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MATERNAL EMOTION SOCIALIZATION AND CHILD PROBLEM BEHAVIOURS

IN AN AUTISM SPECTRUM DISORDER POPULATION: THE ROLE OF THE

BROAD AUTISM PHENOTYPE AND DISTRESS

By

Megan I. Duffett

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Maternal Emotion Socialization and Child Problem Behaviours in an Autism Spectrum Disorder Population: The Role of the Broad Autism Phenotype and Distress

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ABSTRACT

The current study examined emotion socialization (ES) processes in mothers of children

with autism spectrum disorder (ASD) using a quantitative and qualitative approach. The

quantitative methodology was used to explore ES practices and the outcome of child

problem behaviours, while taking into account maternal characteristics of the broad

autism phenotype (BAP) and distress (stress, anxiety, depression and parenting stress).

For the quantitative portion of the study, participants included 57 mothers of children age

6 to 16 years diagnosed with high functioning ASD. Mothers were separated into groups:

without BAP status group and with BAP status group. The results revealed that ES

practices alone did not predict child problem behaviours. However, with the inclusion of

distress as a moderator, the relation between ES and problem behaviours revealed

differences between the BAP groups. That is, in mothers without BAP status, when

predicting child problem behaviours, stress moderated emotion coaching, supportive

reactions, and positive expressiveness. Anxiety and parenting stress also moderated

emotion coaching. In mothers with BAP status, stress and parenting stress moderated the

relation between negative expressiveness and child problem behaviours. Within the

qualitative framework of the study, a thematic analysis revealed that mothers of children

with ASD use a number of ES approaches when their children are experiencing negative

emotions. Themes consistent with ES practices within typically developing populations

emerged, as well as additional themes that have not been adequately captured in the

literature (e.g., socialization that often accommodates children's behavioural and

emotional challenges) and therefore may be more unique to mothers parenting children

with ASD. Clinical implications and future directions are discussed.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

ADHD	Attention-Deficit/Hyperactivity Disorder
ABA	Applied Behavioural Analysis
ASD	Autism Spectrum Disorder
ASSQ	Autism Spectrum Screening Questionnaire
BAP	Broad Autism Phenotype
BAPQ	Broad Autism Phenotype Questionnaire
CCNES	Coping with Children's Negative Emotions Scale
IQ	Intelligent Quotient
MESQ	Maternal Emotional Styles Questionnaire
PDD	Pervasive Developmental Disorder
PDD-NOS	Pervasive Developmental Disorder, Not Otherwise Specified
SEFQ	Self-Expressiveness within the Family Questionnaire

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CHAPTER 1

Introduction

Autism Spectrum Disorder

Autism spectrum disorder (ASD) is a pervasive neurological disorder categorized by impairments in the areas of social communication and repetitive and stereotyped behaviours (American Psychiatric Association, 2000; American Psychiatric Association, 2013). Deficits in social communication include misinterpretations of social cues, poorly modulated eye contact with others, deficits in nonverbal communication, deficits in social-emotional reciprocity, difficulties in developing and understanding relationships, and problems with initiating and sustaining conversation. Repetitive and stereotyped behaviour of individuals with ASD may include rigid and inflexible behavioural patterns, stereotyped play and language, restricted interests, intense need for routine and rituals, repetitive motor mannerisms, hyper- or hypo-sensitivity to sensory input, and preoccupation with certain objects and interests.

Autism spectrum disorder has been commonly used as an umbrella term representing a group of three pervasive developmental disorders (Johnson & Myers, 2007), including autistic disorder, Asperger's disorder or syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS; American Psychiatric Association, 2000). With the release of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013), autism spectrum disorder is now the only autism-related diagnostic category, with specifiers and level of severity describing the presentation of ASD. Specifiers include "with or without accompanying intellectual impairment," "with or without accompanying language impairment," "associated with a known medical or genetic condition or environmental

factor," "associated with another neuro-developmental, mental, or behavioural disorder," and "with catatonia." Severity levels include Level 1 "requiring support," Level 2 "requiring substantial support" and Level 3 "requiring very substantial support." Individuals with well-established DSM-IV autism diagnoses, such as autistic disorder, Asperger's disorder, and PDD-NOS should now be given the diagnosis of autism spectrum disorder with the appropriate specifiers indicated (American Psychiatric Association, 2013).

Statistics from the U.S. Centers for Disease Control and Prevention (CDC) estimate that 1 in every 68 children are diagnosed with ASD (Christensen et al., 2016). Canadian statistics of the prevalence of ASD have been found to be similar. The National Epidemiologic Database for the Study of Autism in Canada described rates of ASD for children ages 2 to 14 in three areas: Newfoundland and Labrador, Prince Edward Island, and Southeastern Ontario (Ouellette-Kuntz, 2012). The most recent available rates for Newfoundland and Labrador were reported in 2008, and at that time, the prevalence of ASD was 1 in every 135 children. In Prince Edward Island, prevalence rates were 1 in 116 children in 2010. Rates for 2010 in Southeastern Ontario were the highest, with 1 in 94 children. Some of the varying rates have been attributed to difficulty of obtaining accurate prevalence data when relaying on administrative data sets (Pelly, Vardy, Fernandez, Newhook, & Chafe, 2015).

ASD and intellectual disability commonly co-occur (American Psychiatric Association, 2000; American Psychiatric Association, 2013). Recent estimates from the CDC indicate that approximately 32% of children with ASD are also classified as having an intellectual disability (Christensen et al., 2016). These estimates are much more conservative than previous estimates that suggested 75% of children with ASD are

diagnosed with comorbid intellectual disability (American Psychiatric Association, 2000).

However, the rate of diagnosing individuals with ASD without an intellectual impairment

has been rising.

Problem Behaviours in ASD

In addition to the core symptoms of ASD, many children with ASD exhibit

problem behaviours that interfere with everyday activities (Hollander, Phillips, & Yeh,

2003; Scattone, Wilczynski, Edwards, & Rabian, 2002; Shea et al., 2004), as well as

impact their quality of life (e.g., psychosocial health, social functioning, and emotional

functioning; Kuhlthau et al., 2010). Problem behaviours may include oppositional

behaviour, aggression, withdrawal, insecure/anxious behaviour, self-injurious behaviour,

disruptive behaviours, inattention, impulsivity, and hyperactivity (Lecavalier, 2006). Due

to the high prevalence of problem behaviours in the ASD population, it has been

suggested that problem behaviours need to be considered during the diagnostic and

treatment process (Matson & Nebel-Schwalm, 2007).

Compared to peers without the diagnoses of ASD, problem behaviours are more

commonly seen in children with ASD (e.g., Hartley, Sikora, & McCoy, 2008). Likewise,

children with ASD present with significantly more disruptive and anxious behaviours, as

well as display more symptoms of ADHD and depression in comparison with children

with intellectual disabilities (e.g., Brereton, Tonge, & Einfeld, 2006). There also appears

to be a lack of gender effect in children with ASD, as high rates of problem behaviours

occur equally among males and females (Lecavalier, 2006; Kozlowski, Matson, & Rieske

2012; Simonoff et al., 2008). Even in young adulthood, more problem behaviours are

seen in ASD populations compared to other non-ASD developmental disabilities (Blacher

& McIntyre, 2006), suggesting that problem behaviours may be longstanding, especially

without appropriate treatment.

One type of behavioural problem that is quite common in children with ASD are symptoms related to ADHD, such as impulsivity, hyperactivity, low frustration tolerance, and emotional outbursts (Goldstein & Schwebach, 2004). In fact, many researchers have reported a high level of comorbidity between ASD and ADHD, or ADHD-related symptoms, ranging from 28 to 55% (Ghaziuddin, Weidmer, & Ghaziuddin,1998; Leyfer et al., 2006; Simonoff et al., 2008). In a sample of 20 pre-adolescents with ASD and 15 adolescents and adults with ASD, Ghaziuddin and colleagues (1998) found that 37% of their participants also met the diagnostic criteria for ADHD. Similarly, in a larger sample of 109 children ages 5 to 17 years with high functioning ASD, 31% of the participants met the diagnostic criteria for comorbid ADHD (Leyfer et al., 2006). When the researchers extended the criteria of ADHD to include subclinical symptoms, 55% of the sample demonstrated subclinical symptoms of ADHD.

Anxiety-related behavioural problems are also prevalent in children with ASD. For instance, Leyfer and colleagues (2006) discovered that children with ASD manifested enough symptoms of specific phobia (44%) and obsessive-compulsive disorder (37%) to warrant a diagnosis. In a population-derived sample, Simonoff and colleagues found 42% of their sample to have an anxiety disorder, with generalized anxiety disorder being the most common (13%), followed by panic disorder (10%). Due to the high level of anxiety symptoms within the ASD population, the development and delivery of anxiety-focused intervention programs for children with ASD have become more clinically widespread (e.g., Chalfant, Rapee, & Carroll, 2007; Reaven, Blakeley-Smith, Leuthe, Moody, & Hepburn, 2012; Sofronoff, Attwood, & Hinton, 2005; Wood et al., 2009).

Problem behaviours, especially those related to internalizing and externalizing difficulties, are thought to be a product of emotional dysregulation (Cole, Michel, & Teti, 1994; Eisenberg & Fabes, 1992; Rieffe, Camodeca, Pouw, Lange, & Stockmann, 2012). In typically developing children, emotional dysregulation in young children predicts internalizing and externalizing problems in later childhood (Morris et al., 2010; Rydell, Berlin, & Bohlin, 2003). Looking within the ASD population specifically, studies have demonstrated that young children struggle to self-regulate negative emotions (Hirschler-Guttenberg, Golan, Ostfeld-Etzion, & Feldman, 2015; Jahromi, Meek, & Ober-Reynolds, 2012). Emotional dysregulation may, in turn, be one of the underlying factors in the development and maintenance of problem behaviours. For instance, the inability to process and regulate emotions such as sadness, fear, and anger may lead to behaviours such as acting out, temper tantrums, self-injury, avoidance, and oppositionality. Laurent and Rubin (2004) noted, "when a child [with ASD] feels overwhelmed during a social interaction and experiences fear, arousal levels tend to increase and the child will likely be primed to take action by either removing the frustrating element (e.g., pushing an item away or lashing out at a person) or fleeing from the situation." (p. 287).

In addition to emotional regulation deficits that may partially explain problem behaviours in children, symptoms related to ASD further explain why more problem behaviours occur within the population (Horner, Carr, Strain, Todd, & Reed, 2002). Restricted, rigid, and stereotyped behaviours may make children with ASD less flexible in their approach to modulate their emotional experiences (Mazefsky et al., 2013), further leading to impaired behavioural control. Deficits in social skills also account for problem behaviours. Fewer peer and adult interactions have been linked to a higher frequency of problem behaviours, as children miss opportunities to learn from social interactions,

perpetuating the social difficulties that exist (Matson, Neal, Fodstad, & Hess, 2010).

Difficulties with social communication, as well as reinforcement of behaviour may also

lead to problem behaviours. To illustrate,

> "A 4-year-old child with autism may learn quickly that dropping to the floor,
>
> crying, and banging his head will result in adult attention and the delay of an
>
> activity that is not desired by the child. The 4-yearold child with typical
>
> development can be easily encouraged to use words to achieve a functional effect,
>
> but a child with autism often has fewer conventional forms of communication and
>
> much more difficulty retrieving those forms of communication within appropriate
>
> contexts." (Bushbacher & Fox, 2003, p.217)

Fortunately, there are many well established forms of intervention to decrease

problem behaviours in children with ASD (National Autism Centre, 2015). Applied

behaviour analysis (ABA) has been defined as "an applied science devoted to

understanding the laws by which the environment affects behaviour in order to address

socially significant problems for individuals with disabilities." (Vismara & Rogers, 2010,

p.448). ABA methods are well established, effectively treating problem behaviours in

children with ASD through basic principles of behavioural change (Lindgren et al., 2016;

National Autism Centre, 2015; Vismara & Rogers, 2010; Wong et al., 2015).

Horner and colleagues (2000) have noted that early intervention aimed to

minimize problem behaviours is very important. If early intervention does not occur, the

behaviours may become more ingrained and difficult to extinguish, which further impacts

well-being and functioning. While problem behaviours may be very intrinsically related

to ASD symptomology and processing difficulties, the development and maintenance of

such behaviours are still influenced by environmental factors.

As problem behaviours are so prevalent and greatly impact the quality of life of children with ASD, it is important to gain a broader understanding of the possible factors that may increase problem behaviours, as well as buffer against the development of problem behaviours. One area that has been under researched within the ASD population is parenting practices. Extensive research has suggested that parenting practices play an important role in outcomes of typically developing children (e.g., Aunola & Nurmi, 2005; Eisenberg, Cumberland, & Spinrad, 1998); however, there is a paucity of data on how mothers parent their children with ASD and the impact that parenting behaviours may have on their children's behaviour.

Parenting and ASD

Greenberg, Seltzer, Hong, and Orsmond (2006) stated that, "Although there is increasing evidence that autism is a complex genetic disorder, the effect of the family environment in shaping the behavioural phenotype should not be underestimated." (p. 246). However, research investigating parenting behaviour in parents of children with ASD is very limited (Lambrechts, Leeuwen, Boonen, Maes, & Noens, 2011). In one of the few studies to investigate parenting behaviour in parents of children with ASD, Lambrechts and colleagues (2011) examined the parenting behaviours of 305 parents of children with ASD (children with an IQ above 70, as reported by parents) and 325 parents of children without ASD. All children were between the ages of 8 and 18. Parents completed two parenting self-report scales. One scale assessed parental discipline, punishment, material rewarding, and positive parenting behaviours. The second scale, created by the authors, examined parenting behaviour thought to be more common among parents of children with ASD (e.g., parenting behaviour relative to adapting to the nature of the child's special needs). From the latter questionnaire, two subscales were derived

and labeled as "stimulating the child's development" and "adapting the child's

environment." Items that depict stimulating the child's development included, "I

encourage my child to make his/her own choices," "I explain feelings to my child,"

"When a person is angry, I explain to my child how this person is feeling and why," and

"I help my child to deal with problems in a different way when something did not

succeed." Items about adapting the child's environment included, "I use a rewarding

system (like stickers or stamps)" and "I make sure that my child does not become over-

stimulated." From examining parents' responses to the questionnaires, the results revealed

that parenting behaviours differed between groups, in that parents of children with ASD

reported high levels of Harsh punishment. Parents of children with ASD reported more

behaviours within the Simulating the Development domain. Overall, it was concluded

that while parents of children with ASD do use more specific parenting behaviours to

accommodate the needs of their children, they also partake in parenting behaviours

similar to parents of children without ASD (as there were no differences between

discipline, material rewarding, and rules). The authors advocated the importance of

evaluating parenting behaviour in parents of children with ASD. Having knowledge of

parenting behaviour can assist in the interventions used with children with ASD, as well

as assist researchers and clinicians in understanding and being sensitive to the challenges

that parents of children with ASD face.

In addition to understanding the parenting behaviours that parents of children with

ASD utilize, it is important to examine parenting within the context of child outcomes.

Osborne, McHugh, Saunders, and Reed (2008) evaluated the effect of parenting

behaviours on the problem behaviours of children with ASD. Seventy-two parents of

children ages 5 to 16 years and were diagnosed with ASD (with an average severity in the

mild range) participated in the study. Parents completed a number of questionnaires measuring their own level of stress, parenting behaviours (e.g., limit setting, communication) and child problem behaviours (e.g., internalizing and externalizing problems, and peer relationship problems). Data were collected again following a 9 to 10 month period. This longitudinal parent-report study revealed a number of important findings. First, parenting behaviours, parenting stress, and child problem behaviours were highly correlated at baseline and follow-up, suggesting stability over time. Second, the parenting behaviour of limit setting predicted problem behaviours in children. Specifically, less limit setting at baseline was associated with higher levels of child behaviour problems at follow-up. Bidirectional effects were examined using semi-partial, time-lagged correlations, which revealed that only limit setting to child problem behaviours was significant, not child problem behaviours to limit setting. The relation between limit setting and child problem behaviours was not impacted by additional factors such as severity of the child's diagnosis, the child's intellectual functioning, or level of parenting stress.

Current research has sought to further understand the relation between parenting and problem behaviours in school-aged children with high functioning ASD. Using a large sample of participants, Boonen and colleagues (2014) compared children with ASD and their parents ($n = 206$) to children without ASD and their parents ($n = 187$). Using self-report questionnaires, parenting behaviours such as positive parenting, material rewarding, rules, discipline, harsh punishment, and adapting the environment represented the parenting areas of interest in the study. Important to note is that more mothers ($n = 358$) than fathers ($n = 35$) completed the questionnaires on parenting behaviours. With respect to the role of parenting, harsh discipline and punishment significantly predicted

greater externalizing behaviours in the ASD group. Similarly, higher reporting of the

parenting behaviours of "adapting the environment" in the ASD group and control group

predicted internalizing problems in children. The second finding was counter-intuitive, as

previous research suggested that adapting the children's environment typically represents

a more positive practice (Osborne et al., 2008). However, the authors attributed the

finding to possible problems with the questionnaire used to measure internalizing

behaviours. Specifically, the measure took into account social difficulties in addition to

items assessing emotional difficulties. Taken together, there is growing literature

suggesting a link between parenting practices and problem behaviours among an ASD

population (Boonen et al., 2014; Osborne et al., 2008).

Researchers have acknowledged that understanding parenting behaviour in parents

of children with ASD may have implications for the prevention of problem behaviours in

children (Boonen et al., 2014; Osborne et al., 2008). As such, it would be important to

further explore parenting practices that have been frequently associated with problem

behaviours in children. By studying parenting practices that may lead to positive

outcomes, research may provide helpful avenues of support for parents of children with

ASD. One aspect of parenting that has been associated with many child outcomes is

parental emotion socialization. In the following sections, the literature on emotion

socialization, which includes parental meta-emotion philosophy, parental reactions to

children's negative emotions, and parental emotional expression will be reviewed. Factors

that are hypothesized to influence emotion socialization in parents, such as parental

distress and features of the broad autism phenotype also will be summarized.

Emotion Socialization

Broadly speaking, parental emotion socialization refers to how parents help their

children to learn, understand, regulate, cope with, and express emotion (e.g., Denham, 1998; Eisenberg et al., 1998; Halberstadt, 1986; Saarni, 1999). Although parental emotion socialization is a very complex and multifaceted process (Eisenberg et al., 1998), it can be broken down into four main components. The observable components include: (a) parental expression of emotion, (b) parental reactions to children's emotions, and (c) parental discussion of emotion (Eisenberg et al., 1998). The last component is less visible, involving the thoughts and beliefs that parents hold about their children's emotions in understanding the process of emotion socialization, which is also known as parental meta-emotion philosophy (Baker, Fenning, & Crnic, 2011; Eisenberg et al., 1998; Gottman, 1997; Gottman, Katz, & Hooven, 1996; Katz, Maliken, & Stettler, 2012). The current study will focus on the emotion socialization processes of parental meta-emotion philosophy (emotion-related beliefs), parental emotional expressiveness, and parental reactions to children's emotions.

Emotion socialization has been extensively studied in families with typically developing children and these studies have demonstrated strong associations with aspects of children's emotional and social development. Primarily, positive emotion socialization practices have been linked with children's emotional competence, defined as the appropriate expression, understanding, and regulation of emotions (Saarni, 1990). Emotional competence is necessary for the healthy development of children's social competence (e.g., Cicchetti, Ackerman, & Izard, 1995; Eisenberg & Fabes, 1992; Eisenberg et al., 1998; Hubbard & Coie, 1994; Saarni, 1990; Saarni, Mumme, & Campos, 1998) and psychological well-being (Casey, 1996; Denham, 1998; Gottman, 1997). Children who do not become emotionally competent in a developmentally-appropriate

manner are placed at high risk for developing psychopathology (Zahn-Waxler, Iannotti, Cummings, & Denham, 1990).

There have been studies exploring parental emotion socialization practices in parents of children with anxiety (e.g., Stocker, Richmond, Rhoades, & Kiang, 2007; Suveg, Sood, Hudson, & Kendall, 2008; Suveg, Zemnam, Flannery-Schroeder, & Cassano, 2005), depression (Katz & Hunter, 2007; Stocker et al., 2007), conduct problems (Katz & Windecker-Nelson, 2004), ADHD (Herbert, Harvey, Roberts, Wichowski, & Lugo-Candelas, 2012), and intellectual disabilities (Baker & Crnic, 2009). In contrast, very little is known about how parents of children with ASD socialize the expression and regulation of emotion (Wilson, Berg, Zurawski, & King, 2013). The following sections will examine the three areas of emotion socialization that are of interest for the current study, with a focus on ASD populations.

Parental meta-emotion philosophy. When seeking to understand emotion socialization, a critical construct to examine is Gottman's meta-emotion philosophy (Gottman, 1997; Gottman, et al., 1996; Hakim-Larson, Parker, Lee, Goodwin, & Voelker, 2006; Katz et al., 2012). Meta-emotion philosophy is the set of beliefs, thoughts, and feelings that parents hold about their own and their children's emotional experiences (Gottman, 1997; Gottman et al., 1996; Hooven, Gottman, & Katz, 1995). Despite the definition's focus on the cognitive processes, the concept of meta-emotion philosophy has broadened to also encompass parenting behaviours that may result from the beliefs, feelings, and thoughts that parents have. Notably, for the purpose of the current study, aspects of meta-emotion philosophy focused on the beliefs, thoughts, and feelings that mothers held and the behaviours that reflect these cognitive aspects of emotion philosophy.

Emotion coaching and emotion dismissing are two of four emotion-related parenting styles identified by Gottman and colleagues (1997). Meta-emotion philosophy emphasizes that emotion coaching is adaptive and central to children's healthy development. Parents who hold emotion coaching beliefs are aware of their own and their children's emotions, are in tune with their children's emotional states, accept and validate their children's emotions, and view their children's negative emotions as an opportunity for listening and teaching children about emotions. Therefore, in line with their belief system, these parents should conduct themselves in an empathetic manner, helping their children process and regulate their own emotions (e.g., Gottman, 1997; Gottman, et al., 1996).

Gottman and colleagues have demonstrated that children who have "emotion coacher" parents tend to have fewer problem behaviours, healthier social relationships, better academic performance, and are in better physical heath than children whose parents lack an emotion coaching approach (e.g., Gottman, 1997; Gottman et al., 1996; Hooven, et al., 1995). Furthermore, their work has shown that emotion-coached children experience fewer negative emotions and more positive feelings, in general, than children who receive less parental emotion coaching (Gottman, 1997; Gottman et al., 1996). Emotion coaching also has been shown to be positively associated with children's better understanding of emotions (Denham, Mitchell-Copeland, Strandberg, Auerbach, & Blair, 1997).

