Adolescents.pdf.)

[5] CDC. Fact Sheet: HIV in the United States. Atlanta: US Department of Health and Human Services, CDC; 2010 Accessed December 16, 2010.
Teen Pregnancy in the United States. 2016 (Accessed on March 20th, 2016, at http://www.cdc.gov/teenpregnancy/about/index.htm).

[6] El-Bassel, N., Gilbert, L., Witte, S., Wu, E., Hunt, T., & Remien, R. H. (2010). Couple-based HIV prevention in the United States: advantages, gaps, and future directions. *JAIDS Journal of Acquired Immune Deficiency Syndromes*,*55*, S98-S101.

[7] Meade CS, Ickovics JR. Systematic review of sexual risk among pregnant and mothering teens in the USA: Pregnancy as an opportunity for integrated prevention of STD and repeat pregnancy. *Soc Sci Med* 2005;60:661-78.

[8] Ickovics JR, Niccolai LM, Lewis JB, Kershaw TS, Ethier KA. High postpartum rates of sexually transmitted infections among teens: Pregnancy as a window of opportunity for prevention. *Sexually Transmitted Infections* 2003;79:469-73.

[9] Elliot R, Watson JC, Goldman RN, Greenberg LS. Learning emotion focused therapy. Washington, D.C.: APA; 2009

[10] Coyle, K., Kirby, D., Parcel, G., & Basen-Engquist, K. (1996). Safer choices: A multicomponent school-based HIV/STD and pregnancy prevention program for adolescents. *The Journal of school health*, *66*(3), 89.

[11] Burton, J., Darbes, L. A., & Operario, D. (2010). Couples-focused behavioral interventions for prevention of HIV: systematic review of the state of evidence. *AIDS and Behavior*, *14*(1), 1-10.

[12] El-Bassel, N., Witte, S. S., Gilbert, L., Wu, E., Chang, M., Hill, J., & Steinglass, P. (2005). Long-term effects of an HIV/STI sexual risk reduction intervention for heterosexual couples. *AIDS and Behavior*, *9*(1), 1-13.

[13] Meade CS, Ickovics JR. Systematic review of sexual risk among pregnant and mothering teens in the USA: Pregnancy as an opportunity for integrated prevention of STD and repeat pregnancy. *Soc Sci Med* 2005;60:661-78.

[14] Ickovics JR, Niccolai LM, Lewis JB, Kershaw TS, Ethier KA. High postpartum rates of sexually transmitted infections among teens: Pregnancy as a window of opportunity for prevention. *Sexually Transmitted Infections* 2003;79:469-73.

[15] Allen, S., Serufilira, A., Bogaerts, J., Van de Perre, P., Nsengumuremyi, F., Lindan, C., ... & Hulley, S. (1992). Confidential HIV testing and condom promotion in Africa: Impact on HIV and gonorrhea rates. *Jama*, *268*(23), 3338-3343.

[16] Deschamps, M., Pape, J., Haffner, A., Hyppolite, R., and Johnson, W.(1991). Heterosexual activity in at risk couples for HIV infection. Paper presented at the the VII International Conference on AIDS, Florence, Italy

[17] Ehrhardt, A. A., and Exner, T. (2000). Prevention of sexual risk behavior for HIV infection with women. AIDS, 14(2), S53– S58.

[18] El-Bassel, N., Witte, S. S., Gilbert, L., Wu, E., Chang, M., Hill, J., and Steinglass, P. (2003). The efficacy of a relationshipbased HIV/STD prevention program for heterosexual couples. American Journal of Public Health, 93(6), 963–969.

[19] Harvey, S. (2000). New kinds of data, new options for HIV prevention among women: A public health challenge. Health Education and Behavior, 27(5), 539–565.

[20] Higgins, D. L., Galavotti, C., O'Reilly, K. R., Schnell, D. J., Moore, M. M., Rugg, D. L., and Johnson, R. (1991). Evidence for the effects of HIV antibody counseling and testing on risk behaviors. JAMA, 266, 2419–2429

[21] Musaba, E., Morrison, C. S., Sunkutu, M. R., and Wong, E. L. (1998). Long-term use of the female condom among couples at high risk of human immunodeficiency virus infection in Zambia. Sexually Transmitted Diseases, 25(5), 260–264

[22] Padian, N. S., O'Brien, T. R., Chang, Y. C., Glass, S., and Francis, D. (1993). Prevention of heterosexual transmission of human immunodeficiency virus through couple counseling. Journal

[23] Voluntary HIV-1 Counseling and Testing Efficacy Study Group. (2000). Efficacy of voluntary HIV-1 counselling and testing in individuals and couples in Kenya, Tanzania and Trinidad: A randomized trial. The Lancet, 356, 103–112.

[24] Wingood, G. M., and DiClemente, R. J. (2000). Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. Health Education & Behavior, 27(5), 539–565.