Whereas emotion coaching is considered the most adaptive type of emotion-related parenting style, the emotion dismissing parenting style has been shown to be maladaptive. Parents who have a dismissing emotion-related parenting style tend to lack awareness of emotions and believe that children's negative emotions should not be

experienced, are inappropriate, or invalid (Gottman, 1997). Behavioural manifestations of

emotion dismissing have revealed that parents who practice emotion dismissing are

considered ineffective at teaching problem-solving skills for emotional situations or

assisting their children with coping with negative experiences. Parents with the meta-

philosophy of emotion dismissing parents tend to passively deal with negative emotions

with their children. Behaviourally, parents' solutions for dealing with negative emotions

may be to ignore or dismiss the negative emotion that their children are experiencing. For

example, parents may reassure their children that the emotion will quickly disappear, but

offer no aid to diminish the negative emotion. Children exposed to dismissing styles have

been shown to be less behaviourally regulated (more impulsive and demonstrating less

inhibitory control) than children whose parents practice emotion coaching (Lagacé-

Séguin & Coplan, 2005).

The other two meta-emotion related styles include disapproving and laissez-faire.

Disapproving is very similar to the dismissing style, but represents a more actively

negative parenting approach. Parents disapprove of their children experiencing negative

emotion and may criticize, reprimand, or punish the child. Parents typically view their

children's negative emotional expression to be manipulative. The laissez-faire style

describes an awareness and acceptance of negative emotions, but parents offer little to no

guidance on regulating emotions. These two styles are not considered to be adaptive and

typically result in negative outcomes for the child (Gottman, 1997).

While Gottman and colleagues outlined four meta-emotion styles, researchers

have typically only focused on emotion coaching (e.g., Katz & Gottman, 1999; Wilson et

al., 2013), or both emotion coaching and emotion dismissing (e.g., Lagacé-Séguin &

Coplan, 2005; Lunkenheimer, Shields, & Cortina, 2007; Ramsden & Hubbard, 2002). A

number of researchers have emphasized the importance of looking at both emotion coaching and emotion dismissing styles in order to accurately examine parents' beliefs about emotions. Lunkenheimer and colleagues (2007) studied the relation of parental emotion coaching and dismissing behaviours during family interactions with the outcomes of the children's emotion regulation, emotion lability (excessive and disproportionate emotional reactions), and internalizing and externalizing problems. In the study, both parents and their typically developing children, ages 8 to12, completed questions related to the outcome variables and took part in a narrative task focusing on one positive family experience, one difficult family experience, and a time when the child misbehaved. It was found that parental emotion coaching was not directly related to the children's outcomes, but emotion dismissing was found to be a risk factor for poor emotion regulation and externalizing problems. Emotion dismissing was associated with children's internalizing problems when emotion coaching was low. When emotion coaching was high, it appeared to buffer against the impact of emotion dismissing on internalizing problems; therefore, the authors concluded that while emotion dismissing is related to negative outcomes, emotion coaching may be an important protective factor for children's adjustment.

Taken together, these findings suggest that the more adaptive the parents' meta-emotion philosophy, the better the emotional adjustment of the child. In particular, it appears that the most adaptive combination of parenting styles to buffer against emotion regulation problems is when parents are high on emotion coaching and low on emotion dismissing.

To date, there appears to be one study examining parental meta-emotion philosophy in an ASD population. In a study by Wilson and colleagues (2013), parents

completed the meta-emotion interview (Katz & Gottman, 1999) and a number of
questionnaires regarding their children's developmental status and externalizing
problems. Two types of externalizing behaviours in children were examined:
externalizing symptoms measured by a standardized measure and "emotionally-driven
externalizing behaviours" which was operationalized as verbal aggression, physical
aggression, and defiance resulting from the experience of negative emotions (which was
coded from parent interview). The participants of the study included 22 parents of
children with ASD and a control group. Children were matched for age and had a verbal
ability that was at least in the broad average range.

      Of primary interest in the study was whether externalizing symptoms were
predicted by the interaction of parental emotion coaching and child status (ASD vs. non
ASD). The results revealed that only child status predicted externalizing symptoms.
Although parental emotion coaching did not significantly predict externalizing symptoms,
the authors acknowledged a nonsignificant trend in which lower emotion coaching was
associated with higher externalizing behaviour in children with ASD. The lack of
significance may in part be due to a small sample size (Wilson et al., 2013). Despite the
nonsignificance with parent-reported externalizing symptoms, emotionally-driven
externalizing behaviours were significantly predicted by an interaction between emotion
coaching and child status. Specifically, in parents of children with ASD, when emotion
coaching was high, children had fewer externalizing behaviours in response to negative
emotions. When emotion coaching was low, children had greater externalizing behaviours
in response to negative emotions. In contrast, emotionally-driven externalizing
behaviours in typically developing children did not change in response to their parents'
level of emotion coaching. The authors suggested that because of the deficits that children

with ASD have in the area of emotion knowledge and emotional processing, they may

benefit more from parental emotional guidance than typically developing children.

Although to date, only one study (Wilson et al., 2013) has created the groundwork to

suggest that emotion coaching may be a parenting approach that helps to produce optimal

behavioural outcomes in children with ASD. The current study will therefore expand on

Wilson and colleagues' (2013) work by examining emotion dismissing, as well as

emotion coaching in relation to behavioural outcomes in ASD children. Additional

aspects of emotion socialization will also be examined (parental reactions to negative

emotions and parental emotional expressiveness).

       Parental reactions to children's emotions. Parental reactions to children's

emotions include parents' behaviours to help, guide, or direct their children in a

distressing situation (e.g., Eisenberg et al., 1999; Gottman et al., 1996; Kliewer, Fearnow,

& Miller, 1996). Whereas meta-emotion philosophy focuses on the beliefs and thoughts

that parents hold about their children's emotions, parental reactions refer more directly to

the observable behaviours of the parent. Researchers have proposed that parental

reactions can be grouped into two categories: supportive reactions and unsupportive

reactions (e.g., Fabes, Leonard, Kupanoff, & Martin, 2001). Supportive reactions to

children's emotional expressions allow children to learn how to adaptively cope with their

negative emotions in distressing situations. Parents' supportive reactions may include

responding with suggestions of strategies to help the child feel better, actively assisting in

solving the problem that caused the negative emotions, or simply encouraging emotional

expression. In contrast, parents' unsupportive reactions to emotions may hinder a child's

ability to cope with negative emotion. Types of parental unsupportive reactions include

responding punitively, minimizing the seriousness of their children's problems, or

expressing distress themselves when their children experience and express negative affect (Fabes, Poulin, Eisenberg, & Madden-Derdich, 2003; Kliewer, Fearnow, & Miller, 1996; Valiente, Fabes, Eisenberg, & Spinrad, 2004).

To date, research on parents' reactions to children's emotions has largely focused on the link with children's social, emotional, and adaptive functioning (e.g., Dadds, Barrett, Rapee, & Ryan, 1996; Davidov & Grusec, 2006; Eisenberg et al., 1999; Fabes et al., 2001; Kliewer et al., 1996; Klimes-Dougan & Zeman, 2007; McElwain, Halberstadt, & Volling, 2007). For example, Fabes and colleagues (2001) examined the relation between parental reactions to children's emotional expression and socioemotional outcomes in preschool-aged children. The authors found that parents' employment of harsh, unsupportive coping strategies when dealing with children's negative emotional experiences predicted poorer emotional regulation in children. As a result, they concluded that when children experienced negative emotions to a greater degree, it in turn predicted poorer social behaviour.

Another study conducted by Davidov and Grusec (2006) explored six- to eight-year-old children's emotional and social outcomes in relation to mother and father reactions to their children's negative emotions. Mothers and father responsiveness to their children's distress was measured using the CCNES and a Q-sort task. Mothers (not fathers) also watched a three-minute video of a distress-related situation between a mother-child dyad, and their responses were coded for responsiveness and empathy towards the child's distress. Outcome measures for the child were assessed through children's response to someone else's pain (video-recorded) and through a vignette-style interview which assessed pro-social behaviour (e.g., empathy). Overall, the authors found that both maternal and paternal supportive responses to distress predicted better

regulation of negative emotions by the children. Mother's responsiveness to distress also predicted children's pro-social behaviour.

Looking more specifically at maternal reactions to children's emotions and behavioural problems in children, Paczkowski and Baker (2007) examined the relation between maternal self-mastery (perceived control over events), maternal reactions to children's negative emotions (supportive and unsupportive), and child behaviour problems (externalizing and internalizing symptoms) in young children with and without developmental disabilities (excluding ASD). Mothers in both groups reported similar levels of supportive and unsupportive reactions to children's negative emotions. However, significantly higher levels of behavioural problems were reported for children with developmental disabilities compared to children without developmental disabilities. Unsupportive maternal reactions and problem behaviours were moderately correlated in both groups. Supportive reactions were not found to be significantly associated with child behaviour problems; therefore, the authors decided to only test unsupportive reactions in subsequent mediation and moderation analyses. The authors found unsupportive reactions to children's negative emotions to partially mediate the relation between maternal self-mastery and child problem behaviours in the sample of children with developmental disabilities, but not children without disabilities. Unsupportive reactions also appeared to be more harmful for children with disabilities compared to those without. To illustrate, when mothers reported low levels of unsupportive reactions, problem behaviours did not differ between the developmental status of the children. However, when mothers reported moderate or high levels of unsupportive reactions, children with developmental disabilities displayed higher levels of problem behaviours than children without a developmental disability. As children with developmental disabilities demonstrate deficits

in emotional and social understanding, it seems possible that the relation between unsupportive parental reactions and child problem behaviours will present in an ASD population, as well. However, there is very little research on how parental reactions to emotions relate to outcomes in children with ASD.

Prior to establishing whether supportive or unsupportive reactions predict problem behaviours in children with ASD, it is important to determine whether parents react to the expression of their children's negative emotion. As such, there is evidence that mothers of children with ASD socialize emotion when children experience negative emotions. Gulsrud, Jahromi, and Kasari (2010) conducted a study to examine the effectiveness of an early intervention targeting the co-regulation of emotions between mothers and their toddlers with ASD and comorbid intellectual disability. The study consisted of 34 mother-toddler dyads. All participants received an eight-week mother-mediated joint attention intervention. Intervention sessions were held three times a week and targeted joint attention, language skills and joint engagement. The observational study yielded three main findings. First, over the course of the intervention, parents increased their adaptive responses to their children's distress, and children's level of distress decreased overall. When children became distressed during mother-child interactions, mothers had many opportunities to react to their children's experience of distress and employ a number of strategies to re-engage their children. Mothers used active strategies, such as redirection and prompting, and vocal comforting strategies, such as vocal soothing and reassurance. Mothers used strategies to engage their children significantly more when their children were experiencing negative emotions compared to when the children were not experiencing distress. The authors noted that the strategies that the mothers used were similar to the strategies used by mothers of typically developing children.

Second, mother and child outcomes were related to emotion regulation. Specifically, high levels of externalizing behaviours in children were associated with more stress in mothers, as well as the increase in mothers' use of regulatory strategies such as redirecting, prompting, reassurance, and providing physical comfort. Therefore, despite the negative behaviours and maternal experience of stress, mothers were able to use more active regulation strategies to help their children. The authors suggested that the increased level of regulatory strategies employed by the mothers indicated greater responsiveness to their child, which was a goal of the intervention.

Third, the authors found that the intervention increased joint engagement and improved mothers' ability to help regulate the emotions of their children. Mothers were taking steps to soothe and regulate their children by responding to their negative emotions. Overall, Gulsrud and colleagues' (2010) study helps to highlight that when parents of young children with ASD react to their children's negative emotions in positive ways, they are able to help their children decrease their level of distress.

Hirschler-Guttenberg and colleagues examined the role of parenting in the emotional regulation process of preschool children (Hirschler-Guttenberg, Feldman, Ostfeld-Etzion, Laor, & Golan, 2015; Hirschler-Guttenberg, Golan, et al., 2015). Two groups of participants were recruited: children (M age = 63.38 months) with ASD and their parents (n = 40) and a matched control group of typically developing children (M age = 53.56 months) and their parents (n = 40). Participants engaged in interactional tasks aimed at eliciting negative and positive emotions in the children. The dyads' interactions were coded for parental sensitivity, parental intrusiveness, parental limit setting, parental regulation facilitation, child involvement, child withdrawal, child compliance, and dyadic reciprocity. Aspects of child emotional regulation were also coded (e.g., affect, regulatory

behaviours, vocalizations). Mother temperament and parenting style (authoritative, authoritarian, and permissive) were measured via self-report questionnaires (Hirschler-Guttenberg, Feldman, et al., 2015).

The results from Hirschler-Guttenberg, Golan, and colleagues' (2015) portion of the study revealed that children with ASD were found to use simple self-regulatory strategies to manage negative emotion. As well, they used their parents as regulating agents to the same extent as their typically developing peers. Therefore, regardless of social-communication and emotional deficits inherent to ASD, children with ASD involve their parents in their emotion regulation process. Furthermore, when helping to manage children's emotional arousal, parents of children with ASD adapted to their children's needs, utilizing more basic strategies such as verbal comfort, distraction-related talk, refocusing to the play, and soothing to provide comfort. In comparison, parents in the typically developing matched group used higher-level approaches to co-regulate, such as reflection and cognitive reappraisal. Regardless of parental differences in the way of responding, both groups of parents were found to be sensitive and responsive during the interactive task. Taken together, the study highlighted that parents of children with ASD help to regulate their children's emotional experience in way similar to those of parents of typically developing children. That is, parents of children with ASD meet their child at their emotional/developmental level and are responsive and sensitive to their children's affective expression. Importantly, however, the strategies that parents of children with ASD employ may differ in order to appropriately meet the needs of their children (e.g., keeping language to a minimum).

Expanding on the regulating role of parents, Hirschler-Guttenberg, Feldman, and colleagues (2015) examined how factors such as maternal temperament and parenting

style may impact co-regulation. The results revealed that mothers' authoritarian (high control, low warmth) parenting style predicted lower co-regulation and higher child self-regulation during the experience of anger in the ASD group. The authors suggested that negative parenting styles may limit children's ability to involve their mother during moments of anger or frustration. The authoritative parenting style (high control, high warmth) in mothers of children with ASD predicted higher self-regulation of fear but did not predict co-regulation. It was proposed children with ASD may have more difficulty regulating feelings related to fear than anger, and as a result, they may require mothers to set limits and be less emotionally engaging during the experience of fear. Mother's temperament was not associated with emotion-regulation processes in children. It was noted that mothers were comparable in both groups in that they facilitated emotion regulation techniques more in anger-related situations than fear situations. More techniques may have been employed during the children's experience of anger because anger tends to produce more observable behaviours (e.g., screaming, hitting). Therefore, it may be more ostensive to the parent that their child is experiencing the negative emotion and may require more assistance to cope. Overall, the authors emphasized the importance of maternal flexibility when assisting their children to regulate negative emotions, in that different techniques may be best when co-regulating different emotions.

Because the studies reviewed were primarily conducted with toddlers and preschool children, it is important to explore whether parental reactions to children's negative emotions still relate to child outcomes in school-aged children. Understanding the relation between supportive and unsupportive parental reactions and children's problem behaviours is the focus in the current study.

Parental emotional expressiveness. Parental emotional expressiveness is another means of socializing emotion that involves parents' nonverbal and verbal expressions of both negative and positive affect (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). It is considered to be an indirect mechanism of emotion socialization in which parents model how and under what conditions emotion is displayed (Dunsmore & Halberstadt, 1997). Dunsmore and Haldberstadt (1997) stated that the "overall frequency, intensity, and duration of positive and negative emotional expressiveness in the family is important in the child's formation of schemas about emotionality, about expressiveness, and about the world" (p. 53). When emotions are expressed within the family, a child is likely to learn that the expression of affect is accepted and valued and, consequently, is more likely to be open with his or her emotions. Furthermore, children have more opportunities to learn about how to regulate emotion (Eisenberg et al., 1998). In contrast, when emotions are not expressed within the family, parents are likely to send the implicit message that emotional expression is discouraged and children learn to minimize and suppress affect (Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005).

Across the ages of childhood, it has been suggested that greater positive expressiveness reflects adaptive coping within the parent as it demonstrates an adaptive way to manage stress and conflict (Halberstadt et al., 1999). When parents express high levels of positive affect, children's peer interactions have been found to be more prosocial (Denham & Grout, 1993), children have demonstrated better social skills (Green & Baker, 2011) and overall social competence (Eisenberg et al., 1998; Halberstadt et al., 1999). Positive expressiveness also has been linked to higher levels of adaptive coping skills in children (e.g., Kliewer et al., 1996). Therefore, positive parental expressiveness has been associated with positive child outcomes in typically developing children.

Conversely, studies of negative emotion expression have revealed contradicting results, as they have shown both maladaptive and adaptive outcomes in typically developing children (Green & Baker, 2011; Halberstadt et al., 1999). It appears that low to moderate expression of negative emotion in parents may increase social skills, such as responsibility (Green & Baker, 2011), and overall social competence (Halberstadt et al., 1999). It has been hypothesized that low to moderate expression of negative emotion may draw children's attention without inducing fear, allowing children to learn about emotions and how to regulate them (Halberstadt et al., 1999). However, it has been noted that when children have social and emotional deficits, they may not be able to access the benefits of this emotion socialization process (Green & Baker, 2011). During low to moderate levels of expression, displays of emotion can be subtle and children with disabilities may not have the skills to take in the emotion's meaning and learn from their parents' expression. Therefore, negative emotional expression may not provide incidences of emotional learning for these children. Conversely, it may also be that children with disabilities actually benefit from higher levels of parental negative expressiveness; however, this has yet to be investigated in children with ASD. As it stands currently, it is more likely that high or sustained levels of negative emotional expression may create greater arousal and distress in children to the point that regulation and learning are difficult (Halberstadt et al., 1999; Valiente et al., 2004). For instance, Valiente and colleagues (2004) noted that when maternal expression of negative affect is high and particularly angry, hostile, and criticizing, children use less constructive ways to cope.

Numerous studies have demonstrated a link between high levels of parental negative emotional expression and externalizing behaviours in children across pre-school and school age children (Denham et al., 2000; Duncombe, Havighurst, Holland, &

Frankling, 2012; Newland & Crnic, 2011; Ramsden & Hubbard, 2002). Using a multi-method technique to explore emotion socialization in parents of children with and without developmental disabilities, Newland and Crnic (2011) demonstrated that maternal negative emotional expression was related to externalizing problems, but not internalizing problems, in children ages four to six. Longitudinal studies also have highlighted the sustained effect of negative emotional expressiveness. For instance, parental expression of anger was found to relate to higher levels of externalizing behaviour in children over time, from early to middle childhood (Denham et al., 2000). Taken together, there is evidence that high and sustained negative expression can lead to negative outcomes such as externalizing problems in children, regardless of developmental status.

Although there are no studies directly examining the relation between parental emotional expression and ASD specifically, research on the construct of expressed emotion may help to highlight the effects of an emotionally negative family environment on children with ASD. The term "expressed emotion" refers to parents' expressions of criticism and hostility, as well as emotional overinvolvement (expressing excessive pity and concern over an individual, mainly because of their diagnosis) toward their children with an illness or disability (Leff & Vaughn, 1985). Looking specifically at the critical and hostile component of expressed emotion, parents who show high levels of this component may describe their relationship with their children in negative terms or may make criticisms about their children or their children's behaviour. A number of researchers have found parents' critical and hostile behaviour toward their children with ASD to predict greater externalizing behaviours, internalizing problems, increased severity of ASD symptoms and decreased well-being (Greenberg et al., 2006), as well as decreases in social competence (Benson, Daley, Karlof, & Robison, 2011). Greenberg

and colleagues (2006) noted that the relation between expressed emotion, especially high levels of criticism, and maladaptive behaviour was consistent with the literature on expressed emotion, suggesting that negative parental practices increase the level of problem behaviour in their offspring.

Looking through a more positive lens, Smith, Greenberg, Mailick, and Hong (2008) focused on a positive family environment and its relation to optimal child outcomes in adolescents and adults with ASD. The findings of their study demonstrated that maternal warmth and praise predicted lower levels of behaviour problems and ASD symptoms. Mother-child relationship quality also predicted better child outcomes, and higher relationship quality was associated with fewer internalizing and externalizing behaviours and less asocial behavioural difficulties.

Taken together, it appears that intense parental expression of negative emotion predicts increases in child problem behaviours, whereas positive expression predicts lower levels of problem behaviours. Nevertheless, because both positive and negative expression of emotion within the family environment are yet to be extensively examined in parents of children with ASD, the current study attempted to fill this gap in the research. In addition to examining the emotion socialization practices of parents of children with ASD, the current study will also examine the role of maternal distress in understanding the link between emotion socialization and children's outcomes with respect to problem behaviours.

Parenting Stress and Internalizing Symptoms

Parents of children with ASD have been shown to experience higher levels of parenting stress compared to parents of typically developing children or parents of children with non-ASD developmental disabilities (Abbeduto et al., 2004; Allik, Larson,

& Smedje, 2006; Baker-Ericzen, Brookman-Frazee, & Stahmer, 2006; Beer, Ward, &

Moar, 2013; Benson & Karlof, 2009; Duarte, Bordin, Yazigi, & Mooney, 2005; Koegel et

al., 1992; Micali, Chakrabarti, & Fombonne, 2004; Osborne & Reed, 2010), regardless of

child age (Smith, Seltzer, Tager-Flusberg, Greenberg, & Carter, 2008). Similarly,

elevated levels of internalizing problems such as anxiety and depression have been noted

in parents of children with ASD. In fact, several studies have found one-third to two-

thirds of their sample to experience borderline to clinical ranges of depression (Beer et al.,

2013; Bitsika & Sharpley, 2004; Smith et al., 2008). Similarly, one study noted that 67%

of their participants experienced borderline to clinical ranges of anxiety (Beer et al.,

2013).

        There have been many sources of stress, anxiety, and depression (which will

collectively be labeled as *distress*) identified throughout the literature. Parents of children

with ASD may experience more distress due to the child's symptoms (Duarte et al., 2005;

Phetrasuwan & Miles, 2009), increased child behavioural problems (Lecavalier, Leone, &

Wiltz, 2006; Osborne et al., 2008), or the additional parenting challenges that come with

parenting a child with ASD (Koegel et al., 1992).

        Children's symptoms of ASD are associated with parenting stress. In a study

investigating specific sources of stress in parents of children with ASD, Phetrasuwan and

Miles (2009) found that ASD symptoms, such as children's emotional reactions,

expressions of negative emotions, verbal communication difficulties, and social deficits

such as relating to others, caused the greatest amount of parent-reported stress. Ritualistic

and repetitive behaviours also have explained a portion of unique variance in caregiver

stress (Lecavalier et al., 2006). Although there appears to be some agreement between

researchers that the core symptoms related to ASD increase stress in parents, there has

been debate on whether it is the symptoms of ASD or behavioural problems in general

that cause the highest levels of parental distress (Herring et al., 2006; Lecavalier et al.,

2006).

Problem behaviours of children with ASD have been identified as key factors in

understanding increased levels of distress in parents (Benson & Kersh, 2009; Beer et al.,

2013; Lecavalier et al., 2006; McStay, Dissanayake, Scheeren, Koot, & Begeer, 2014;

Osborne et al., 2008; Smith et al., 2008). In a large sample of children and adolescents

with ASD, Lecavalier and colleagues (2006) used questionnaire data to examine the

relation between parenting stress and the two child outcome variables of children's

problem behaviours and children's level of functioning. By examining variables at Time

1 and Time 2 using hierarchical regression analyses, the authors found that parent- and

teacher-rated child problem behaviours, such as conduct-related problems and lack of

prosocial behaviour, were the strongest predictors in self-reported parenting stress. At the

time of the one-year follow-up, the relation between parent-reported child problem

behaviours and parenting stress remained stable. The authors suggested that child

problem behaviours and parent stress exacerbated one another, revealing a bidirectional

relationship between parent and child.

Other researchers have suggested that the presence of ASD in children creates

additional caregiving challenges that cause high levels of parent stress. In an earlier study,

Koegel and colleagues (1992) recruited 50 families of children with autism from various

geographical locations (e.g., cities in California, West Virginia, and Germany). Children

ranged from ages 3 to 23 years, and their cognitive functioning ranged from average to

severely impaired. Parents of children with autism also were compared to a normative

sample on demographic variables and a measure of parental resources and stress. The

results revealed that (a) the pattern of stress that was experienced by parents of children

with autism was similar across geographical location, level of functioning of the child,

and age of the child; (b) overall levels of stress were higher for parents with ASD than

parents in the normative sample; and (c) that parental stress was mainly associated with

caregiving and worries about the future of their child's life. Similar to these findings,

parenting challenges such as not knowing how to discipline the child are also related to

high levels of parenting stress (Phetrasuwan & Miles, 2009). Therefore, regardless of

overall severity of ASD symptoms or child age, some parenting stress may be a function

of additional parenting challenges faced above and beyond what is typically required of

parents.

In addition to child-related factors in explaining greater distress in parents with

children with ASD, studies have also highlighted the role of external factors, such as level

of support (e.g., Derguy, M'Bailara, Michel, Roux, & Bouvard, 2016; Falk, Norris, &

Quinn, 2014). For instance, Derguy and colleagues (2016) determined that poor quality

relationships with extended family and absence of educational support for their children

was associated with higher stress in parents, regardless of child age or severity. Low

levels of social support have been found to predict stress, depression, and anxiety in

mothers (Boyd, 2002; Falk et al., 2014), whereas lack of economic support has been

uniquely related to stress (Falk et al., 2014).

Overall, there appears to be a consensus in the literature that mothers of children

with ASD experience higher levels of stress, anxiety, and depression than mothers of

typically developing children and that distress may develop for a number of different

reasons (e.g., ASD symptoms, behaviour problems, additional parenting challenges, lack

of support). Given that levels of stress, anxiety, and depression tend to be higher in

parents of children with ASD, the next step is to understand how parental distress may influence parental emotion socialization. Targeting maternal distress may be an avenue for future interventions to improve parenting practices and child outcomes.

Parental distress and emotion socialization. By investigating factors that may impact the emotion socialization process, we can further understand how to help parents engage in more effective and positive practices. Several researchers have suggested that symptoms of distress may interfere with parents' ability to interact with their children (Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Meirsschaut, Roeyers, & Warreyn, 2010). When experiencing distress, parents of typically developing children have been found to be more behaviourally and emotionally withdrawn (Repetti & Wood, 1997), more irritable and hostile (Lovejoy et al., 2000), and more punitive and critical (Webster-Stratton, 1990). Therefore, parents who experience high levels of distress may socialize emotion in nonadaptive ways (Lovejoy et al., 2000).

Nelson, O'Brien, Blackson, Calkins, and Keane (2009) asserted that parent stress, operationalized as having a chaotic household and symptoms of depression, is associated with how parents socialize emotion. In a sample of two-parent families of typically developing children, mothers completed a number of questionnaires and were observed during parent-child interactions. Children participated in various tasks and parents completed a questionnaire package. The results revealed that parents who experienced high levels of stress displayed fewer supportive and more unsupportive reactions to their children's negative emotions.

Breaux and colleagues examined the relation between parental psychopathology and emotion socialization in a sample of preschool children with behaviour problems (Breaux, Harvey, & Lugo-Candelas, 2015). The participants included 109 three-year-old

children with externalizing symptoms (clinically significant levels of hyperactivity and/or aggression) and their parents. Parents completed a self-report questionnaire to identify aspects of their own psychopathology that mapped onto DSM-IV diagnoses. The following categories of psychopathology were used: Borderline symptoms, Cluster A personality characteristics (paranoid, schizoid, and schizotypal), Cluster C personality characteristics (avoidant and dependent), anxiety symptoms (anxiety disorders, somatoform disorders, and post-traumatic stress disorder), depressive symptoms (depressive, dysthymic, and major depressive disorders) and substance use. To measure emotion socialization practices, parents were asked to audio-record a two-hour interaction with their children. Emotion socialization practices were then coded for parental distress, punitive reactions, expressive encouragement, emotion-focused reactions, problem-focused reactions, minimizing/discouraging reactions, positive thinking, limit-setting, compromising, giving in, arguing, reasoning/clarifying, redirecting, and non-responding. The authors of the study were interested in testing a "spillover hypothesis" whereby it was hypothesized that psychopathological symptoms would influence parental reactions to their children's negative emotions. Looking specifically at mothers, mothers who reported more psychopathology such as anxiety symptoms, substance use, borderline characteristics and Cluster A personality symptoms, were significantly more likely to use unsupportive reactions when their child displayed negative emotions. Furthermore, mothers who endorsed greater anxiety and more Cluster A personality characteristics were significantly less responsive to their children's negative emotions. Maternal depressive symptoms were not associated with reactions to children's negative emotion. In all, the authors suggested that "maternal psychopathology specifically disrupts parental responses to child negative affect." (Breaux et al., 2015, p. 9).

Stress experienced by parents has been found to moderate the relation between parental emotion-related beliefs and child outcomes in typically developing children aged 8 to 11 years (Stelter & Halberstadt, 2011). In a study examining the relation between parent-reported parental beliefs about emotions, child-reported child attachment security (i.e., feelings of trust toward parents), and parent-reported parent stress, an interaction between parent stress and parental beliefs emerged (Stelter & Halberstadt, 2011). From a culturally diverse (48% African American, 46% Lumbee American Indian) sample size of 85 parent-child dyads, there was little support for a relation between parental beliefs about emotion and child attachment security. However, for the observed interaction between parent stress and parental beliefs, it was noted that when parent stress was high and parents did not value children's negative emotions, children reported decreased feelings of attachment security. Stress did not greatly impact the relation between parents' positive beliefs about emotions and child security. The authors suggested that positive parental beliefs about emotion may act as a buffer when parents experience high levels of stress. Stelter and Halberstadt's (2011) study helped to highlight the negative effects of high parental stress in the relation between emotion socialization and child outcomes.

There is also evidence to suggest that increased levels of distress may affect parenting techniques and behaviours of parents with children who have ASD (Osborne et al., 2008; Osborne & Reed, 2010). In a study examining levels of stress and self-perceived parenting behaviours in parents of children with ASD, parents of children ages 2 to 16 years completed questionnaires about their stress, parenting behaviours, and children's severity of ASD. Parents were administered a semi-structured interview on their children's level of adaptive functioning and children's cognitive abilities were tested. A 9- to 10-month follow-up period was included so the researchers could

statistically examine the bidirectionality of the relation between parenting stress and perceived parenting behaviours. Osborne and Reed (2010) found that higher levels of parenting stress were related to lower scores in the parenting areas of communication, involvement, and limit setting, even when controlling for child characteristics (e.g., age, cognitive abilities, adaptive functioning, and severity of symptoms). The results suggested that parenting stress and parenting behaviours remain closely linked over time, and that parenting stress is more likely to impact parenting behaviour, rather than parenting behaviours impacting parenting stress.

Osborne and colleagues (2008) were able to establish an association between parenting stress, parenting behaviour, and child behaviour problems. Using the same methodology as the previous study (Osborne & Reed, 2010), the parent behaviour of limit setting was found to mediate the relation between parenting stress and child behaviour problems.

The two studies conducted by Osborne and colleagues offer evidence that parenting stress can affect parenting behaviour in parents of children in ASD. In turn, parenting stress and parenting behaviour may be associated with child behaviour problems. Therefore, Osborne and colleagues' studies have provided a springboard to examine the relation between the parenting practices, parenting stress, and child behaviour problems in the current study. One of the main goals of the current study was to explore the relation between maternal distress, the parenting practice of emotion socialization, and child problem behaviours. In addition, the role of the broad autism phenotype will be taken into account in examining the above relationships.

The Broad Autism Phenotype

The broad autism phenotype (BAP) describes personality and communication characteristics that are milder than, but qualitatively similar to, the defining symptoms of ASD (Hurley, Losh, Parlier, Reznick, & Piven, 2007; Losh & Piven, 2007; Piven, Palmer, Jacobi, Childress, & Arndt, 1997; Piven, Palmer, Landa, et al., 1997). An individual with features of the BAP may show traits of ASD, but the traits do not warrant a diagnosis as they are present to a lesser degree. That is, individuals with the BAP are likely to have fewer ASD traits than required for a diagnosis, and the symptoms or traits are not clinically significant. Furthermore, the traits do not cause functional impairment, and thus do not require a diagnostic classification. Therefore, individuals with features of the BAP experience less impairment in the main areas of ASD (e.g., social communication, repetitive and stereotyped behaviours) as compared to individuals with ASD.

Currently, the BAP is thought to be characterized by three primary components (Hurley et al., 2007): (1) *aloof personality*, which represents a diminished social interest, reduced enjoyment during social interaction, and mild social skill deficits (Bishop et al., 2004; Pickles, St. Clair, & Conti-Ramsden, 2013; Wainer, Block, Donnellan, & Ingersoll, 2013); (2) *rigid personality*, characterized as difficulty adjusting to change and requiring structure in daily life (Losh & Piven 2007; Wainer et al., 2013); and (3) *pragmatic language deficits*, referring to difficulty in using language in social communication, resulting in less effective communication during interactions (Losh & Piven 2007; Pickles et al., 2013; Whitehouse, Coon, Miller, Salisbury, & Bishop, 2010). Deficits in processing emotional facial expressions (Ingersoll, 2010; Kadak, Demirel, Yavuz, & Demir, 2014), emotion recognition, and theory of mind (Sasson, Nowlin, & Pinkham, 2013) have also been found in individuals of BAP status.

Although features of the BAP have found to be normally distributed throughout the general population, a higher proportion of parents of children with ASD show characteristics of the BAP as compared to the general population (Best, Moffat, Power, Owens, & Johnstone, 2008). Most studies report that fewer than a quarter of relatives of a child with ASD have BAP traits; however, BAP traits are more common in multi-incidence ASD families (Bernier, Gerdts, Munson, Dawson, & Estes, 2012; Sasson et al., 2013). Approximately 20% of parents of children with ASD have been reported to present with the BAP (Piven, Palmer, Landa, et al., 1997; Sasson et al., 2013; Wheelwright, Auyeung, Allison, & Baron-Cohen, 2010). Specifically looking at mothers of children with ASD, the prevalence of the phenotype has ranged from 16% (Bishop et al., 2004) to approximately 23% (Sasson et al., 2013; Wheelwright et al., 2010).

From both family and twin studies, the BAP has been regarded as one of the genetic factors influencing the etiology of ASD (e.g., Bolton et al., 1994; Narayan, Moyes, & Wolff, 1990; Piven, Palmer, Jacboi, Childress, & Arndt, 1997; Piven, Palmer, Landa, et al., 1997). Folstein and Rutter (1977) were among the first to conduct an empirical investigation of the heritability of autism using monozygotic and dizygotic twins. Using a multi-method approach of parent interviews, child interviews, observations, pediatric and psychiatric records, and the administration of cognitive and language tests, the authors concluded that autism is likely to result from a combination of heritability and organic brain abnormalities. Broad linguistic and cognitive impairments were suggested to be one heritability factor as these deficits were noted in twins without an autism diagnosis.

Following this notion of a genetic link, and the observation that cognitive impairments tend to aggregate in families with a child with autism, Wolff, Narayan, and

Moyes (1988) examined schizoid personality traits in parents of children with autism. Because the BAP had yet to be conceptualized, schizoid traits were used as a framework to describe social and behavioural traits noted in families of children with autism. Schizoid traits were operationalized as impaired rapport with the examiner, lack of empathy and emotional responsiveness, guardedness, low emotional responsiveness, suspiciousness, odd social communication, single minded pursuit of interests, and histories of oversensitivity to criticism. In the study, 26 parents who had a child with ASD and a matched sample of parents who had children with various types of disabilities completed a clinical interview that focused on delineating the presence of schizoid characteristics in parents. The results of the interview revealed that 38% percent of mothers and 57% of fathers with children with ASD were rated to have schizoid personality traits. None of the control parents were found to have schizoid traits. Although fathers of children with ASD were more likely to be described as schizoid, mothers of children with ASD were differentiated from mothers in the control sample in a number of ways regarding their social and communicative abilities. Furthermore, compared to mothers in the control group, mothers of children with ASD were also found to be over- or under-communicative, have excessive guardedness or lack of guardedness, and increased disinhibition, suggesting that even when mothers did not meet criteria for schizoid personality traits, atypical social characteristics were still present. The authors concluded from their data that many mothers and fathers of children with autism displayed, what the authors labeled as "social gaucheness."

Expanding on their work in a second study, the same authors explored the rates of schizoid traits in parents of two or more children with ASD and their extended family (Narayan, Moyes, & Wolff, 1990). In this study, parents also were compared to a control

group of parents of children with Down syndrome. Parents of children with Down syndrome are sometimes selected as a comparison group in genetic studies of developmental disabilities because Down syndrome is a condition that is not heritable. Therefore, the rates of social or cognitive deficits should not be elevated in relatives of children with Down syndrome. In Narayan and colleagues' (1990) study, parents were interviewed using a semi-structured format and schizoid traits were rated on a 3-point scale. There were two main findings in this study. First, the authors found parent-reported schizoid traits to be present in family members such as grandparents, aunts, and uncles, further supporting the genetic etiology of autism. Second, the study revealed significant differences in the rates of communication deficits, social deficits, and stereotyped behaviours between parents of children with ASD and parents of children with Down syndrome. Specifically, 20% of mothers of children with ASD showed communication deficits, whereas these deficits were completely absent in mothers of children with Down syndrome. A higher percentage of mothers of children with ASD also presented with deficits in social skills (36%) and stereotyped behaviours (12%) compared to mothers of children with Down syndrome (13% and 0%, respectively). For fathers, a significant difference in communication deficits was not noted between the groups; however, fathers of children with ASD were more likely to present with social skills deficits (57%) and stereotyped behaviours (26%), compared to fathers of children with Down syndrome (13% and 3%, respectively).

Similar results were revealed in Bolton and colleagues' (1994) study, which used semi-structured family history interviews to examine features that were hypothesized to be part of the BAP (communication deficits, impairments in reciprocal social interaction, repetitive stereotyped behaviours) in the extended family of individuals (adults and

children older than age eight) with ASD and Down syndrome. Findings showed significantly higher rates of communication and social deficits, as well as rigid, stereotyped behaviours in relatives of individuals with ASD compared to relatives of individuals with Down syndrome.

With a goal to refine the characteristics of the BAP, Piven, Palmer, Landa, and colleagues (1997) developed an algorithm that best differentiated between parents of children with ASD and parents of children with Down syndrome. The authors postulated that the BAP would be more prominent in multiple-incidence autism families, as this population is likely to have a higher genetic link to ASD than families with one child with ASD (Piven, Palmer, Landa, et al., 1997). Therefore, multiple-incidence autism families ($n = 58$) were compared to families of children with Down syndrome ($n = 60$), as they are not expected to have the genetic link to ASD. To examine the BAP characteristics, mothers and fathers completed a personality questionnaire and an interview focusing on the parents' friendships, and a behavioural observation designed to assess the parents' pragmatic language skills. Deficits in pragmatic language were defined as providing too much or too little detail during a conversation, providing disorganized accounts of a story, failure to clarify information, failure to reciprocate, being out of sync with the flow of a conversation, having topic preoccupations, being overly direct and frank or too informal, and having odd humor. When exploring the best algorithm for characterizing the BAP, the authors were able to distinguish between parents of children with ASD and parents of children with Down syndrome by the traits of rigid personality, hypersensitivity to criticism, pragmatic language deficits, and friendship difficulties. These traits were significantly more likely to occur in parents of children with ASD than parents of children with Down syndrome (49% of parents of children with ASD were characterized as rigid,

in comparison to 5% of parents with Down syndrome), and some pragmatic language and speech traits were completely absent in parents of children with Down syndrome (i.e., failure to clarify, out of sync, unclear intent). Overall, parents were categorized as having BAP features if two or more traits were present, as this criterion maximized sensitivity and specificity. From using the cut-off of at least two traits to be categorized as having BAP features, 52% of mothers and 65% of fathers were found to have the BAP. Both parents were classified as having the BAP in 38% percent of families with children with autism (Piven, Palmer, Landa, et al., 1997).

Another study published by Piven and colleagues explored BAP features in mothers and fathers of children with ASD and Down syndrome (Piven, Palmer, Jacobi, et al., 1997). In the study, mothers of children with autism showed significantly higher rates of social deficits, communication deficits, and stereotyped behaviours when compared to mothers of children with Down syndrome. Specifically, communication deficits and stereotyped behaviours were noted in mothers of children with ASD (20% and 12%, respectively), whereas no mothers of children with Down syndrome were categorized with these deficits. Similarly, 36% of mothers of children with ASD presented social deficits in comparison to mothers of children with Down syndrome (13%). Significant differences in communication were not observed between the father groups, but significantly more fathers of children with autism presented with social deficits (57%) and stereotyped behaviours (26%) than compared to fathers of children with Down syndrome (13% and 3%, respectively; Piven, Palmer, Jacobi et al., 1997). Overall, the authors concluded that the results of the study strongly support the existence of the BAP.

Research has also taken an experimental approach to identify deficits in social-cognitive functioning in parents of children with autism. Baron-Cohen and Hammer

(1997) theorized that because parents of children with ASD display social deficits through interview and questionnaire techniques, parents should also show deficits on social-cognitive processing tasks. Parents completed two tasks: The Reading the Mind from the Eyes Test (Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997), an advanced theory of mind task in which participants are to infer the mental state of the individual from the eye region of the face; and a test in which participants are to find a target shape in a larger, more complex design. The authors found that when compared to an IQ- and age-matched control group, parents of children with ASD experienced mild problems when inferring emotional and cognitive states from eyes and the surrounding area of the face, yet had no difficulty with the task of locating a target shape and were actually faster than the control group.

Losh and Piven (2007) took Baron-Cohen and Hammer's study a step further, hypothesizing that the social-cognitive deficits should underlie problematic friendships and impaired pragmatic language that have been found in parents of children with ASD (Asperger's and autism). In their study, 48 parents of children with ASD and 22 parents of children with Down syndrome completed a number of tasks, including interviews that were scored and rated for the presence of aloof and rigid personality traits, an interview on friendship quality, and a social-cognitive task (The Reading the Mind from the Eyes Test; Baron-Cohen et al., 1997). From an interview, parents also were rated on their use of pragmatic language. Of parents who had children with ASD, 27% of the parents were classified as aloof, 33% as rigid, and 50% were found to show no evidence of any BAP characteristics. As expected, those parents classified as aloof performed more poorly on the measure of social cognition than did the control group and parents of children with ASD not categorized as aloof. Parents who were characterized as aloof also reported

poorer friendship quality and committed significantly more pragmatic language errors than did the comparison groups. Rigid traits of the BAP were not associated with performance on the social-cognitive task, consistent with the hypothesis that rigid traits are separate from social functioning. Losh and Piven (2007) concluded that their results provide evidence for the BAP, by linking personality and behavioural characteristics to neuropsychological functioning, which further suggests brain differences.

In order to explore communication deficits found in some parents of children with autism, Ruser et al. (2007) compared the communication patterns of three groups of parents: parents of children with autism, parents of children with specific language impairment (SLI), and parents of children with Down syndrome (DS). The results of the study revealed that both parents of children with autism and parents of children with SLI had significantly lower communication abilities than did parents of children with DS. They found that 15% parents of children with autism and 15% parents of children with SLI had serious communication problems. However, communication problems between parents in the autism group and parents in the SLI group appeared qualitatively different. For the 15% of parents with communication difficulties the autism group, the communication pattern contained deficits such as having difficulty expressing an idea and using technical jargon that laypersons may not understand, whereas the 15% of parents in the SLI group displayed a pattern that were language difficulties were characterized by grammatical errors and dominating a conversation. Importantly, even when a small percentage of parents of children with autism display language-related deficits, their verbal abilities have still been shown to be within the average to above average range on verbal aspects of IQ tests (Bishop et al., 2004). Describing parents who displayed language difficulties, Bishop stated that some parents of children with high functioning

ASD "show a dissociation between the ability to learn words and their meanings, and their ability to use their language skills to communicate effectively" (Bishop et al., 2004, p. 1435).

Overall, there is strong evidence to suggest that the BAP consists of a distinct profile of characteristics that are different from schizoid traits and ASD traits. There is also support for the theory that parents of children with ASD tend to have higher rates of BAP features compared to parents who do not have children with ASD. However, it is surprising that there is a lack of research exploring the presence of the BAP and its effect on parents' interactions with others. Because the BAP signifies deficits in social interaction and social communication, the BAP may influence how parents socialize emotion in children. Therefore, a goal of the present study was to explore whether parents with BAP features differ from parents without BAP features in the way in which they socialize emotion.