[25] El-Bassel, N., Witte, S. S., Gilbert, L., Sormanti, M., Moreno, C., Pereira, L., Elam, E., and Steinglass, P. (2001). HIV prevention for intimate couples: A relationship-based model. Families, Systems, and Health, 19(4), 379–395.

[26] Kalichman, S. C., Kelly, J. A., Hunter, T. L., Murphy, D. A., and Tyler, R. (1993). Culturally-tailored HIV/AIDS risk reduction messages targeted to African American urban women: Impact on risk sensitization and risk reduction. Journal of Consulting and Clinical Psychology, 61, 291–295.

[27] Misovich, S. J., Fisher, J. D., and Fisher, W. A. (1997). Close relationships and elevated HIV risk behavior: Evidence and possible underlying psychological processes. Review of General Psychology, 1(1), 72–107.

[28] O'Leary, A. (2000). Women at risk for HIV from a primary partner: Balancing risk and intimacy. Annual Review of Sex Research, 11, 191–234.

[29] Harlow, L., Quina, K., Morokoff, P., Rose, J., and Grimley, D. (1993). HIV risk in women: A multifaceted model. Journal of Applied Biobehavioral Research, 1, 3–38.

[30] Kalichman, S. C., Williams, E. A., Cherry, C., Belcher, L., and Nachimson, D. (1998). Sexual coercion, domestic violence, and negotiating condom use among low-income African American women. Journal of Women's Health, 7, 371–378.

[31] Wingood, G. M., and DiClemente, R. J. (1998). Partner influences and gender-related factors associated with noncondom use among young adult African American women. American Journal of Community Psychology, 26(1), 29– 51.

[32] Remien, R. (1997). Couples of mixed HIV status: Challenges and strategies for intervention with couples. In L. Wicks (Ed.),Psychotherapy and AIDS (pp. 165–177). Washington, DC: Taylor & Francis.

[34] Aalsma MC, Fortenberry JD, Orr DP. Adolescent romantic partnerships and health-risk behaviors: A comparison of dyad member. *Journal of Adolescent Health* 2004;34:151-2.

[35] Choi KH, Catania JA, Dolcini MM. Extramarital sex and HIV risk behavior among US adults: Results from the National AIDS Behavioral Survey. *Am J Public Health* 1994;84:2003-7.

[36] Ott MA, Katschke A, Tu W, Fortenberry JD. Longitudinal associations among relationship factors, partner change, and sexually transmitted infection acquisition in adolescent women. *Sex Transm Dis* In Press.

[37] Gee CB, Rhodes JE. Adolescent mothers' relationship with their children's biological fathers: Social support, social strain, and relationship continuity. *Journal of Family Psychology* 2003;17:370-83.

[38] Niccolai LM, Ethier KA, Kershaw TS, Lewis JB, Meade CS, Ickovics JR. New sex partner acquisition and sexually transmitted disease risk among adolescent females. *Journal of Adolescent Health* 2004;34:216-23.

[39] Kalichman SC, Grebler T. Reducing numbers of sex partners: Do we really need special interventions for sexual concurrency? *AIDS Behav* 2010;14:987-90.

[40] Foxman B, Newman M, Percha B, Holmes KK, Aral SO. Measures of sexual partnerships: Lengths, gaps, overlaps, and sexually transmitted infection. *Sex Transm Dis* 2006;33:209-14.

[41] Kretzschmar M, Dietz K. The effect of pair formation and variable infectivity on the spread of an infection without recovery. *Math Biosci* 1998;148:83-113.

[42] Johnson BT, Scott-Sheldon LA, Smoak ND, Lacroix JM, Anderson JR, Carey MP. Behavioral interventions for African Americans to reduce sexual risk of HIV: A meta-analysis of randomized controlled trials. *J Acquir Immune Defic Syndr* 2009;51:492-501.

[43] Florsheim P, Sumida E, McCann C, et al. The transition to parenthood among young African American and Latino couples: Relational predictors of risk for parental dysfunction. *Journal of Family Psychology* 2003;17:65-79.

[44] Cox MJ, Paley B, Payne C, Burchinal M. The transition to parenthood: Marital conflict and withdrawal and parent-infant interactions. In: Cox MJ, Brooks-Gunn J, eds. Conflict and Cohesion in Families. Mahwah, New Jerey: Laurence Erlbaum Associates; 1999:87-104.

[45] Baranowski, T., and Stables, G. "Process Evaluation of a 5-a-Day Projects." Health Education and Behavior, 2000, 27 (2), 157-166

[46] Plummer, M. L., Wight, D., Obasi, A. I. N., Wamoyi, J., Mshana, G., Todd, J., ... & Ross, D. A. (2007). A process evaluation of a school-based adolescent sexual health intervention in rural Tanzania: the MEMA kwa Vijana programme. *Health education research*, *22*(4), 500-512.