Parental distress and the broad autism phenotype. Researchers have suggested that the high rates of anxiety and depression observed in parents of children with ASD cannot be entirely accounted for by the stress of having a child with ASD (Piven & Palmer, 1999). As part of an epidemiological survey, Micali and colleagues explored whether relatives of children with pervasive developmental disorders (PDD; one girl was diagnosed as having Rett syndrome and one boy had a diagnosis of childhood disintegrative disorder) had higher rates of "components of the BAP." As conceptualized by the authors, one of the components of the BAP was the presence of psychiatric disorders. The results showed that anxiety and depression were significantly higher in mothers of children with PDD compared to mothers of children with non-PDD developmental disabilities. Even more so, prior to having their children, anxiety and

depression were found to be significantly more prevalent in mothers of children with

PDD compared to the control group. Specifically, 83% of mothers of children with PDD

that reported depression recounted that the onset of their first depressive episode was

before the birth of their children. In comparison, 16% of mothers of children with PDD

that reported depression reported that symptoms of depression occurred after the birth of

their children. When further examining the report of depression control group, 33% of

mothers reported their first episode of depression to be before the birth of their child,

whereas 66% reported their first episode of depression to occur after the birth of their first

child. Rates of anxiety differed between groups as well. That is, mothers of children with

PDD were significantly more likely to experience symptoms of anxiety (34%) compared

to mothers of the control group (10%). Symptoms of anxiety and depression did not

significantly differ between father groups. Because high rates of anxiety and depression

were reported before the birth of their children with PDD, mothers' symptoms of anxiety

and depression may be related to the BAP (Micali et al., 2004). In support of this idea, a

number of researchers have demonstrated that features of the BAP are highly associated

with anxiety and depression in parents of children with ASD (Bolton, Pickles, Murphy, &

Rutter, 1998; Duarte, Bordin, Yazigi, & Mooney, 2005; Ingersoll, Hopwood, Wainer, &

Donnellan, 2011; Lau, Gau, Chiu, & Wu, 2014; Piven & Palmer, 1999).

       Characteristics of the BAP also have been shown to increase parental stress.

Duarte and colleagues (2005) were interested in exploring factors related to stress in

mothers of children with autism. In their study, children with ASD were between the ages

of 3 and 12 years and 51% of were considered to be lower functioning (e.g., complete

lack of spoken language). Thirty-one mothers of children with ASD were matched by

child's age, child gender, and mother age, to a group of 31 mothers with typically

developing children (without behavioural problems). Mothers were compared using a standardized projective test (Rorschach test) to assess levels of stress, coping, interest in people, and emotional expression. Although the authors found that having a child with ASD predicted the highest degree of stress, mother characteristics such as diminished affective expression and low interest in people also predicted higher levels of stress. From the results of the study, the authors suggested that some maternal characteristics (e.g., low emotional expressiveness and a lack of interest in spending time with people) may be related to the BAP, which subsequently increases levels of stress.

Overall, it appears that parents with the BAP experience greater rates of distress than parents without the characteristics of the BAP. Therefore, an aim of the current study was to compare levels of distress between parents with and without the BAP. However, to understand the impact of distress in mothers with the BAP, it was also important to explore the effect of distress on emotion socialization practices.

Emotion socialization and the broad autism phenotype. Little is known about whether or not characteristics of the BAP might influence the way parents socialize emotion in their children with ASD. As the current study was one of the first to broadly examine emotion socialization in parents of children with ASD, it is important to separately explore the differences between emotion socialization processes in mothers with and without BAP status. Parents with BAP characteristics have mild deficits in the way in which they communicate, particularly in social situations. They also would rather avoid social interactions, therefore possibly diminishing the opportunities to engage in emotion socialization with their children. For example, a dissertation study conducted by Flippin (2010) highlighted interaction deficits observed in parents with BAP characteristics. In this project, it was hypothesized that BAP characteristics would

influence the way in which parents interact with their toddlers. Paternal BAP

characteristics were not related to their children's play. Conversely, maternal aloof and

rigid personality characteristics have been found to negatively impact the way in which

mothers played with their children. Mothers were less responsive to their children during

play interactions than mothers without BAP characteristics.

A recent study conducted by Breaux and colleagues (2015) may assist in the

formulation of a hypothesis on how mothers with BAP features would socialize emotion.

The authors examined the impact of parental psychopathology on parental emotion

socialization in a sample of preschoolers with behavioural problems. While the authors

did not evaluate the BAP, they examined similar, but more severe characteristics.

Specifically, Cluster A personality symptoms (paranoid, schizoid, and schizotypal) in

which individuals display a pattern of eccentric behaviours, social withdrawal or

awkwardness, discomfort for social closeness, and distorted cognitions were of interest.

The results revealed that mothers who displayed traits of Cluster A were found to engage

in more unsupportive reactions towards their children's negative emotions. In

combination with research suggesting that some mothers of children with ASD display

schizoid personality traits (Wolff et al., 1988), it is possible that mothers who also have

social-related difficulties such as that seen in the BAP, may engage in more unsupportive

interactions with their children than mothers without BAP status.

In another recent study, Parr and colleagues (2015) aspired to understand the

impact of BAP traits on the quality of parent-child interactions. To investigate the

influence of the phenotype, the authors recruited 18 mothers of children with ASD who

had previously completed an early language-based intervention (More Than Words)

study. Mothers completed an interview to identify traits of the BAP. In addition, measures

from the time of the intervention were used (McConachie, Randle, Hammal, & Le

Couteur, 2005). The purpose of the previous intervention was to facilitate social

communication between toddlers with ASD and their mothers. As part of the intervention,

a pre- and post- parent-child interactional paradigm was recorded and coded for maternal

strategies such as: use of fun words, direct/concrete language, tone of speech, use of

games (e.g., pretend games), fun physical contact (e.g., tickling), positive emoting (e.g.,

smile, laughter), turn-taking, and imitations. The outcome measures were mother-report

checklists of their children's vocabulary, which were completed at Time 1 and Time 2.

The results revealed that greater BAP characteristics were associated with lower scores

during the mother-child interaction task. Greater BAP characteristics in mothers also

predicted less change across time in terms of children's vocabulary. To conduct further

analyses, the authors created a high BAP group and low BAP group. Mothers in the low

BAP group had children that tended to make greater gains in vocabulary in comparison to

children with mothers in the high BAP group. The authors noted that this difference did

not reach significance due to one outlier in their small sample size, so these findings

should be interpreted with caution. Furthermore, mothers in the high BAP group tended

to make fewer gains from the intervention as the quality of the parent-child interactions

remained lower than mothers in the low BAP group following pre and post assessment.

The authors concluded that, "mothers with higher rates of BAP traits may have been less

able to vary their social communication style following training in parent-mediated

intervention, than those with less evidence of BAP behaviour/traits." (Parr, Gray,

Wingham, McConachie, & Le Couteur, 2015, p. 27).

     For the current study, mothers with and without BAP features were compared on

emotion socialization practices to see if maternal emotional expressiveness, emotion-

related beliefs and parental reactions to children's negative emotions differ between

groups. Greater attention to emotional behaviour in families with children with ASD may

guide the development of new intervention strategies to help families. As stated by

Flippin (2010), "Parents who show characteristics of the BAP may need targeted supports

to engage in maximally responsive interactions with their children." (p. 3)

The Current Study

The primary purpose of the current investigation was to explore aspects of

emotion socialization (emotion-related beliefs, parental reactions to children's negative

emotions, and parental emotional expression) in mothers of children with ASD, while

also looking at whether there are differences in emotion socialization related to mothers'

BAP status and levels of distress (parenting stress, symptoms of anxiety, depression and

stress).

On average, approximately 16 to 23% of mothers of children with ASD

demonstrate BAP characteristics (Bishop et al., 2004; Sasson et al., 2013; Wheelwright et

al., 2010), which includes mild deficits in social interaction and pragmatic language. As

these deficits affect basic social communication, it is important to understand whether

parents who demonstrate BAP characteristics differ from those without these

characteristics during efforts to socialize emotion with their children. By understanding if

some mothers socialize emotion differently, interventions can be better tailored to

families, increasing the chances of positive outcomes. Therefore, the current study will

contribute to the extant literature by looking at differences between mothers with and

without BAP status in three types of emotion socialization, allowing for a broader

understanding of how the BAP relates to parenting.

While emotion socialization practices have been linked to problem behaviours in

typically developing children, the association between parental emotion socialization and child problem behaviours in children with ASD has yet to be sufficiently examined. As such, another important contribution of this study was to investigate whether child problem behaviours were predicted by emotion socialization in mothers of children with ASD, and whether differences exist between the groups of mothers with and without BAP features.

There is strong evidence to support the notion that parents of children with ASD experience high levels of distress (stress, anxiety, and depression). There have been three interesting findings with respect to parental distress in parents of children with ASD. First, parents with BAP status have been shown to experience higher levels of distress compared to parents without BAP status. Second, parent distress has been shown to influence parenting, and third, parent distress has been associated with problem behaviour in children. Therefore, in the present study, maternal distress will be compared between mothers with BAP status and those without BAP status. Distress was also evaluated as a moderator in the relation between maternal emotion socialization and child behaviour problems.

The study was guided by five main research questions: (1) Do levels of maternal distress differ between mothers with BAP status compared to those without BAP status? (2) Do emotion socialization practices differ between mothers with BAP status compared to mothers without BAP status? (3) Do levels of child problem behaviours differ between mothers with BAP status compared to those without BAP status? (4) Do aspects of maternal emotion socialization differentially predict child problem behaviours in mothers with BAP status and without BAP status and (5) Does maternal distress impact the relation between emotion socialization practices and child problem behaviours differently

in mothers with BAP status versus mothers without BAP status?

Hypotheses

Hypothesis 1: Differences in distress by BAP status. It was hypothesized that maternal levels of stress, anxiety, depression, and parenting stress will differ between mothers with BAP status versus those without BAP status.

Hypothesis 2: Differences in emotion socialization by BAP status. It was hypothesized that emotion socialization practices (emotion-related beliefs, emotional expression, and reactions to children's emotions) would differ between mothers with BAP status compared to mothers without BAP status. Specifically, mothers without BAP status were expected to have higher levels of emotion coaching, positive expressiveness, and supportive reactions, when compared to mothers with BAP status. Mothers with BAP status were expected to exhibit higher levels of negative emotion socialization, particularly reacting in an unsupportive manner and displaying more negative expressiveness.

Hypothesis 3: Differences in child problem behaviour by BAP status. It was hypothesized that reported problem behaviours in children would differ between mothers with and without BAP status, in that mothers without BAP status would endorse fewer problem behaviours in their children.

Hypothesis 4: Emotion socialization and child problem behaviour. It was hypothesized that lower positive emotion socialization practices (emotion coaching, positive expressiveness, supportive reactions) and higher negative emotion socialization practices (emotion dismissing, negative expressiveness, unsupportive reactions) would predict fewer problem behaviour in children with ASD in both groups (mothers with BAP status and mothers without BAP status).

Hypothesis 5: Emotion socialization, parental distress and child behaviour. It was predicted that distress (stress, anxiety, depression, and parenting stress) would moderate the relation between emotion socialization and problem behaviours. In both groups (mothers with BAP status and mothers without BAP status) it was expected that mothers with high levels of distress and high levels of negative emotion socialization (emotion dismissing, negative expressiveness, and unsupportive reactions) would report greater child problem behaviours. This relationship was expected to be more prominent in mothers with BAP status. Along the same lines, it was hypothesized that greater distress and fewer positive emotion socialization practices (emotion coaching, positive expressiveness, and supportive reactions) would predict greater child problem behaviours. This association was also expected to be greater in mothers with BAP status.

Thematic Analysis. Qualitative approaches have been underutilized in the area of emotion socialization (Parker et al., 2012). No evidence currently exists to support hypotheses regarding the thematic analysis. As such, the qualitative nature of the interview portion of the study helped to explore emotion socialization practices in mothers of children with ASD.

CHAPTER II

Method

Study Design

To test the study hypotheses and understand emotion socialization practices in mothers of children with ASD, a mixed method approach using both quantitative and qualitative methods was conducted. The quantitative portion of the study was conducted using online and paper-and-pencil questionnaires. All participants were asked to complete a series of questionnaires relating to distress, emotion socialization, the BAP, and child problem behaviours. As such, this research employed a cross-sectional design in which mothers reported on their current situation and functioning.

To obtain a more comprehensive understanding of emotion socialization within the population, a qualitative method was employed as well. Interviews were conducted with nine participants to further assess mothers' thoughts, reactions, and emotional experience during emotionally laden situations with their child. Questionnaire and interview data were analyzed for the purpose of further understanding emotion socialization practices and outcomes within a high functioning ASD population.

Participants

The participants of the study included 57 mothers of children age 6 to 16 years (age in months: $M = 143.36$, $SD = 33.40$) diagnosed with ASD. A total of 111 participants were recruited for study, however, only 77 followed through to access the survey. Participants were excluded if more than 50% of the data were missing and as such, 18 incomplete cases were deleted. Two more participants were removed as they did meet the parameters of the inclusionary criteria (i.e., their endorsement of items fell below the 13-point cutoff on the ASSQ screening questionnaire; see Measures section for more details).

Of the 57 participants who successfully completed the questionnaires, 28 indicated that they were interested in participating in the follow up interview. All 28 mothers were contacted to participate, of which 12 responded and agreed to take part. Nine mothers in total completed the interview.

Demographic information for the 57 mothers is presented in Table 1. The participants age ranged from 33 to 54 ($M = 42.57$, $SD = 5.28$). As seen in Table 2, approximately 32% of the participants reported the presence of a psychiatric disorder, with depression being the most common. Participants also reported on their family history of psychiatric illness which is presented in Table 3. Family history was operationalized as a relative on either mother or father's side of the family. Eighteen percent of participants ($n = 10$) reported no psychiatric illness within either side of the family.

Thirty-five percent of mothers in the current study were considered to have BAP status. The percentage of mothers with BAP status was higher than expected given the previous estimates of the prevalence of BAP in mothers of children with ASD (Bishop et al., 2004; Sasson et al., 2013; Wheelwright et al., 2010). Three mothers with BAP status reported having an another child with ASD. Similarly, three mothers without BAP status also reported having another child with ASD.

Research suggests that of children with ASD, males outnumber females at a ratio of approximately 4 to 1 (Fombonne, 2009; Werling & Geschwind, 2013). For the current study, 12% of the children were female ($n = 7$). The ASD related diagnoses of the participants' children were as follows: high functioning autism ($n = 7$), Asperger's disorder/syndrome ($n = 13$), PDD-NOS ($n = 20$) and ASD ($n = 13$). Sixty-one percent of the reported ASD diagnoses were confirmed through psychological reports. As such, 39% of the above diagnoses were provided by parent report. Most of the ASD diagnoses were

Table 1

Participant Characteristics

	N	*%*
Ethnic Background		
Aboriginal	1	1.8
Arab/Middle Eastern	1	1.8
Black	1	1.8
East Asian	1	1.8
Hispanic/Latino	1	1.8
South Asian	2	3.5
White	49	86
Other	1	1.8
Relationship Status		
Single	3	5.3
Married	44	77.2
Divorced/Separated	7	12.3
Common Law/ Domestic Partnership	1	1.8
Widowed	0	0
Education		
High school diploma	4	7.0
Some college	10	17.5
College diploma	9	15.8
Some university	7	12.3
University undergraduate degree	14	24.6
Master's degree	11	19.3
Doctoral degree	1	1.8
Household Income		
10,001 – 20,000	1	1.8
20,001 – 30,000	5	8.8
30,001 – 40,000	5	8.8
40,001 – 50,000	3	5.3
50,001 – 60,000	7	12.3
60,001 – 70,000	2	3.5
70,001 – 80,000	4	7.0
80,001 – 90,000	3	5.3
90,001 – and up	21	36.8
Prefer not to answer	6	10.6
Total number of children		
1	12	21.1
2	31	54.4
3	7	12.3
4	4	7.0
5+	2	3.6

Table 2

Participant Self-Reported Psychiatric Disorders

	Total Sample		Without BAP Status		BAP Status	
	N	*%*	*n*	*%*	*n*	*%*
MDD	11	19.0	5	13.5	6	30.0
GAD	8	14.0	4	10.8	4	20.0
Bipolar Disorder	4	7.0	3	8.1	1	5.0
ADHD	3	5.3	2	5.4	1	5.0
Reading Disorder/Disability	1	1.8	0	0	1	5.0
Math Disorder/Disability	1	1.8	0	0	1	5.0
Substance Use/Abuse	1	1.8	0	0	1	5.0
Social Anxiety	1	1.8	0	0	1	5.0
Specific Phobia	0	0	0	0	0	0
OCD	0	0	0	0	0	0
Schizophrenia	0	0	0	0	0	0
ASD	0	0	0	0	0	0
Intellectual Disability	0	0	0	0	0	0
No diagnosis	39	68.4	27	73.0	12	60.0

Note. GAD = Generalized Anxiety Disorder; OCD = Obsessive Compulsive Disorder; MDD = Major Depressive Disorder; ADHD = Attention-Deficit/Hyperactivity Disorder; ASD = Autism Spectrum Disorder

Table 3

Family History of Psychiatric Disorders

	Mother's side		Father's side		Both sides	
	N	*%*	*N*	*%*	*N*	*%*
MDD	13	22.8	6	10.5	6	10.5
GAD	10	17.5	7	12.3	5	8.8
Bipolar	8	14	6	10.5	0	0
Reading Disorder/Disability	7	12.3	3	5.3	0	0
ASD	7	12.3	6	10.5	3	5.3
Substance Use/Abuse	6	10.5	12	21.1	4	7.0
Social Anxiety	4	7.0	4	7.0	2	3.5
OCD	4	7.0	1	1.8	2	3.5
ADHD	4	7	12	21.1	3	5.3
Schizophrenia	3	5.3	2	3.5	0	0
Math Disorder/Disability	2	3.5	2	3.5	0	0
Intellectual Disability	2	3.5	4	7.0	1	1.8
Specific Phobia	0	0	1	1.8	0	0

Note. GAD = Generalized Anxiety Disorder; OCD = Obsessive Compulsive Disorder; MDD = Major Depressive Disorder; ADHD = Attention-Deficit/Hyperactivity Disorder; ASD = Autism Spectrum Disorder

reportedly given by a psychologist (66%). Twenty-one percent of the children received

their ASD diagnosis from a psychiatrist and the remaining from other physicians (e.g.,

developmental pediatrician, pediatrician, family doctor, pediatric neurologist). In addition

to the ASD-related diagnoses, 86% of the children had comorbid diagnoses (see Table 4).

Measures

The study assessed parental emotion socialization, as well as mother and child

characteristics. Specifically, for mothers, the presence of the BAP, parenting stress,

symptoms of anxiety, stress, and depression, emotional expressiveness, emotion-related

beliefs, and reactions to their children's emotional experiences were assessed. For child

characteristics, severity of autism symptoms and problem behaviours were measured. See

Appendix A for the list of measures and their purpose in the study. The measures are

described below.

Background Questionnaire. The background questionnaire consisted of a series

of short fill-in-the-blank and multiple-choice questions. Questions assessed mothers' age,

ethnicity, marital status, occupation, household income, highest education level achieved,

and number of children in the household. Child-related variables were also assessed, such

as the child's age, gender, diagnoses, and education.

Autism Spectrum Screening Questionnaire (ASSQ; Ehlers, Gillberg, & Wing,

1999). The ASSQ is a 27-item checklist for assessing symptoms related to high

functioning ASD in children ages 6 to 17 years with normal intelligence or mild

intellectual disability. The brief statements of the ASSQ focus on communication

problems ("has a different voice or speech"), social interaction ("lacks a best friend"),

restricted and repetitive behaviour ("lives somewhat in a world of his/her own with

restricted idiosyncratic intellectual interests"), and clumsiness and motor/vocal tics ("has

Table 4

Comorbid Psychiatric Diagnoses in Children

	N	*%*
Anxiety	23	40.4
ADHD	19	33.3
Speech or Language Delay	15	26.3
Depression	5	8.8
Reading LD	4	7.0
Written Expression LD	4	7.0
Math Disorder LD	4	7.0
ODD	3	5.3
Epilepsy	2	3.5
LD	1	1.8
Tourette's	1	1.8
None	8	14.0

Note. ADHD = Attention-Deficit/Hyperactivity Disorder;
ODD = Oppositional Defiant Disorder; LD = Learning Disability

clumsy, ill coordinated, ungainly, awkward movements or gestures"). Parents rate each

statement on a 3-point scale, from 0 (*no*) to 2 (*yes*). A total score is the sum of all the

responses, with higher scores indicating more ASD symptomology. Due to the high

reading level of the ASSQ, participants were given additional details, such as the

definitions of key words/phrases, in order to promote accurate responding. For the current

study, the ASSQ was used for screening purposes, as not all participants had their

diagnostic information confirmed by psychological reports available to the researcher (*n*

= 22). Therefore, a cutoff score was utilized to decide the acceptability of ASD status. In

order to minimize the risk of missing more mild ASD cases, Ehler et al. (1999) suggested

to use a cutoff score on the ASSQ of 13, as it identified 91% of children with ASD.

Although the false positive rate was relatively high at 23%, additional questions in the

survey helped to serve as a validity check for ASD, as did the recruitment processes. The

likelihood ratio demonstrated that a cutoff of 13 was 3.8 times more likely to identify

children with ASD than other behaviour disorders. Mothers whose children scored lower

than 13 on the ASSQ and did not provide a psychological report or diagnostic

documentation were excluded from the study (*n* = 2).

Test-retest reliability for the ASSQ in a two-week period has resulted in high

correlations (*r* = .96; *p* < .01.) between parent report at baseline and follow-up. Interrater

reliability between parent and teacher ratings on the ASSQ (*r* = .66, *p* < .01) has also been

established. Ehlers and colleagues (1999) demonstrated a high correspondence *(p* = .001)

between results on the ASSQ and children's clinical diagnoses, which supports

concurrent validity. Furthermore, parent-reported ASSQ scores have significantly

differentiated ASD from ADHD and disruptive behaviour disorders. In the present

sample, Cronbach's alpha for the ASSQ was 0.83, supporting internal consistency.

The Broad Autism Phenotype Questionnaire (BAPQ; Hurley et al., 2007). The presence of broad autism phenotype (BAP) in mothers was assessed using the BAPQ. The BAPQ is a 36-item self-report measure with three subscales of 12 items each: *Aloof* (e.g., "I would rather talk to people to get information than to socialize"), *rigid* (e.g., "I feel a strong need for sameness from day to day"), and *pragmatic language* (e.g., "I find it hard to get my words out smoothly"). Participants respond using a 6-point Likert-type scale, from 1 (*very rarely*) to 6 (*very often*), endorsing the frequency of each statement as it pertains to them. The total score on each subscale is an average of the 12 items, with higher scores indicating greater degree of BAP features. For the current study, only the total score was used (the average of 36 items). While the BAPQ was used as a continuous variable in a limited number of analyses (e.g., correlational), the main purpose of the BAPQ was to identify mothers with and without BAP status. As such, in order to be used categorically, the total cutoff score of 3.15 suggested by Hurley et al. (2007) and Sasson et al. (2013) was utilized. Mothers were classified has having BAP status if their score on the BAPQ was equal to or greater than 3.15. Mothers with BAPQ scores lower than 3.15 belonged to the without BAP status group.

The BAPQ has been found to map onto the defining features of the BAP (Hurley et al., 2007; Ingersoll et al., 2011), as well as found to be superior to other scales used to measure the BAP in terms of replicability, homogeneity of items, and theoretical factor structure (Ingersoll et al., 2011). Sensitivity and specificity of the BAPQ was found to be quite high as well. Using a direct clinical interview to classify parents with the BAP, Hurley and colleagues (2007) found both the sensitivity and specificity to be approximately 80% for the total score on the BAPQ.

Subscales and the overall total score on the BAPQ have revealed acceptable

internal consistency in various samples. For example, in a mixed sample of parents of

children with autism and control parents, Cronbach's alpha was reported to be .94 for the

aloof subscale, .91 for the rigid subscale, .85 for the pragmatic language subscale, and .95

for the total scale (Hurley et al., 2007). In a very large sample of parents of children with

ASD and control parents, the internal consistency was found to be moderately high to

high for aloof (α = .92), rigid behaviour (α = .86), and pragmatic language (α = .80;

Sasson et al., 2013). As expected, within the present study, the total score on the BAPQ

was found to demonstrate adequate internal consistency (α = 0.86).

With respect to convergent validity, Ingersoll and colleagues (2011) found that the

BAPQ is highly correlated with other measures that have been used to assess the presence

of the BAP, such as the Autism Spectrum Quotient (AQ; Baron-Cohen, Wheelwright,

Skinner, Martin, & Clubley, 2001, r = .65) and the Social Responsiveness Scale - Adults

(SRS-A; Constantino, 2002; Constantino & Todd, 2005, r = .66). The BAPQ is also

closely related to personality traits of low extraversion, low agreeableness, high

neuroticism, and low openness (Ingersoll et al., 2011).

Maternal Emotion Styles Questionnaire (MESQ; Lagacé-Séguin & Coplan,

2005). The MESQ is a 14-item self-report questionnaire designed to measure aspects of

meta-emotion philosophy. The MESQ has two subscales of seven statements each;

emotion coaching (e.g., "When my child is sad, it's time to get close.") and *emotion*

dismissing (e.g., "I help my child get over sadness quickly so that he/she can move on").

The emotion coaching and emotion dismissing scales are thought to be theoretically

consistent with the emotion-related beliefs outlined in meta-emotion philosophy by

Gottman and Declaire (1997) and Gottman and colleagues (1996, 1997).

Responses to each item are rated on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The total score on each subscale is an average of the seven items, with higher scores indicating greater endorsement of the parenting style. Lagacé-Séguin and Coplan (2005) found the MESQ to have good psychometric properties. Cronbach's alpha was found to be .90 for emotion coaching and .92 for emotion dismissing. Short-term stability of the measure also has been established. Both emotion coaching (r = .53, p < .01) and emotion dismissing (r = .58, p < .01,) scales appear to be moderately stable over a six-month period. Strong convergent validity also has been established using the Meta-Emotion Interview (MEI; Katz & Gottman, 1999). The correlation between the emotion coaching subscales of the MEI and MESQ was strong (r =.73, p < .001), as was the correlation between emotion dismissing subscales of the MEI and MESQ (r = .75, p < .001).

Although the properties of the MESQ were originally examined with parents of children with preschool children, there is support for the use of the MESQ with older children (Lagacé-Séguin & Gionet, 2009), as well as children with developmental disabilities (Baker, Fenning, & Crnic, 2011). For instance, in a sample of parents of children with a developmental disability, internal reliabilities were as follows: emotion coaching (α = .73) and emotion dismissing (α = .77).

In the current study, only the emotion coaching subscale was found to be internally consistent at an acceptable level (α = 0.60). According to Nunnally and Bernstein (1994), internal consistencies greater than α = .70 are considered acceptable, however, scales with fewer than 20 items may be considered acceptable at α = .60. The emotion dismissing subscale revealed a Cronbach's alpha of .51. Internal consistency was

found to reach an acceptable level only after three items were deleted. As the subscale

consists of seven items in total, deleting three items from the scale was understood to be

an inappropriate action to improve internal consistency. Therefore, due to the low internal

consistency, the emotion dismissing subscale was not included as an emotion

socialization variable in subsequent analyses.

Coping with Children's Negative Emotions Scale (CCNES; Fabes et al., 2003).

The CCNES consists of 12 short hypothetical scenarios designed to assess how parents

would respond to their children's negative affect in stressful situations. The CCNES has

six subscales that reflect the types of responses that parents may use when their child is

faced with distressing situations. For each of the 12 scenarios, parents are presented with

six response options that correspond to each of the subscales. The subscales include:

expressive encouragement (EE), reflecting the degree to which parents encourage or

validate children's expression of negative emotions; *emotion-focused responses* (EFR),

which represents the degree to which parents respond with strategies that are designed to

help their children feel better; *problem-focused responses* (PFR), which represents the

degree to which parents help the child solve the distressing problem; *distress reactions*

(DR), which represents the degree to which parents experience distress when their child

expresses negative affect; *punitive responses* (PR), which reflects the degree to which

parents respond with punitive reactions to deal with the negative emotions of their child;

and finally, *minimizing responses* (MR), reflecting the degree to which parents minimize

the seriousness of the situation. A sample scenario is, "If my child loses some prized

possession and reacts with tears, I would:" and a MR response to this scenario would be

"tell my child that he/she is over-reacting." Parents rate their likelihood of using each of

the six response options on a Likert-type scale from 1 (*Very unlikely*) to 7 (*Very likely*).

The total score on each subscale is an average of the ratings for each type of reaction across the 12 scenarios, with higher scores indicating greater use of the reaction type. Therefore, parents obtain six subscale scores – one for each type of reaction. The six subscales were grouped into two reaction categories: *supportive reactions* and *unsupportive reactions*. Supportive reactions include the EE, PFR, and EFR subscales, whereas the unsupportive reactions include DR, PR, and MR subscales (Fabes et al., 2003).

The internal consistency reliability for each subscale was assessed as adequate to very good, ranging from $\alpha = .69$ (PR) to $\alpha = .85$ (EE). The test-retest reliability has been shown to be acceptable, as the correlations within each subscale of parental reactions ranged from .56 to .83, with a significance level of $p < .01$. Although a search of the literature did not reveal the use of the CCNES in an ASD population, a large sample of mothers of children with developmental disabilities revealed very good internal consistency: $\alpha = .90$ (supportive reactions) and $\alpha = .84$ (unsupportive reactions; Paczkowski & Baker, 2007). In the current study, internal consistency was assessed as very good for supportive reactions ($\alpha = .92$) and unsupportive reactions ($\alpha = .90$).

Self-Expressiveness in the Family Questionnaire (SEFQ; Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). The SEFQ is a 40-item self-report questionnaire designed to assess the frequency of an individuals' expression of affect within the family context. The measure consists of two subscales: a 23-item *positive expressiveness* subscale (e.g., "Telling someone how nice they look") and a 17-item *negative expressiveness* subscale (e.g., "Expressing anger at someone else's carelessness"). For each item, mothers endorsed how frequently they engage in the expressive behaviour on a Likert-type scale ranging from 1 (*not at all frequently*) to 9 (*very frequently*). For each subscale, scores are

averaged to create an overall level of positive or negative emotional expression, with higher scores representing greater expression.

The SEFQ has good internal consistency. Across studies conducted by Halberstadt and colleagues (1995), Cronbach's alpha for the positive expressiveness subscale were .90 to .94 for the positive scale, and .82 to .92 for the negative scale. The SEFQ is also viewed as a relatively stable measure. Test-retest correlations for mothers over an 8-month period are as follows: .82 for the positive subscale, .77 for the negative subscale, and .79 for the total subscale. In the current study, the Cronbach's alphas were .89 for positive expressiveness and .86 for negative expressiveness. Convergent and divergent validity has been established, wherein mothers' positive expressiveness was positively associated with marital satisfaction, whereas fathers' negative expressiveness was negatively correlated with marital satisfaction. Total self-expressiveness has been positively associated with anger expression and negatively correlated with controlling anger. Importantly, the SEFQ has been significantly associated with observations of parents' emotional expressiveness (Halberstadt et al., 1995).

Parental Stressor Scale: Developmental Disabilities (PSS:DD; Phetrasuwan & Miles, 2009). The PSS:DD is a 27-item questionnaire designed to measure sources of parenting stress in parents of children with ASD or developmental disabilities. On a Likert-type scale ranging from 1 (*not stressful*) to 5 (*extremely stressful*), mothers endorsed the level of stress they experience during parenting in each scenario. An example of an item included on the scale is: "Managing my child's demanding behaviours, mood changes, and upset feelings." A total parenting stress score is calculated by obtaining the mean of all responses, with higher scores indicating elevated levels of parenting stress.

A factor analysis conducted by the authors suggested that the PSS:DD is best represented by one construct, with Cronbach's alpha revealing strong internal consistency (.94). Convergent and discriminant validity has been established in which mothers who report higher levels of depression on the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) endorsed elevated levels of stress on the PSS:DD ($r = .61$, $p < .01$). Similarly, mothers with higher stress scores on the PSS:DD reported significantly lower levels of well-being ($r = -.47$, $p < .01$). In another published study that used the PSS:DD, the Cronbach's alphas also were found to be high for both mothers ($\alpha = .94$) and fathers ($\alpha = .95$) of children with autism (Johnson, Frenn, Feetham, & Simpson, 2011). In keeping with previous studies, the Cronbach's alpha of the PSS:DD for the present study was .93, supporting internal consistency.

Nisonger Child Behaviour Rating Form (NCBRF: Aman, Tassé, Rojahn, & Hammer, & 1996; Tassé, Aman, Hammer, & Rojahn, 1996). The NCBRF is a 66-item parent-report measure assessing problem behaviours in children with developmental disabilities. Mothers rated brief statements on a Likert-type scale ranging from 0 (*if the behaviour did not occur or was not a problem*) to 3 (*if the behaviour occurred a lot or was a severe problem*). Sixty items are distributed on six subscales (the remaining 6 items only add to the total score): *Conduct Problems* (16 items), *Insecure/Anxious* (15 items), *Hyperactive* (9 items), *Self-injury/Stereotypic* (7 items), *Self-Isolated/Ritualistic* (8 items), and *Overly Sensitive* (5 items). For the purpose of the current study, the items were summed to obtain an overall problem behaviour score, in which higher scores indicated greater problem behaviours.

The NCBRF has good internal consistency. Alpha coefficients for the subscales have been found to range from .77 (Self-isolated/Ritualistic) to .93 (Conduct Problems)

(Aman et al., 1996). With respect to concurrent validity, subscales of the NCBRF were found to be significantly correlated with subscales of the Aberrant Behaviour Checklist (ABC; Aman, Singh, Stewart, & Field, 1985; Aman et al., 1996). For example, Self-Isolated/Ritualistic on the NCBRF was significantly related to the Lethargy/Social Withdrawal ($r = .79$, $p < .01$) and the Stereotypic Behaviour subscales ($r = .76$, $p < .01$) on the ABC. The NCBRF Hyperactive subscale was highly correlated with the Hyperactivity/Noncompliance subscale of the ABC ($r = .80$, $p < .01$), and the NCBRF Overly Sensitive subscale was highly correlated with the Irritability subscale ($r = -.72$, $p < .01$) of the ABC. Adequate interrater reliability also has been established between parents and teachers (Aman et al., 1996).

Because the NCBRF was originally developed for children with intellectual disabilities, Lecavalier and colleagues (2004) conducted a confirmatory factor analysis on the NCBRF in an ASD population with children ages 3 to 18 years. The results of their study supported the construct validity of the NCBRF within the ASD population. Internal consistency also was found to be high, with Cronbach's alpha coefficients as follows: .92 (Conduct Problem), .87 (Insecure/Anxious), .89 (Hyperactive), .73 (Self-Injury/Stereotypic), .72 (Self-Isolated/Ritualistic), and .71 (Overly Sensitive). In a very recent study the NCBRF also demonstrated good internal consistency in an ASD population with Cronbach's alphas ranging from .70 to .93 for the subscales and .96 for the total scale (Beer, Ward, & Moar, 2013). In line with previous studies, the range of the Cronbach's alpha coefficients in the current study ranged from .80 (Self-isolated/Ritualistic) to .94 (Conduct Problems) and .96 for the total scale.

Depression, Anxiety, Stress Scales – 21 (DASS-21; Antony, Beiling, Cox, Enns, & Swinson, 1998). The DASS-21 assesses feelings related to anxiety, depression, and

stress during the week prior to completing the questionnaire. It is an adult self-report

measure consisting of 21 items that load on three subscales: *depression* (e.g., "I felt I

wasn't worth much as a person"), *anxiety* (e.g., "I was worried about situations in which I

might panic and make a fool of myself"), and *stress* (e.g., "I found it hard to wind

down"). Each subscale consists of seven items, and each statement is rated on a 4-point

Likert-type scale from 0 (*Did not apply to me at all*) to 3 (*Applied very much, or most of

the time*), with higher scores representing higher levels of depression, anxiety or stress.

The DASS-21 has been shown to be a reliable and valid measure (Antony et al., 1998).

Cronbach's alphas for the subscales for the current study were as follows: .91

(depression), .82 (anxiety), and .87 (stress).

      Maternal Emotion Socialization Interview. Drawing upon the theory of emotion

socialization, the literature on parenting children with ASD and Gottman's Meta-Emotion

Interview (MEI; Katz & Gottman, 1999), a small subset of participants completed an

interview created by the researcher that was designed to examine maternal emotion

socialization beliefs and practices. Because emotion socialization has been largely

overlooked in the ASD population, the interview allowed for a more in-depth assessment

of how mothers perceive and respond to their children's experience of sadness, anger, and

fear. The goal of the interview was to capture the possible nuances of emotion

socialization in parenting a child with ASD that may not be captured in the Likert-type

questionnaires used in the quantitative portion of the study. See Appendix B for the

interview.

      Mothers were asked to discuss the three main aspects of emotion socialization:

emotional expression, beliefs about emotion, and reactions to their children's emotional

expression. The interview consisted of 23 core questions. It was semi-structured, as there

were additional prompting questions to help mothers expand on their responses if necessary. Mothers were asked to recall experiences when their child felt sad, angry, and scared. For each emotion, mothers were then asked to describe the situation, their thoughts during the situation, and their reactions to the situation. Mothers also reported on how they felt when their child experienced these negative emotions, if they expressed any emotion themselves, and to describe the outcome of the situation (e.g., whether or not the child felt better).

Procedures

Following clearance from the University of Windsor's Research Ethics Board and Windsor Regional Hospital's Research Ethics Board, mothers were recruited through two main sources: Online via ASD forums and social media advertisements ($n = 30$) and through a local children's centre located in Southwestern Ontario ($n = 27$).

Community recruitment. Mothers who were recruited through the local children's centre had children who were accessing or wait-listed for autism-related services (e.g., diagnostic assessments, cognitive assessments, behavioural intervention, individual therapy, group therapy, etc.). During the consent for service practice, mothers indicated whether or not they would like to be contacted in the future for the purpose of research. Only those who consented to participate in future research opportunities were eligible to be contacted. Files of those with research consent were then reviewed and assessed for further eligibility in the study. As children were required to be higher functioning, intellectual disability was an exclusionary criterion. Therefore, if psychological reports on file indicated an IQ level below 70, the case was screened out. For those who met the criteria, recruitment telephone calls were made to introduce and describe the study. Those who agreed to participate were given the option to complete the

study through the online version (n = 16) or paper version (n = 11). The use of online and

paper methods to collect data have revealed no differences between respondents in prior

research (e.g., Hurley et al., 2007), nor did it differ within the current sample. For mothers

who chose the online version, their e-mails were obtained upon recruitment and they were

emailed an individualized link to the study's website and password. For those who chose

the paper version, a time was scheduled for the mother to obtain the questionnaire

package at the centre.

      Online recruitment. Online recruitment occurred via ASD forums (e.g., Yahoo

groups), autism listserves, email (e.g., emailing the advertisement flyer to community

organizations), and social networking sites (e.g., Facebook), similar to recruitment

procedures used by Johnson and colleagues (2011). Study advertisements stated

eligibility criteria for participation. Mothers who viewed the advertisements and were

interested in participating in the study contacted the researcher through an email address

created for the study. Upon contacting the researcher, an individualized link to the study

and a password to access the website was provided.

      Eligibility. The children of the participants were required to meet specific criteria

with respect to their diagnosis and functioning. As such, children were required to have a

diagnosis of ASD given by a psychologist, psychiatrist, or pediatrician that was consistent

with either the DSM-IV-TR or the DSM-5 ASD criteria. In accordance with the DSM-IV-

TR, children could be diagnosed with Asperger's Disorder, Autistic Disorder (high

functioning), PDD-NOS or ASD. Following the DSM-5, children could be diagnosed

with ASD, with the specifier of "without accompanying intellectual impairment." A

number of steps were taken to ensure participant eligibility in the study. For those without

psychologist or physician reports to confirm diagnostic status and level of functioning, it

was important to set up a number of parameters within the study to ensure participants

included mothers of children with high functioning ASD. First, participants were

reminded of the study criteria in the email with the study login and password. The

background measure that mothers completed included a number of questions which

helped to detect whether the child met the criteria of "high functioning." For instance, if

the mother indicated that the child had no functional language, a severe comorbid organic

health problem (e.g., Fragile X syndrome), or an intellectual disability, the participant

was excluded from the study. No one was excluded from the study in accordance with

these parameters. Furthermore, the Autism Spectrum Screening Questionnaire (ASSQ;

Ehlers et al., 1999) was used as a screener for ASD symptomology. Using a cutoff score

identified by Ehlers and colleagues (1999), participants were excluded if a score lower

than 13 was achieved (see Measures section for additional details). As such, two

participants were excluded from the study as their score on the ASSQ was below the cut-

off point and a report was not provided to support their eligibility. Exclusion took place

after the data were obtained and the participants were compensated for their participation.

  Those who were recruited through the children's centre ($n = 27$) were not held to

the additional screening procedures because eligibility was confirmed through

psychological assessment reports. Similarly, those recruited online who provided

psychological reports ($n = 8$) that contained the necessary information were not screened

further (i.e., the score on the ASSQ did not determine eligibility). This decision was made

because a psychological report with a confirmed ASD diagnoses was considered more

accurate than parent report. As it were, one participant from the children's centre did not

score high enough on the ASSQ to meet the cut-off criteria. This participant was an

adolescent whose ASD-related symptoms decreased over the years (e.g., no stereotyped,

repetitive behaviours, improved eye contact, etc.). The participant's data remained in the study as he was diagnosed with PDD-NOS by a psychologist, and his intellectual functioning was assessed in the broad average range.

Online data collection. Participants accessed the site with an individualized link and password. Upon accessing the survey, participants were presented with the consent page. Mothers who chose to participate were instructed to check the "click to consent and participate" box. Participants were then asked to print or save a copy of the consent form for their records and then proceed to the survey questionnaires. Mothers completed the questionnaires in a counterbalanced order, except that the background questionnaire and the ASSQ were presented first and second, respectively. In an effort to reduce missing data, participants were required to respond to all items before moving on in the survey. However, for each questionnaire item, participants were given the response option "choose not to respond." Participants had the option to stop the survey and return to it at a later time if they chose to do so, within a one-week period. To do this, participants selected the "save" icon on the bottom of each page. Participants re-entered the survey by typing in their study link and password. The questionnaire portion of the study took approximately 35 to 60 minutes to complete. All identifying information was removed following the collection of data.

Once the questionnaires were completed, participants were directed to additional pages. For parents who indicated in the background questionnaire that their child had a psychological assessment report, they were directed to a webpage requesting access to the report. Eight mothers chose to share the report through Dropbox, where only the primary researcher could assess the information. Upon receiving the report, it was examined for inclusionary/exclusionary criteria (e.g., ASD diagnoses and an IQ > 70) and deleted

immediately following review. All participants who provided reports confirmed their eligibility for the study.

Following completion of the study, participants were directed to the compensation page (to receive a $5.00 electronic gift card from Starbucks). The online compensation page was completely separate from the questionnaire data. On the webpage, participants were given the opportunity to enter personal information (name and email address) in order to receive compensation. Next, participants were directed to a webpage that advertised the interview portion of the study. If interested in the interview, participants entered their email address and/or phone number. The data on this webpage was connected to participant questionnaire data. Lastly, participants were presented with a webpage that described the steps to take in order to prevent others who have access to their computer from seeing that they viewed the study's website.

Paper data collection. The paper questionnaire methodology was similar to the online methodology. First, participants signed the Letter of Information and Consent and received a package with the nine questionnaires. Questionnaires were presented in a counterbalanced order, except that the background questionnaire and the ASSQ were presented first and second, respectively. Participants typically completed the questionnaires while their child had an appointment at the centre. Some mothers who did not finish during their time at the centre brought the questionnaires home to complete, returning them the following week. As the researcher (or research assistant) received the questionnaires, participants were compensated for their participation ($5.00 gift card from Starbucks). Following compensation, participants were asked if they were interested in taking part in the interview portion of the study. If interested, their email address and/or

phone number were recorded. All identifying information was removed following the

collection of data.

      Interview recruitment. Participants who indicated they wished to participate in

the interview were emailed or telephoned by a research assistant. The research assistant –

who conducted all interviews – received training throughout the project, with

approximately 10 hours of interview training and supervision. To maintain reliability of

the interview process, periodic check-ins were conducted to address any questions about

the protocol the interviewer had. All participants who indicated interest were contacted.

For those who responded and agreed to participate, the participant and research assistant

arranged a mutually agreed upon time to complete the interview. The research assistant

called the mother via telephone at the scheduled time. Verbal consent for participation

and audio recording was obtained prior to the start of the interview. Following consent,

the audio recording was turned on.

      At the end of the interview, parents were debriefed and given the chance to ask

questions about the interview. Each interview took between 25 to 75 minutes to complete.

Each audio recording was assigned a participant number that matched the participant

number in the questionnaire portion. The audio recordings were transcribed by a trained

research assistant. All identifying information within a transcript was replaced by generic

words (e.g., child, clinic, school) to maintain confidentiality. For participants who

completed the interview, names were entered into a draw for a chance to receive

additional compensation (gift card worth $50). All information related to compensation

was kept separate from the participants' data.