[47] Basch, C.E., and others. "Avoiding Type III Errors in Health Education Program Evaluations: A Case Study." Health Education Quarterly, 1985, 12 (4), 315-331.

[48] Resnicow, K., and others. "How Best to Measure Implementation of Health Curricula: A Comparsion of Three Measures." Health Education Research

[49] Dane, A. V., & Schneider, B.H. (1998). Program integrity in primary and early secondary prevention: Are implementation effects out of control? Clinical Psychology Review, 18(1), 23.

[50] Pawson, R. and Tilley, N. (1997) Realistic Evaluation, London: Sage.

[51] Davis, M., Hughes, M., and others: "The 'Bringing It Home' Program: Formative Assessment Results." Journal of Cancer Education, forthcoming.

[52] Steckler, A., and others. "Toward Integrating Qualitative and Quantitative Methods: An Introduction." Health Education Quarterly, 1992,19(1), 1-8

[53] Campbell, M., Fitzpatrick, R., Haines, A., & Kinmonth, A. L. (2000). Framework for design and evaluation of complex interventions to improve health. *British medical journal*, *321*(7262), 694.

[54] Nguyen, P., Gold, J., Pedrana, A., Chang, S., Howard, S., Ilic, O., ... & Stoove, M. (2013). Sexual health promotion on social networking sites: a process evaluation of The FaceSpace Project. *Journal of Adolescent Health*,*53*(1), 98-104.

[55] Coyle, K., Kirby, D., Parcel, G., & Basen-Enquist, K. (1996). Safer choices: A multicomponent school-based HIV/STD and pregnancy prevention program for adolescents. *The Journal of school health*, *66*(3), 89.

[56] Basen-Enquist, K., and others. "The Effect of Two Types of Teacher Training on Implementation of Smart Choices: A Tobacco Prevention Curriculum." Journal of School health, 1994, 64(8), 334-339

[57] Rossi, P. H., & Freeman, H. E. (1993). *Evaluation: A systematic approach*. Newbury Park, Calif: Sage Publications.

[58] Ross, J.G., and others. "Design of the Teenage Health Teaching Modules Evaluation." Journal of school Health, 1991, 61(1), 21-25.

[59] Rohrbach, L.A., Graham, J.W., and Hansen, W.B. "Diffusion of a School-Based Substance Abuse Program: Predictors of Program Implementation." Preventive Medicine, 1993, 22, 237-260.

[60] Basch, C.E. and others, "Avoiding Type III Errors in Health Education Prgram Evaluations: A Case Study."Health Education Quarterly, 1985, 12(4), 315-331

[61] Bush, P.J., and others. "Cardiovascular Risk Factor Prevention in Black School Children: The "Know Your Body' Evaluation Project." Health Education Quarterly, 1989, 16 (2), 215-227.

[62] Tortu, S., and Botvin, G.J. "School-Based Smoking Prevention: The Teacher Training Process." Preventive Medicine, 1989, 18, 280-289.

[63] Botvin, G.J., and others. "Preventing Adolescent Drug Abuse Through a Multimodal Cognitive-Behavioral Approach: Results of a Three-Year Study." Journal of Consulting and Clinical Psychology, 1990, 58(4), 437-446.

[64] Parcel, G.S., and others. "Enhancing Implementation of the Teenage Health Teaching Modules." Journal of School Health, 1991, 61(1), 35-42

[66] Kegler, M., and Wyatt, V.A Multiple Case Study of Neighborhood Mobilization Around Positive Youth Development and Teen Pregnancy Prevention In Oklahoma City. HEART of OKC Evaluation Report, Oklahoma City, 2000.
[67] Sikkema KJ, Heckman TG, Kelly JA, et al. HIV Risk Behaviors Among Women Living in Low-Income, Inner-City Housing Developments. *Am J Public Health* 1996;86:1123-8.
[68] Nadler, A., & Fisher, J. D. (1992). Volitional personal change in an interpersonal perspective. In *Self Change* (pp. 213-230). Springer New York.

[69] Tanner, W. M., & Pollack, R. H. (1988). The effect of condom use and erotic instructions on attitudes toward condoms.

[70] Roberto A. J., Zimmerman R. S., Abner E. L.A computer-based approach to preventing pregnancy, STD, and HIV in rural adolescents. Journal of Health Communication 2007;12:53-76.

[71.] El-Bassel, N., Gilbert, L., Terlikbayeva, A., Beyrer, C., Wu, E., Shaw, S. A., ... & Primbetova, S. (2014). HIV risks among injecting and non-injecting female partners of men who inject drugs in Almaty, Kazakhstan: Implications for HIV prevention, research, and policy. *International Journal of Drug Policy*, *25*(6), 1195-1203.

[72.] Denning P, DiNenno E. Communities in Crisis: Is There a Generalized HIV Epidemic in Impoverished Urban Areas of the United States? Atlanta: US Department of Health and Human Services, CDC; 2010 Accessed January 10th, 2010.