      Parent advisor. An important methodological aspect of the current study was the

inclusion of the parent advisor. The parent advisor was a parent of a child with ASD who

was interested in assisting the research process at different points throughout the course

of the study. The parent advisor held a Master's degree in social work and has been

engaged in clinical work with children with disabilities for a number of years. A parent

advisor has been shown to be important in conducting research with parents and their

children with ASD. For example, parent advisors help to provide researchers with a

parent perspective, increasing the study's applicability to real world situations and

improving the overall quality of the research (Drouillard et al., 2012). In the current

study, the parent advisor played a number of important roles. The parent advisor reviewed

the measures and the questions for the interview portion of the research. The advisor

provided insight and assistance in the wording of questionnaires, particularly for the

Background Questionnaire and Interview. Furthermore, discussions were held with the

parent advisor about how participants may perceive and answer the questions, promoting

sensitivity and clarity. Coding of the interview data was also discussed with the parent

advisor prior to the analyses of the data. Lastly, the results were reviewed with the parent

advisor, during which the parent advisor indicated that the themes and subthemes

appeared to align with her experiences as a parent of a child with ASD.

CHAPTER III

Quantitative Results

Missing Data

Within the total dataset ($n = 57$), six participants had missing data within their

questionnaire data (i.e., missed questions on some questionnaires). The missing data were

minimal, with the six participants missing less than 2% of their data on the main

questionnaires of the study. The dataset was evaluated to determine whether data were

missing completely at random. For the tests that were found to be nonsignificant on

Little's Missing Completely at Random test (Little's MCAR), it was concluded that the

data were likely missing completely at random and therefore missing values were

imputed with predicted values using the expectation-maximization approach. One Little's

MCAR test was found to be significant, χ^2 (22, $N = 57$) = 45.855, $p = .002$, which

suggested that two data points on the Minimizing Reactions subscale (part of the

unsupportive reactions scale) may not have been missing at random. As a result, the two

missing values were left as they were and pairwise deletion was used in all analyses for

the two participants when the variable unsupportive reactions was entered into the

analyses.

Assumption Testing

Assumption testing was first conducted within the full dataset. The data were

examined for outliers, in which z-scores with an absolute value of 3.29 or greater were

considered to be outliers (Field, 2009; Tabachnick & Fidell, 2007). As such, there were

no identified outliers in the database (z-scores between -3.21 and 3.19). Importantly, there

were also no influential outliers according to Cook's Distance (all values were less than

1) or according to Standardized DFBetas, DFFits, and Standardized DFFits (all values were between ±2).

Skewness and kurtosis were examined, in which an absolute value of 2 for skewness and an absolute value of 3 for kurtosis was considered within normal limits. The distribution of all subscales were found to be within normal limits with skewness ranging from -1.24 to 1.41 and kurtosis ranging from -.74 to 2.34. Visual inspection of the data via histograms further suggested that the data were normally distributed. As well, Kolmogorov-Smirnov tests of normality were nonsignificant for all subscales.

Multicollinearity of independent variables was tested using the variance inflation factor (VIF), with scores less than 10 indicating the absence of multicollinearity. There were no VIF scores above 4, so the data did not violate the assumption. Furthermore, the data were also considered to be free of singularity as Tolerance for all subtests was above 0.1.

Linearity and homoscedasticity of the data were examined. Normal probability-probability (P-P) plot based on the standardized residuals were visually examined. The slopes of each distribution did not deviate from a linear relationship and therefore linearity was confirmed. Homoscedasticity of variance was examined, in which standardized predicted values were plotted on the X-axis and standardized residuals were plotted on the Y-axis. All graphs were found to be homoscedastic, as the data points had a roughly constant spread.

Assumption testing was further conducted within each group (with and without BAP status) as multiple regressions were to be run separately in each group. As a reminder, mothers who scored at or above 3.15 on the BAPQ were considered to be part

of BAP status group, whereas mothers who scored below 3.15 were considered to be part of the without BAP status group (see Measures section).

For the without BAP status group ($n = 37$), one outlier with the unsupportive reactions subscale was identified ($z = 3.86$; all other zs were between -2.56 and 3.05). When the outlier was included, the unsupportive reactions subscale was skewed (2.04), kurtotic (5.95), and the Kolmogorov-Smirnov test of normality was significant ($D(35) = 0.159$, $p = .026$). When the outlier was excluded, the unsupportive reactions subscale became normally disturbed on all accounts and the Kolmogorov-Smirnov test became nonsignificant significant ($D(34) = 0.117$, $p = .200$). Additionally, preliminary analyses with and without the outlier revealed that the outlier created significant associations between some variables. Because these relations were found only when the outlier was present, in addition to its impact on assumption testing, the case was removed and as such, excluded from subsequent hypotheses testing. Overall, the assumptions of normality, absence of multicollinearity (VIF < 5.59), linearity, and homoscedasticity of variances were all met in the without BAP status group when the outlier was removed ($n = 36$). It is important to note that the case was only excluded in the analyses performed within the separate groups. When analyses were conducted using the full dataset, the outlier was no longer an outlier and thus included.

With respect to the BAP status group ($n = 20$), there was an absence of outliers (zs between 2.32 and -3.06) and influential outliers. All subscales fell within normal limits for skewness (ranging from -1.52 to .98) and kurtosis (ranging from -1.346 to 2.50), with the exception of *supportive reactions*, which was slightly kurtotic (3.59). However, it passed the Kolmogorov-Smirnov test of normality ($D(20) = 0.159$, $p > .200$) and a log transformation did not improve its kurtosis. Visual inspection of the supportive reactions

subscale histogram generally followed the normal curve. Overall, it was determined the

subscale could be considered normally distributed. All subscales did not violate the

assumptions of multicollinearity (VIF < 4), linearity, or homoscedasticity.

Power Analyses

The total sample size met the requirements to detect adequate power ($n = 57$). A

power analysis for the t-test analyses was conducted. The input parameters were specified

whereby there would be an 80% chance of detecting a moderate effect size (Cohen's $d =$

.7), with the significance level set at .05 (one-tailed). The output parameters of the power

analyses were as follows: $\lambda^2 = 2.53$, critical $t = 1.68$, $df = 50$. The optimal sample size

would be $n = 52$ overall, with $n = 26$ per group.

The sample size of the without BAP status group was thought to have adequate

power to detect a large effect ($n = 36$). However, the BAP status group came in below the

recommended sample size ($n = 20$). The power analysis conducted for the multiple

regression analyses indicated there was an 80% chance of detecting a large effect ($F^2 =$

.30) with the significance level set at .05 (two-tailed). Per analysis, there were two

predictors tested. In total, there were nine predictors. The output parameters of the power

analyses were as follows: $\lambda^2 = 11.10$, critical $F^2 = 3.35$. The optimal sample size would be

$n = 37$. Therefore, it may be possible that some of the findings in the BAP group may be

attributed to limited sample size.

Descriptive Statistics

Means, standard deviations, and observed ranges for all study scales are presented

in Table 5. The means, standard deviations, and observed ranges for the BAP and without

BAP status groups are presented in Table 6.

Table 5

Non-Transformed Means, Standard Deviations, and Ranges for All Study Scales for Full

Sample (N = 57)

Scale	*M*	*SD*	Range
Distress			
Stress	12.88	5.43	2.00 - 26.00
Anxiety	8.44	4.14	0 - 19.00
Depression	9.81	4.97	0 - 26.00
Parenting Stress	75.09	21.13	35 - 117.00
Emotion Socialization			
Emotion Coaching	3.69	.61	2.29 - 5.00
Positive Expressiveness	159.16	22.48	87.00 - 195.00
Negative Expressiveness	74.16	18.74	32.00 - 123.00
Supportive Reactions	5.55	.72	2.81 - 6.64
Unsupportive Reactions	2.61	.77	1.36 - 5.06
Child Problem Behaviours	120.28	37.07	33.00 - 191.00
Broad Autism Phenotype	2.89	.75	1.50 - 4.50

Table 6

Means, Standard Deviations, and Ranges Between Groups

Scale	Without BAP Status (*n* = 36)			With BAP Status (*n* = 20)		
	M	*SD*	Range	*M*	*SD*	Range
Distress						
Stress	11.81	5.80	2 - 26	14.70	4.37	8 - 24
Anxiety	7.39	4.48	0 - 19	10.40	2.72	7 - 17
Depression	8.75	5.12	0 - 26	11.65	4.34	7 - 21
Parenting Stress	73.00	21.38	40 - 117	78.85	21.23	35 - 116
Emotion Socialization						
Emotion Coaching	3.72	.66	2.57 - 5.00	3.63	.54	2.29 - 4.43
Positive Expressiveness	161.22	22.30	104 - 195	154.95	23.26	87 - 186
Negative Expressiveness	70.31	17.23	32 - 116	81.00	20.26	46 - 123
Supportive Reactions	5.70	.63	4.14 - 6.64	5.27	.81	2.81 - 6.31
Unsupportive Reactions	2.42	.49	1.61 - 3.86	2.81	.91	1.36 - 4.92
Child Problem Behaviours	113.72	36.77	33 - 191	131.40	36.60	75 - 191
Broad Autism Phenotype	2.46	.45	1.50 - 3.11	3.71	.44	3.19 - 4.50

Note. One case has been removed from the without BAP status group (see Assumption Testing).

Covariates

Demographic variables such as maternal age, relationship status, maternal education, number of children, income, child age, severity of ASD symptoms (score on ASSQ) and child gender were screened as possible covariates in both BAP and without BAP groups. None of the demographic variables were associated with the dependent variables; therefore, there were no identified covariates that were controlled within the subsequent analyses.

Correlation Analyses

Correlational analyses were conducted between the study's main variables: mothers' emotion socialization variables (emotion coaching, supportive reactions, positive expressiveness, negative expressiveness, and unsupportive reactions), distress variables (stress, anxiety, depression and parenting stress), the BAP, and mother-reported child problem behaviours. Correlation results for the full sample are presented in Table 7. To note, in the correlational analyses, the BAP measure was used as a continuous variable.

For the full sample, child problem behaviours were significantly positively correlated with all distress variables: stress ($p < .001$), anxiety ($p < .001$), depression ($p < .001$, and parenting stress ($p = .017$). That is, higher levels of distress were related to higher levels of child problem behaviours. Child problem behaviours were also significantly correlated with mothers scores on the BAPQ ($p = .043$), in which higher scores on the BAPQ were associated with higher levels of problem behaviours in children. Child problem behaviours were not significantly correlated with any of the emotion socialization variables.

Table 7

Correlations for Full Database (N = 57)

	EC	PE	NE	SUP	UNS	STR	ANX	DEP	PSS	CPB
EC	--									
PE	.27*	--								
NE	.15	.34**	--							
SUP	.17	.37**	-.15	--						
UNS	-.12	-.34*	.21	-.37**	--					
STR	.03	-.15	.26*	-.23	.13	--				
ANX	.02	-.11	.19	-.21	-.04	.71**	--			
DEP	-.01	-.20	.08	-.26	.12	.67**	.75**	--		
PSS	.13	.09	.18	.04	.11	.23	.09	.20	--	
CPB	-.04	.09	.07	-.14	-.03	.56**	.60**	.57**	.32*	--
BAP	-.08	-.29*	.31*	-.36*	.26	.36**	.42**	.349**	.234	.27*

Note. EC = Emotion Coaching; PE = Positive Expressiveness; NE = Negative Expressiveness; SUP = Supportive Reactions; UNS = Unsupportive Reactions; STR = Stress; ANX = Anxiety; DEP = Depression; PSS = Parenting Stress; CPB = Child Problem Behaviours; BAP = Broad Autism Phenotype (continuous variable)
p < .05. **p* < .01.

As predicted, scores on the BAPQ were significantly correlated with stress ($p =$ .005), anxiety ($p = .001$), and depression ($p = .008$), in that higher scores on the BAPQ were related to higher levels of distress. The association with parenting stress was not significant ($p = .080$). The BAPQ was significantly associated with positive expressiveness ($p = .030$) and supportive reactions ($p = .006$), in which lower scores on the BAPQ were related to more positive expressiveness and greater supportive reactions. Higher scores on the BAPQ were associated with more negative expressiveness ($p =$ .020). The relation between BAPQ scores and unsupportive reactions ($p = .055$) was not significant, but there was a trend for higher unsupportive reactions to be associated with higher scores on the BAPQ.

The measures of distress were mostly interrelated, as expected. Stress, anxiety and depression were highly positively correlated. That is, higher levels of stress were related to higher levels of anxiety ($p < .001$) and higher levels of depression ($p < .001$). As well, higher levels of anxiety were associated with higher levels of depression ($p < .001$). However, the relation between stress and parenting stress was not significant ($p = .086$), suggesting they may be distinct constructs.

With respect to the relation between the distress variables and emotion socialization variables, only higher levels of stress significantly correlated with higher levels of negative expressiveness ($p = .048$). The relation between stress and supportive reactions was not significant ($p = .080$), but there was a trend for the relation between higher stress and fewer supportive reactions. Similarly, while the associations between depression and supportive reactions was not significant ($p = .054$), there was a trend for higher levels of depression to be associated with lower levels of supportive reactions.

Significant correlations were noted among some of the emotion socialization variables. As expected, more positive expressiveness was significantly associated with both higher levels of emotion coaching ($p = .040$) and more supportive reactions ($p = .004$). High levels of positive and negative expressiveness were also significantly correlated ($p = .010$). Lower levels of unsupportive reactions were associated with higher levels of positive expressiveness ($p = .012$) and more supportive reactions ($p = .005$).

Without BAP status group. Correlations were further conducted in without BAP status and BAP status groups separately. Correlations for the without BAP status group are presented in Table 8. In the BAP status group, more child problem behaviours reported by mothers related to higher levels of stress, anxiety, and depression ($ps < .001$), but not parenting stress. Child problem behaviours were not significantly correlated with any of the emotion socialization variables ($p = .326$ to $p = .936$).

Variables of distress were mostly interrelated. As such, higher levels of stress were associated with higher levels of anxiety ($p < .001$) and depression ($p < .001$). As well, higher levels of anxiety and depression were highly correlated ($p < .001$). Parenting stress was not related to other variables of distress.

Distress variables were not associated with emotion socialization variables. There was a trend for higher stress to be related to fewer supportive reactions ($p = .057$).

In general, emotion socialization variables were mostly not correlated with each other. However, more positive expressiveness was related to higher levels of supportive reactions ($p = .007$). While not significant, there were trends for higher levels of emotion coaching to be associated with higher levels of supportive reactions ($p = .060$) and for more positive expressiveness to be associated with fewer unsupportive reactions ($p = .068$).

Table 8

Correlations for the Without BAP Status Group (n = 36)

	EC	PE	NE	SUP	UNS	STR	ANX	DEP	PSS	CPB
EC	--									
PE	.24	--								
NE	.14	.28	--							
SUP	.32	.44[**]	-.12	--						
UNS	-.15	-.32	.23	-.16	--					
STR	.06	-.21	.20	-.32	-.10	--				
ANX	.10	-.21	.08	-.25	-.08	.80[**]	--			
DEP	.06	-.26	.05	-.22	.02	.73[**]	.83[**]	--		
PSS	.10	-.03	-.07	.13	.09	.00	.06	.17	--	
CPB	-.01	.09	.02	-.17	-.12	.53[**]	.64[**]	.67[**]	.21	--

Note. EC = Emotion Coaching; PE = Positive Expressiveness; NE = Negative Expressiveness; SUP = Supportive Reactions; UNS = Unsupportive Reactions; STR = Stress; ANX = Anxiety; DEP = Depression; PSS = Parenting Stress; CPB = Child Problem Behaviours

$*p < .05. **p < .01.$

BAP status group. Correlations for the BAP status group are presented in Table 9. In the BAP status group, more child problem behaviours reported by mothers related to higher levels of stress ($p = .009$). Unlike the without BAP group, more parenting stress also related to more problem behaviours ($p = .047$). There was a nonsignificant trend between more problem behaviours and higher anxiety ($p = .056$). Problem behaviours and depression was not significant ($p = .248$). Emotion socialization variables were also not related to problem behaviours in children ($p = .420$ to $p = .999$).

Generally, variables of distress were not intercorrelated, as previously seen in the without BAP status group. However, higher levels of stress and parenting stress were highly correlated ($p < .001$), which was not observed in the without BAP status group. Only one distress variable was correlated with an emotion socialization variable. That is, more parenting stress was related to higher negative expressiveness ($p = .029$).

Similar to the without BAP group, the majority of emotion socialization variables were not significantly related. However, three significant associations emerged. Higher levels of positive expressiveness was associated with higher levels of negative expressiveness ($p = .009$) and fewer unsupportive reactions ($p = .050$). More supportive reactions were associated with fewer unsupportive reactions ($p = .008$).

Between the without BAP status group and the BAP status group, the only significant correlation that occurred in both samples was the correlation between child problem behaviours and stress. To examine potential differences in the correlations between the groups, the correlations were transformed into z-scores using Fisher's r-to-z transformations. To compare each correlation pair (association between the same two variables), a z-score based on the difference between the two values and the variance of the difference between the two scores was obtained (two-tailed test of significance was

Table 9

Correlations for the BAP Status Group (n = 20)

	EC	PE	NE	SUP	UNS	STR	ANX	DEP	PSS	CPB
EC	--									
PE	.31	--								
NE	.28	.57**	--							
SUP	-.13	.23	-.04	--						
UNS	-.15	-.44	.13	-.58**	--					
STR	-.01	.08	.23	.09	.27	--				
ANX	-.12	.36	.18	.16	-.25	.26	--			
DEP	-.14	.01	-.07	-.15	.07	.38	.39	--		
PSS	.24	.35	.49*	.00	.10	.71**	.04	.20	--	
CPB	-.09	.19	.00	.05	-.12	.57**	.43	.27	.45*	--

Note. EC = Emotion Coaching; PE = Positive Expressiveness; NE = Negative Expressiveness; SUP = Supportive Reactions; UNS = Unsupportive Reactions; STR = Stress; ANX = Anxiety; DEP = Depression; PSS = Parenting Stress; CPB = Child Problem Behaviours
*p < .05. **p < .01.

used). The strength of the correlation was not significantly different between the groups (z = -0.22, p = .826).

Differences by BAP Status

Independent t-tests were conducted to compare the differences between distress, emotion socialization, and child behaviour problems in without BAP status and with BAP status groups (see Table 6 for means and standard deviations).

Distress. It was hypothesized mothers with BAP status would report greater levels of stress, anxiety, depression and parenting stress than mothers without BAP status. Independent sample t-tests were conducted to compare the differences in distress. Consistent with Hypothesis 1, there was a significant difference in symptoms of anxiety, $t(55) = 2.78, p = .007$, 95% CI [-5.200, -.843], and depression, $t(55) = 2.120, p = .039$, 95% CI [-5.523, -.1556], in which mothers with BAP status reported higher levels of anxiety and depression. Mothers with BAP status tended to report higher levels of stress than the without BAP status group, however, this was not significant $t(55) = 1.907, p = .062$, 95% CI [-5.759, .1424]. Levels of reported parenting stress did not differ between groups, $t(55) = .989, p = .327$, 95% CI [-17.550, 5.958]

Emotion socialization. In Hypothesis 2, it was expected that emotion socialization practices would differ between mothers with BAP status and mothers without BAP status. The two groups were compared on measures of emotion coaching, supportive reactions, positive expressiveness, negative expressiveness and unsupportive reactions. Consistent with the hypothesis, the analyses revealed that there was a significant difference in supportive reactions, $t(55) = 2.260, p = .028$, 95% CI [.049, .820] and negative expressiveness, $t(55) = -2.086, p = .042$, 95% CI [-.20.665, -.416], in which mothers with BAP status reported fewer supportive reactions and more negative

expressiveness than mothers of without BAP status. Within supportive reactions, problem-focused reactions were higher for mothers of without BAP status $t(55) = 3.040$, $p = .004$, 95% CI [.197, .961] and there was a nonsignificant trend for emotion-focused reactions to be higher in mothers of without BAP status ($p = .075$). Expressive encouragement did not differ between groups ($p = .271$). Inconsistent with the hypothesis, the emotion socialization practices that did not differ between groups included emotion coaching, $t(55) = .592$, $p = .556$, 95% CI [-.241, .443], positive expressiveness, $t(55) = 1.040$, $p = .303$, 95% CI [-6.009, 19.320] and unsupportive reactions, $t(53) = -1.449$, $p = .153$, 95% CI [-.734, .118]. However, under the umbrella of unsupportive reactions, mothers with BAP status reported more punitive reactions, but this trend was not significant ($p = .087$). Distress reactions ($p = .240$) and minimizing reactions ($p = .566$) did not differ between groups.

Child problem behaviours. There was a trend for mothers with BAP status to report more child problem behaviours than mothers without BAP status, $t(55) = -1.692$, 95% CI [-37.415, 3.156], but this difference was not significant ($p = .096$).

Regression Analyses: Emotion Socialization and Problem Behaviours

Contrary to Hypothesis 4, maternal emotion socialization variables did not predict problem behaviours in children in either the without BAP status group or the BAP status group. Therefore, in the without BAP status group ($n = 36$), emotion coaching ($p = .473$), positive expressiveness ($p = .716$), negative expressiveness ($p = .959$), supportive reactions ($p = .634$), and unsupportive reactions ($p = .360$) did not predict child problem behaviours (see Table 10). Likewise, as seen in Table 11, emotion coaching ($p = .708$), positive expressiveness ($p = .436$), negative expressiveness ($p = .679$), supportive reactions ($p = .907$), and unsupportive reactions ($p = .986$) did not predict problem

Table 10

Predicting problem behaviours from emotion socialization in the Without BAP status group

	Coeff.	SE	CI
Emotion Coaching	-7.761	10.670	-29.618 – 14.096
Positive Expressiveness	-.148	.403	-.973 – .677
Negative Expressiveness	.022	.417	-.833 – .876
Supportive Reactions	-5.984	12.449	-31.484 – 19.516
Unsupportive Reactions	-13.578	23.587	-4.459 – 16.302

Table 11

Predicting problem behaviours from emotion socialization in the BAP status group

	Coeff.	SE	CI
Emotion Coaching	-7.437	19.430	-49.110 – 34.236
Positive Expressiveness	.515	.643	-.863 – 1.894
Negative Expressiveness	-.287	.677	-1.739 – 1.166
Supportive Reactions	-1.785	15.056	-34.078 – 30.507
Unsupportive Reactions	.295	16.220	-34.493 – 35.084

behaviours in children in the BAP status group (*n* = 20).

Moderation Analyses

      Emotion socialization practices alone were not found to predict problem

behaviours in children in either the BAP status group or the without BAP status group.

However, distress has been found to impact socialization practices, and therefore the

relation between emotion socialization and problem behaviours may be more complex

than the previous analyses revealed. To test the hypotheses of whether distress variables

interact with emotion socialization variables to predict problem behaviours in children,

moderation analyses were conducted in both the without BAP status group and the BAP

status group. The Process Macro for SPSS (Hayes, 2013) was used to conduct the

moderation analyses to determine whether the variables of maternal distress moderated

the relation between emotion socialization practices and problem behaviours in children.

Separate regression analyses were conducted for each interaction variable.

      Without BAP status group. The moderation results for the without BAP status

group are presented first.

      Stress. Stress was found to moderate a number of emotion socialization variables

when predicting child problem behaviours. The relation between emotion coaching and

problem behaviours was moderated by stress (*b* = 4.588*, SEb* = 1.453, *p* = .004, *CI* =

1.629 to 7.547), in which the interaction between stress and emotion coaching accounted

17% of the variance. As depicted in Figure 1, in mothers with low stress, greater emotion

coaching predicted fewer problem behaviours. Conversely, in mothers with high stress,

greater emotion coaching was associated with greater problem behaviours.

      The relation between supportive reactions and problem behaviour was conditional

on stress (*b* = 3.134*, SEb* = 1.416, *p* = .034, *CI* = .251 to 6.018). The addition of the
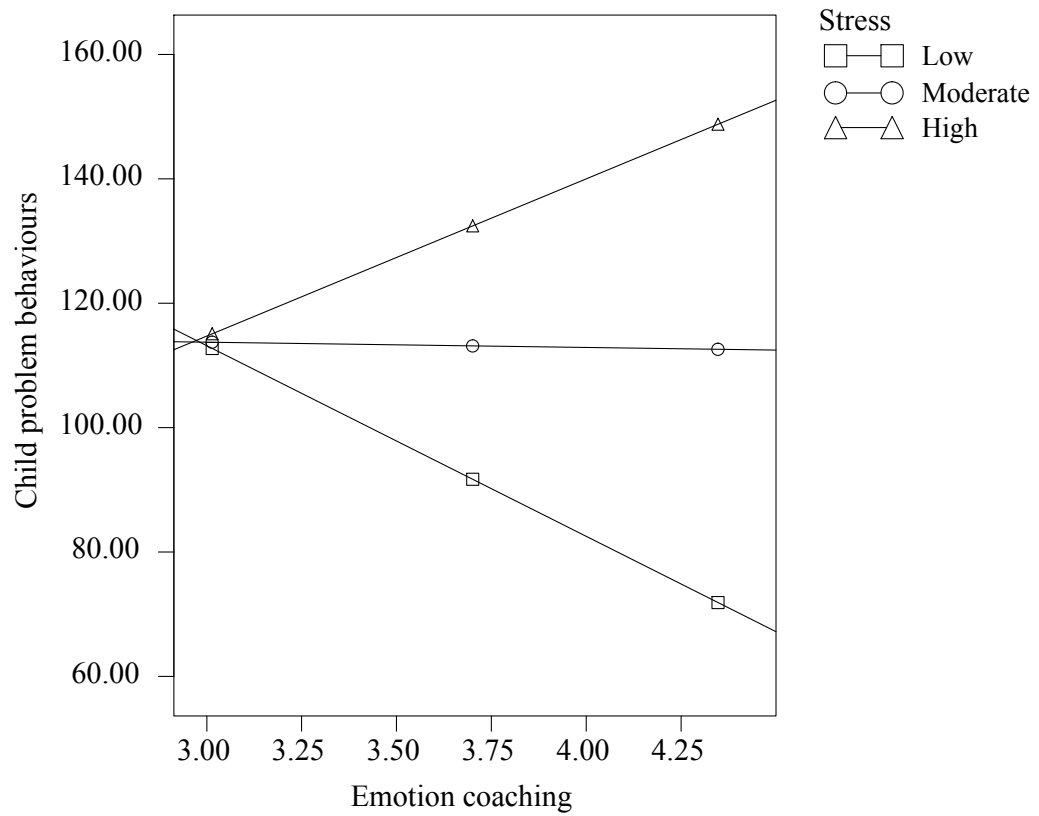
Figure 1: The interaction between stress and emotion coaching to predict problem behaviours in children (without BAP group).

interaction to the model accounted for 13% of the variance. Similar to the emotion coaching and stress model, greater supportive reactions predicted fewer problem behaviours in the low stress group (see Figure 2). In the high stress group, greater supportive reactions predicted higher levels of problem behaviours.

Stress also moderated the relation between positive expressiveness and problem behaviours (b =.085, SEb = .040, p = .042, CI = .004 to .167). The interaction variable of stress and positive expressiveness accounted for approximately 12% of the variance in predicting problem behaviours. A similar pattern to the previous two moderation models emerged. As depicted in Figure 3, in the low stress group, greater positive expressiveness predicted fewer problem behaviours. In the moderate and high stress level groups, greater positive expressiveness was associated with higher levels of problem behaviours.

Stress did not moderate the relation between child problem behaviours and negative expressiveness (b = -.029, SEb = .067, p = .664, CI = -.165 to .106) or child problem behaviours and unsupportive reactions (b = -1.779, SEb = 2.443, p = .472, CI = -6.768 to 3.210).

Taken together, mothers who experienced lower levels of stress and higher levels of positive emotion socialization practices, their children were reported to exhibit fewer problem behaviours. However, when stress was high, higher levels of positive emotion socialization practices predicted higher levels of problem behaviours.

Anxiety. Anxiety was found to moderate the relation between one positive emotion socialization practice and problem behaviours in children. Specifically, the interaction between emotion coaching (b = 4.795, SEb = 1.706, p = .008, CI = 1.320 to 9.270) and anxiety was significant, in which 10% of the variance of problem behaviours

Figure 2: The interaction between stress and supportive reactions to predict problem

behaviours in children (without BAP group).

Figure 3: The interaction between stress and positive expressiveness to predict problem

behaviours in children (without BAP group)

was explained. Specifically, in the low anxiety group, greater emotion coaching was associated with fewer problem behaviours. When mothers experienced high levels of anxiety, greater emotion coaching predicted greater problems behaviours (see Figure 4).

The interaction between supportive reactions and anxiety was nonsignificant, but a trend was observed (b = 3.784, SEb = 1.929, p = .059, CI = -.145 to 7.713). Positive expressiveness (b =.045, SEb = .046, p = .331, CI = -.048 to .138), negative expressiveness (b = -.150, SEb = .084, p = .091, CI = -.317 to .025) and unsupportive reactions (b = -1.916., SEb = 2.518, p = .453, CI = -7.059 to 3.227) did not interact with anxiety to predict problem behaviours in children.

Depression. Depression did not moderate emotion socialization practices to predict problem behaviours. As such, depression did not interact with emotion coaching (b = 2.779, SEb = 1.519, p= .077, CI = -.315 to 5.872), supportive reactions (b =3.621, SEb = 2.414., p = .142, CI = -1.296 to 8.538), positive expressiveness (b = .078, SEb = .046, p = .104, CI = -.017 to .172), negative expressiveness (b =-.06, SEb = .079, p = .428, CI = -.223 to .097), or unsupportive reactions (b = -.891, SEb = 1.962, p = .653, CI = -4.897 to 3.115) to predict problem behaviours in children.

Parenting stress. The variable of parenting stress moderated one positive emotion socialization practice to predict problem behaviours. As such, the relation between emotion coaching and problem behaviours was conditional on parenting stress (b = -1.660, SEb = .340, p < .001, CI =.967 to 2.352). In the model, the interaction accounted for 36% of the variance. Once again similar to the previous models, in mothers with low parenting stress, greater emotion coaching predicted lower levels of problem behaviours (see Figure 5). In mothers with greater parenting stress, higher levels of emotion coaching was associated with more problem behaviours. Supportive reactions (b = .265., SEb =
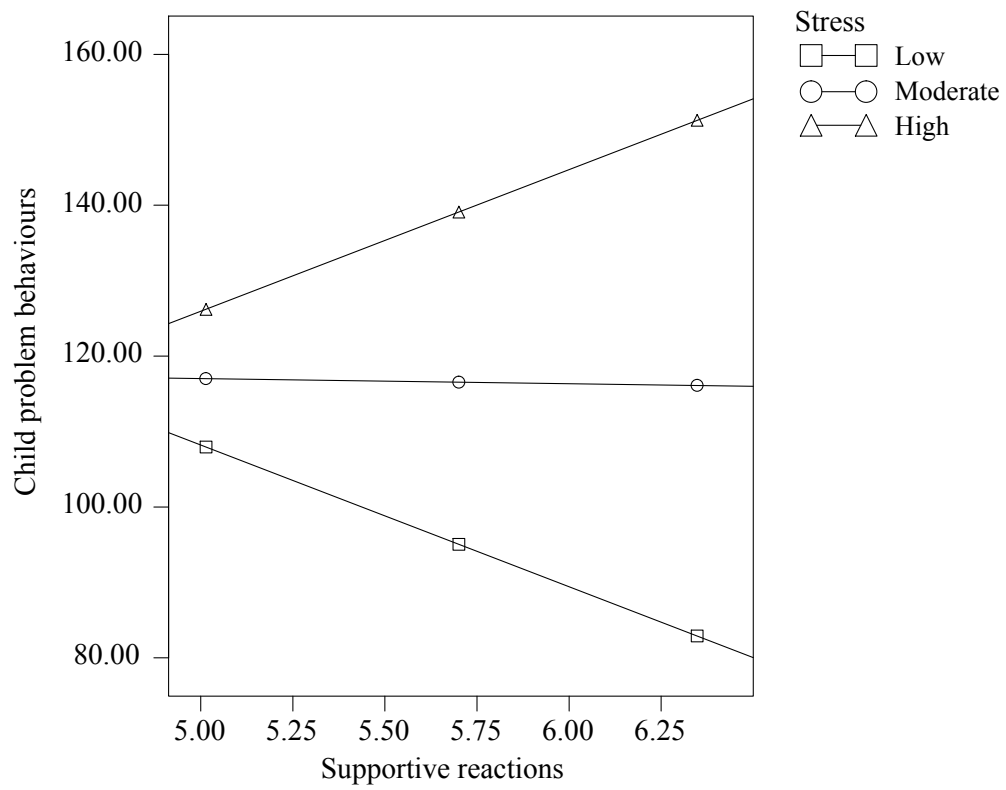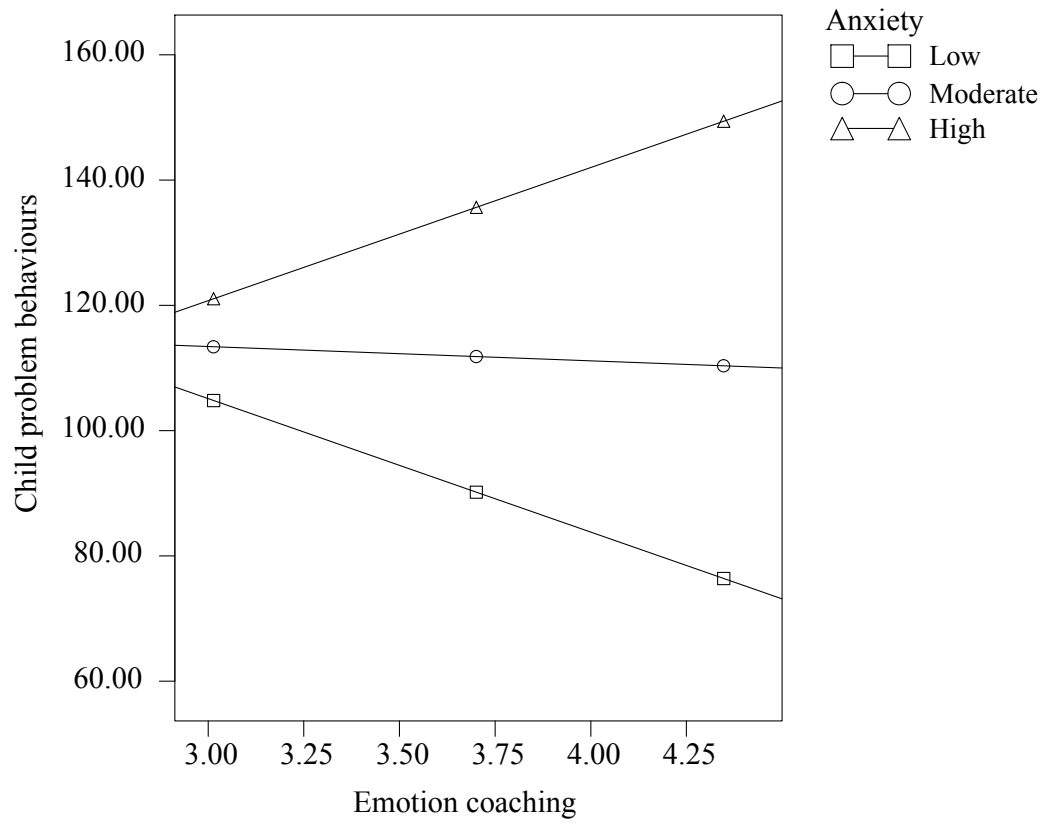
Figure 4: The interaction between anxiety and emotion coaching to predict problem

behaviours in children (without BAP group).
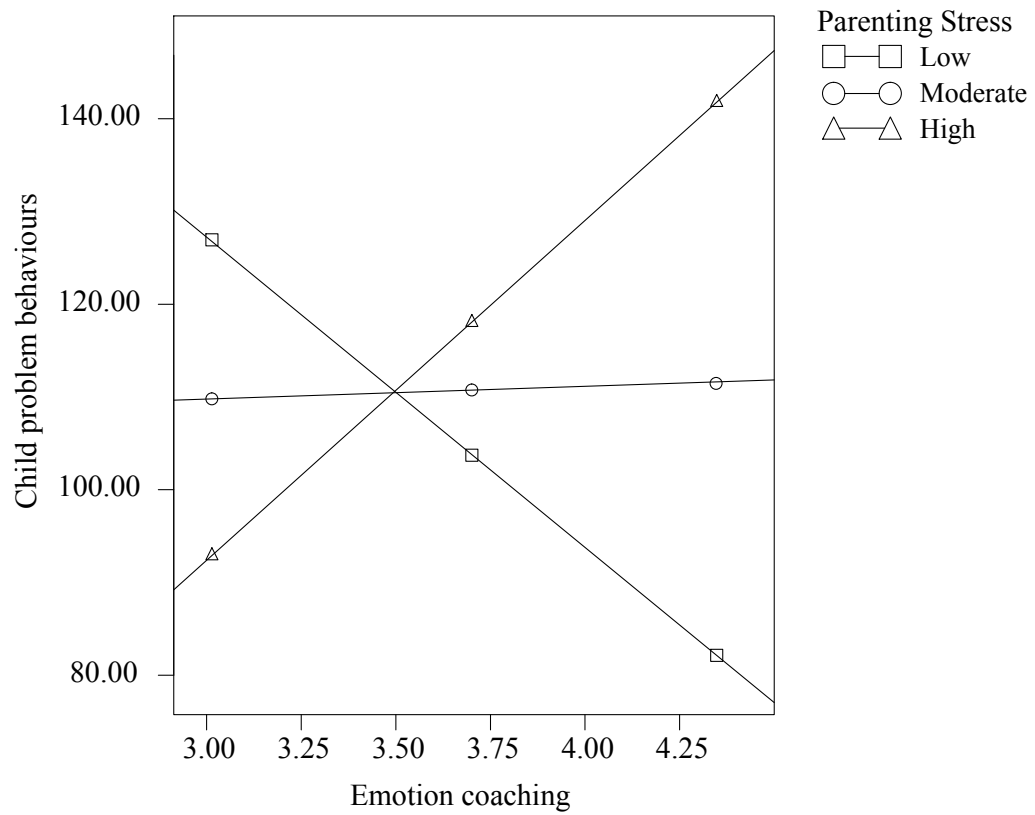
Figure 5: The interaction between parenting stress and emotion coaching to predict

problem behaviours in children (without BAP group).

.535., p = .625, CI = -.826 to 1.355), positive expressiveness (b = .018, SEb = .015, p =

.253, CI = -.013 to .049), negative expressiveness (b = -.002, SEb = .022, p = .923, CI =

-.048 to .043) and unsupportive reactions (b = -.213, SEb = .476, p = .658, CI = -1.184 to

.759) did not interact with parenting stress to predict problem behaviours.

BAP status group. The following results are the moderation analyses conducted

in the group of mothers with BAP status.

Stress. The relation between negative expressiveness and problem behaviours was

conditional on stress (b = -.182, SEb = .082, p = .041, CI = -.355 to -.008), whereby the

interaction accounted for 15% of the variance in the model. As depicted in Figure 6, in

the low stress group, high negative expressiveness predicted greater problem behaviours.

In the moderate and high stress groups, high negative expressiveness predicted fewer

problem behaviours.

Stress did not moderate the relation between positive emotion coaching practices

and problem behaviours as seen in the without BAP status group. As such, the emotion

coaching (b = .858, SEb = 3.626, p = .816, CI = -6.829 to 8.545), supportive reactions (b

= -.487, SEb = 3.151, p = .442, CI = -9.169 to 4.194), and positive expressiveness (b =

.027, SEb = .077, p = .731, CI = -.135 to .189), did not interact with stress to predict

problem behaviours. Likewise, unsupportive reactions and stress did not interact to

predict problem behaviours (b = -1.922, SEb = 2.207, p = .397, CI = -6.600 to 2.757).

Anxiety. In mothers with BAP status, anxiety did not moderate the relation

between emotion socialization and problem behaviours. That is, emotion coaching (b =-

.672., SEb = 8.985, p = .941, CI = -19.721 to 18.377), supportive reactions (b =9.025,

SEb = 6.319, p = .172, CI = -4.371 to 22.421), positive expressiveness (b = -.201, SEb =

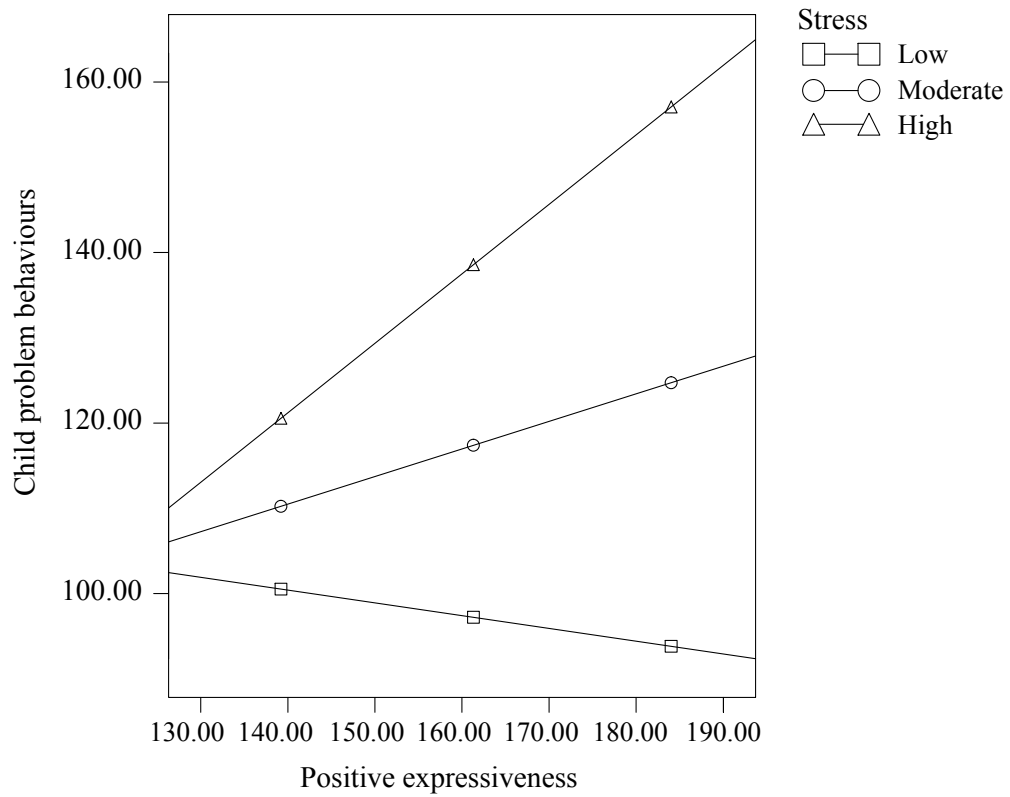*Figure 6:* The interaction between stress and negative expressiveness to predict problem behaviours in children (BAP group).

.201, p = .333, CI = -.627 to .226), negative expressiveness (b = -.019, SEb = .188, p =

.919, CI = -.418 to .379), and unsupportive reactions (b = 2.639, SEb = 3.907, p = .509,

CI = -5.644 to 10.922) did not interact with anxiety to predict child problem behaviours.

Depression. Similar to anxiety, depression did not moderate the relation between

emotion socialization variables and problem behaviours. As such, emotion coaching (b =.

-4.403, SEb = 3.170., p = .184, CI = -11.123 to 2.317), supportive reactions (b =1.559,

SEb = 2.857, p = .593, CI = -4.499 to 7.617), positive expressiveness (b = .120, SEb =

.166, p = .480, CI = -.232 to .471), negative expressiveness (b = .034, SEb = .110, p =

.765, CI = -.200 to .267) and unsupportive reactions (b = .754, SEb = 2.479, p = .765,

CI = -4.501 to 6.008) did not interact with depression to predict problem behaviours.

Parenting stress. Parenting stress acted as a moderator in one of the five

moderation models tested. Specifically, the relation between negative expressiveness and

problem behaviours was conditional on parenting stress (b = -.041, SEb = .017, p =.024,

CI = -.076 to -.006). Parenting stress accounted for approximately 21% of the variance in

the model. The parenting stress and the stress models were very similar. That is, in the

low parenting stress group, more negative expressiveness predicted greater problem

behaviours. In the moderate and high stress groups, high negative expressiveness

predicted fewer problem behaviours (see Figure 7).

Emotion coaching (b = -.525, SEb = .763, p = .502, CI = -2.143 to 1.094),

supportive reactions (b = -.130, SEb = .780, p = .869, CI = -1.784 to 1.523), positive

expressiveness (b = -.011, SEb = .015, p = .495, CI = -.043 to .022), and unsupportive

reactions (b = -.238, SEb = .560, p = .677, CI = -1.425 to .950) did not interact with

parenting stress to predict problem behaviours.

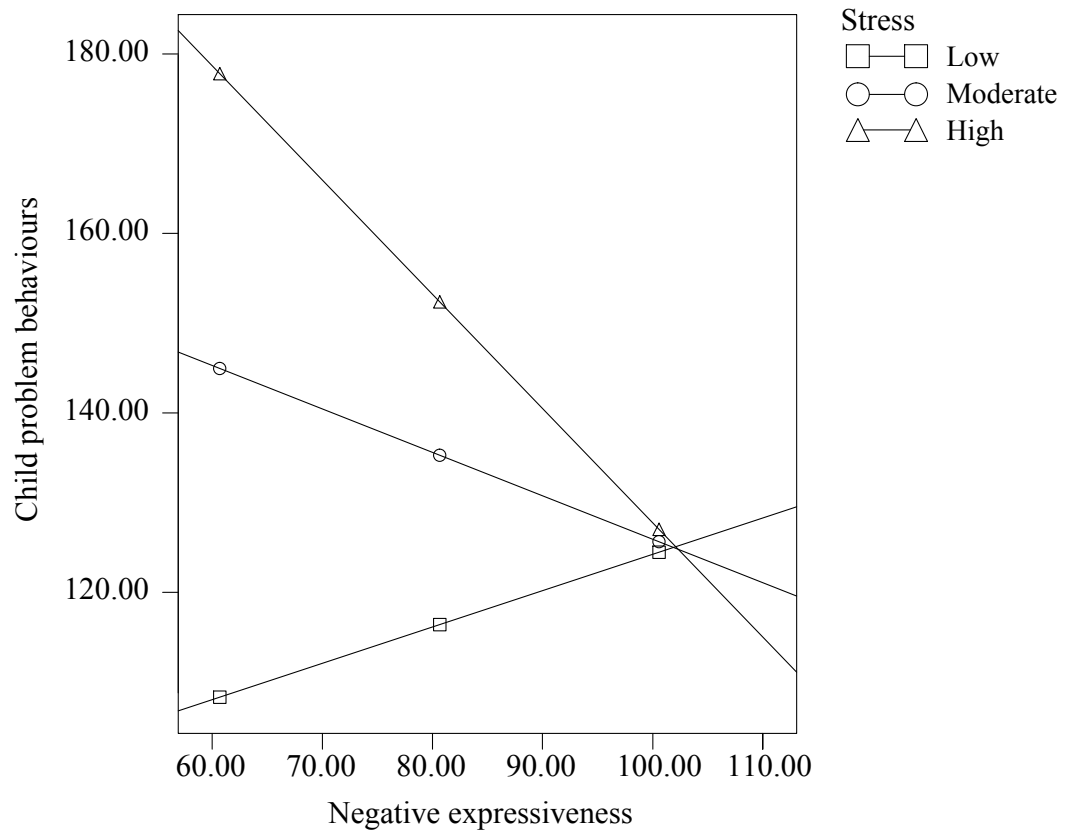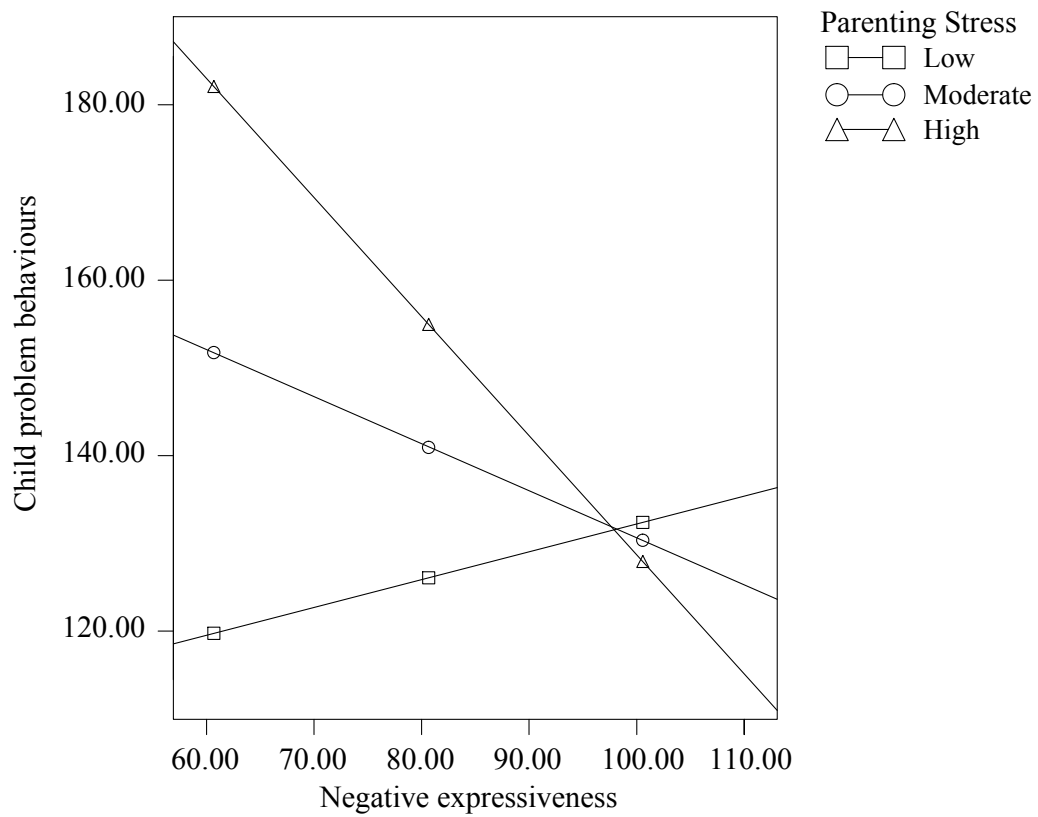*Figure 7:* The interaction between parenting stress and negative expressiveness to predict problem behaviours in children (BAP group).

Qualitative Results

Emotion socialization processes have been largely overlooked in mothers of children with ASD. The goal of the qualitative portion of the study was to provide a more in-depth account of how mothers of children with ASD socialize emotion, with a main focus on meta-emotion philosophy, maternal reactions to children's negative emotions, and maternal expressiveness.

Overview of Analysis

Interviews were conducted and transcribed verbatim by a trained research assistant. The principal investigator was responsible for all other aspects including segmenting data, developing/applying codes and the data analysis. Interview transcripts were systematically analyzed using Dedoose (Version 7.0.23; available at http://www.dedoose.com), an online research software program that permits a mixed method approach to qualitative data. Dedoose was primarily used to organize the data. As such, it was used to segment the interviews into excerpts that were representative of the study's codes and themes. It also helped to compile and organize codes, as well as examine the data/themes.

The majority of thematic codes were developed prior to reviewing the data. A theoretical, or deductive, approach was utilized in which the codes that were developed were theory driven. The questionnaires in the quantitative portion of the study provided an outline for many of the thematic labels. Emotion coaching and emotion dismissing were thematic codes derived from Gottman's meta-emotion philosophy and the MESQ (Gottman, 1997; Gottman et al., 1996; Hooven et al., 1995; Lagacé-Séguin & Coplan, 2005). The thematic codes for maternal reactions to children's negative emotions were grounded in emotion socialization theory and mapped onto the subscales within the

CCNES. Supportive reactions included problem-solving, expressive encouragement, and emotion-related reactions. Negative reactions included distress reactions, punitive reactions, and minimizing reactions. The questionnaire assessing positive and negative expressiveness (SEFQ; Halberstadt et al., 1995) did not directly guide the development of thematic codes. The questionnaire assessed expressiveness within the family home, whereas in the interview, mothers provided information on their experience of emotion during the emotion-related situations with their children. The codes were therefore guided by the questions asked in the interview and by examining the interviewees responses. For example, when mothers were asked "Did you experience any emotions during this situation? If so, what were they?" codes were developed to capture each discrete emotion reported. Codes were then developed to capture expression, if it occurred (e.g., yelled at child, cried, etc.). See Appendix C for a brief description and example of the codes.

To analyze the data, the thematic analysis approach outlined by Braun and Clarke (2006) and Clarke and Braun (2013) was followed. In Phase 1 (familiarizing yourself with your data) the interview transcripts were read multiple times. During this phase, the codes/themes that were developed prior to the analysis were considered for fit within the data. Additional ideas for codes were also noted. Phase 2 (generating initial codes) began by creating a comprehensive list of codes, including those previously developed and those that emerged during Phase 1. A coding manual was developed and used when systematically reviewing the data set, coding each segment of data. In Phase 3 (searching for themes) consideration was given to how certain codes grouped together to form themes. As such, codes were organized into overarching themes that followed both the data and emotion socialization theory. Phase 4 (reviewing themes) involved refining the themes created in Phase 3. All coded data within each theme were reviewed to ensure that

each coded segment was appropriately placed. At the end of this phase, the researcher

achieved a solid understanding of the themes, how they fit together, and how they

represented the overall data. In Phase 5 (defining and naming themes) the final

verification of themes was conducted. Each theme was clearly defined by a short

description and was noted in the coding manual. Following completion of Phase 5, the

coding manual and two transcripts were provided to a faculty member at the University of

Windsor with expertise in emotion socialization and qualitative methodology for review.

In addition, a description of the thematic analyses, the coding process and the theory-

based approach were discussed with the faculty member.

Interview Data Analysis

All interview participants were identified with a participant number. Tables 12

and 13 display the demographic information of the interviewees. Emotion socialization

and distress measures, as well as BAPQ scores were converted to z-scores to highlight

how interviewees scored compared to those in the overall sample ($n = 57$), which is

displayed in Tables 14 and 15. Information provided in the interviews was organized

around three main emotion socialization themes: meta-emotion philosophy, reactions, and

emotional expression. Additional themes related to aspects of emotion socialization that

emerged during the thematic analyses were also identified.

Meta-Emotion Philosophy

Maternal meta-emotion philosophy was observed when interviewees spoke about

their thoughts, feelings, attitudes, or beliefs about their approach to emotion socialization.

Interviewees were asked to speak about their thoughts during emotion-related events and

in addition, to report on what they believed their role to be in managing their child's

negative emotions. As such, the following questions helped to assess mother's emotion

Table 12

Demographic Information for All Interview Participants

Participant	Mother age	Marital Status	Education	Mother Diagnoses	# of Children
1	45	Married	Undergraduate degree	-	2
2	51	Married	Some University	-	2
3	34	DP	Master's Degree	-	1
4	39	Married	College Diploma	MDD	2
5	38	Married	Undergraduate degree	BP	2
6	36	Single	Some University	GAD	2
7	49	Married	High School Diploma	-	2
8	36	Married	Undergraduate degree	-	3
9	45	Married	Some college	GAD, SOC, MDD	1

Note. DP = Domestic partnership; MDD = Major Depressive Disorder; BP = Bipolar Disorder; GAD = Generalized Anxiety Disorder; SOC = Social Anxiety.

Table 13

Demographic Information for the Children Discussed in the Interview

Participant	Child Age (Year-Month)	Child Sex	Additional Diagnoses	Child Problem Behaviours (*Z* Score)
1	12-11	M	Lang, ADHD	.72
2	13-5	M	Lang; Anx	1.37
3	13-9	F	-	.10
4	9-9	M	Anx; ADHD	.40
5	15-2	M	Lang; Anx; Dep; OCD	.77
6	8-9	M	Lang	-.68
7	11-7	M	-	-.55
8	6-8	M	Anx; ADHD	1.91
9	10-8	F	Anx; Dep	.91

Note. Lang = Language Disorder; ADHD = Attention-Deficit/Hyperactivity Disorder; Anx = Anxiety; Dep = Depression; OCD = Obsessive Compulsive Disorder

Table 14

Standardized Emotion Socialization Scores for All Interview Participants

Participant	Z Scores										
	DR	PR	MR	UNS	EE	EFR	PFR	SUP	EC	PE	NE
1	-.77	-.16	.45	-.15	.79	.63	.73	.86	-.67	1.28	-.38
2	-1.57	.85	.36	-.07	-.59	.92	.05	.12	-.20	-.27	-2.25
3	-2.27	-.53	-2.8	-1.13	-.77	-1.19	-.52	-1.00	-1.13	-.10	-1.24
4	-.57	-.89	-.55	-.76	1.31	.53	.62	1.01	-.20	.84	.15
5	-.57	-.89	-.73	-.83	1.57	.15	.84	1.05	1.67	1.28	.47
6	1.24	1.12	.99	1.30	-.33	-.14	-1.31	-.65	-.90	-3.2	-1.5
7	.64	-.16	-.55	-.04	-.07	1.21	-.06	.43	-.43	1.19	2.60
8	-.16	.02	-1.27	-.54	1.05	.73	.16	.82	-.20	.53	.63
9	1.04	-.25	-.82	-.04	.71	.73	1.30	1.05	-1.37	-1.47	-.86

Note. DR = Distress Reactions; PR = Punitive Reactions; MR = Minimizing Reactions; UNS = Unsupportive Reactions; EE = Expressive Encouragement; EFR = Emotion-Focused Reactions; PFR = Problem-Focused Reactions; SUP = Supportive Reactions; EC = Emotion Coaching; PE = Positive Expression; NE = Negative Expression

Table 15

Standardized BAP Scores and Distress Scores for All Interview Participants

Participant			Z score		
	BAP	Anxiety	Depression	Stress	Parenting Stress
1	-.45	-.35	-.36	.94	.28
2	-.23	.86	.44	-.16	.94
3	-1.08	-.35	-.16	-.90	-.52
4	-1.86	.14	-.56	.21	-1.38
5	-.01	.38	-.56	-.53	1.42
6	1.11	-.11	.04	-.71	-1.61
7	1.51	.14	-.56	-.16	.33
8	.66	1.10	-.36	.02	.37
9	1.07	.86	.84	1.31	.33

related beliefs: What were you thinking during this situation when your child experienced

[sadness/anger/fear]; As a parent, what do think you need to do when your child

experiences [sadness/anger/fear]; What do you feel is your role in managing your child's

emotion of [sadness/anger/fear]? The coding was developed from the theoretical

categories of emotion coaching and emotion dismissing. However, the data were also

evaluated for other aspects of meta-emotion philosophy. As such, a theme of awareness

also emerged. Awareness in this context described mothers' understanding of how

characteristics within themselves and their children impact the emotion socialization

process.

   Emotion coaching. Emotion coaching meta-emotion philosophy was identified

when mothers spoke about adaptive cognitive processes surrounding their approach to

emotion. Key terms such as closeness, teaching, comfort, support, validating, process,

problem-solve, understand, explore and learn were used to help identify the emotion

coaching style. All but one mother reported on thoughts or beliefs that were consistent

with an emotion coaching style.

   Teaching about emotions was a central aspect of emotion coaching for mothers.

To illustrate, when asked, "As a parent, what do you *think* you need to do when your

child experiences sadness? What do you *feel* is your role in managing your child's

emotion of sadness?" one mother stressed the importance of teaching her child

appropriate reactions when experiencing an emotion:

   Really to just to help him navigate it. It's normal to feel sad. But really to help

   teach him I guess the, a proportional reaction. If that makes sense. Like you

   shouldn't be as upset about, something like a phone breaking as you would be if

somebody died. Like just to sort of, to sort of you know, which thing is a big deal

that we can, yes you should be really upset. These things are small and it's not a

you know. Teaching him the problem solving and the coping skills to not

overreact. (Mother 5)

Depending on the negative emotion experienced by the child, it was not uncommon for

different aspects of emotion coaching to emerge. For instance, one mother spoke about

her perceived role in fear-inducing situations was to explain and teach, in hopes that her

child would develop a coping strategy in how to manage anxiety:

And help her know what, what's going on? Why did it happen, things are ok. You

know of course my thought is, is, kinda hope that if we do this over and over and

over again that she will eventually connect my explanation with the sound or the

experience. And she'll be able to do it on her own and provide some of her own

reassurance. Even better, not become afraid in the first place. And she'll be like

'oh I know what that is, that's no big deal'. And everything will be fine. That

hasn't happened yet. (Mother 3)

In contrast, when her child experiences sadness, the mother's thoughts were less

concentrated on teaching, and more focused on the importance of allowing her child to

express her emotions:

Yeah, you know providing her that, that reassurance and giving her the freedom to

express that. It's hard for her to use words and communicate and so, and to really

even identify feelings at all. So I, I want her to express them because I feel like

when she doesn't express, whether it be feelings and emotions or her sensory

needs, she's more likely to explode. (Mother 3)

Similarly, another mother demonstrated differences in her approach depending on the

emotion, albeit it was subtler than the previous examples. This mother believed that her overall role was to provide her child with coping strategies to help manage negative emotions. Although she had an emotion coaching style throughout the emotion-related events, nuances in her perceived role were apparent during her description of the fear and sadness situations. For example, the in the fear scenario, the mother endorsed her role in teaching direct strategies such as rationalization and confronting the fear.

> Well, I would try to help him find ways to face his fear and find ways to sort of, if there's a way to rationalize the fear, to make sure that he has ways to rationalize that fear so it's not as scary and it's a little easier for him to face. (Mother 6)

With sadness, she viewed her role as more open-ended, with a goal to help the child understand their sadness and make an appropriate action.

> Well, especially right now my role is just to try to help him understand his emotions and try to help him think out his options. And think out his choices. Because, especially like if he's getting upset and like, at the school or at his day camp and I'm not there, I just, I want to help provide him with the tools he needs so he can do it on his own. (Mother 6)

Validating a child's emotional experience also represented an aspect of emotion coaching. When describing her thoughts about her role in managing her son's sadness, a mother spoke about how her general philosophy was to let her son know that his feelings are understood.

> I help him, we usually say, we understand why you're feeling this way. And list the reasons why we think. And we say is that right? (Mother 1)

Providing comfort, in addition to providing information, was frequently discussed within an emotion coaching context. A sample excerpt is as follows:

Yeah. I try to comfort him the best I can and give him lots of information on the

situation so that way he can process his emotions a little bit better. (Mother 4)

Emotion dismissing. Emotion dismissing meta-emotion philosophy was

identified when mothers spoke about how they view their children's negative emotional

experience as something to stop, to fix, or to get over quickly. Unlike emotion coaching,

emotion dismissing philosophy was rarely endorsed. Only one mother was found to hold

a primarily emotion dismissing philosophy based on the interview questions. This parent

was particularly consistent in her emotion dismissing beliefs, which surfaced in both in

fear and anger situations (as a note, the sadness incident for this mother could not be

coded in full as she spoke in detail about an event in which she believed her daughter

should have felt sad, but ultimately did not). While emotion dismissing was not a

dominant theme, the following is an example of an emotion dismissing response, "And

when she starts to show frustration we're like 'holy crap we gotta fix this, we gotta be

quick before she loses control." (Mother 9)

Awareness. Within meta-emotion philosophy, awareness describes parents'

awareness of their own and their children's emotional experiences (Gottman et al., 1996).

From the thematic analyses, two awareness themes emerged that vary from the existing

conceptualization of awareness within a meta-emotion philosophy. That is, they relate to

more specific types of awareness, instead of a broad awareness of emotions. The first

theme, *Awareness of Parental Impact* represented mothers' understanding that their

reaction to their children's emotional expression further impacts their children's

behaviour or emotions. Three of nine interviewees referenced how their reaction affects

their children. One mother, for example, described how she remains mindful of how she

responds, as to not intensify her child's emotion.

At this point in my life with her, that little tiny bit of worry begins to pop up of an

awareness that I need to be very mindful of how I respond so that things do not

escalate further. And some awareness that sometimes even when I am the perfect

mommy, not that there is one, but, it's not gonna work. And sometimes there is

that little worry that crops up of 'what's gonna happen, what is she going to do?'

(Mother 3)

Another mother also explained that her emotional reactions tend to further intensify her

child's emotions. However, this mother reported that she continues to struggle with

controlling her emotions despite her awareness of the impact that she has.

I can still get caught in the emotions. You know my emotions swing and... and

you know forget, in the moment just forget that you know I need to be a different

kind of parent for her you know. (Mother 9)

Another mother reported that she is unlikely to share her feelings of sadness because it

further deepens her son's sadness:

So we, we tend to not tell him that, if he did, if he's done something and, and we

feel upset or sad about it. Or said something that we feel upset or sad about we

don't say anything because he turns that, he brings that into his own upset.

(Mother 5)

The second theme, *Awareness of Processing Limitations,* represented a level of

awareness in which interviewees understood the emotion processing difficulties that their

children experience. In addition, the theme also captured how mothers' approach toward

their children's negative emotion may sometimes be a result of accommodating their

children's processing needs. It has been well documented that children with ASD have

difficulty processing emotion (e.g., Lartseva1, Dijkstra, & Buitelaar, 2015; Laurent &

Rubin, 2004; Mazefsky & White, 2014). As such, it was not surprising to see that six of the interviewees reported on aspects of their children's processing limitations. While some mothers spoke about their children's processing style and deficits:

> And so you have to explain it to her in those kinds of terms. Very basic black and
> white. I think of it, it's difficult kind of, maybe that's just how I am… I realize
> now that she probably can't process some of the emotions that she's having.
> (Mother 9)

Others made reference to the idea that their child's negative emotions may develop as a result of communication deficits related to their disorder:

> I just feel, you know I just feel sorry for the whole thing. In general, I know that
> it's miscommunication somewhere and so far he has not able to pick it up, but
> that's the way it is. And I pay attention to the detail until I find out exactly what's
> going on. (Mother 2)

Maternal Reactions

Maternal reactions represented the overall theme of how mothers responded to their children's emotion. Only mothers' description of their actual response to their child was coded, not hypothetical responses or what mothers believed they should have done, or what they typically do in such a situation. The interview question, "Describe how you responded to your child during this situation in which your child experienced [sadness/anger/fear]" helped to assess how mothers responded to their children during emotion-related situations. Three main types of reactions were identified: supportive reactions, de-escalating reactions, and unsupportive reactions. Both supportive reactions and unsupportive reactions were identified a priori, driven by emotion socialization theory and the categories in the CCNES questionnaire. Under the umbrella of supportive

reactions, three subthemes emerged, consistent with the CCNES questionnaire, including

emotion-focused reactions, problem-focused reactions, and expressive encouragement.

Within unsupportive reactions, three subthemes emerged that corresponded to CCNES;

distress reactions, punitive reactions, and minimizing reactions. The theme of de-

escalating reactions was identified through the thematic analysis process. Three additional

subthemes within de-escalation emerged from the thematic analysis, safety-reactions,

ignoring reactions and distraction. Both ignoring reactions and distraction are grounded in

emotion socialization theory (Eisenberg et al., 1998; Silk et al., 1996), but absent from the

CCNES.

      Supportive reactions. Supportive reactions included the positive behaviours that

mothers demonstrated to assist their child during the experience of a negative emotion.

When asked to discuss their reactions to each emotion-related event, seven mothers

described supportive reactions to three of the emotion-related events and two mothers

reported a supportive reaction during two events.

      Emotion-focused reactions. Emotion-focused responses were coded when

mothers reacted in a way to help the child reduce the negative emotion or the

physiological emotional response. Words like soothe, comfort, and reassurance were

commonly used when describing an emotion-focused reaction. All but one mother

prescribed to an emotion-focused response at least once. The mother who did not employ

an emotion-focused response explained that her primary reaction would be to hug her

daughter, but emotional closeness triggers her daughter to experience more intense

negative emotions. Therefore, although inclined to use an emotion-focused approach, the

mother decided to not respond in that way. It appeared that emotion-focused reactions

were most commonly described when mothers helped their child cope with the experience

of sadness. For instance, one mother simply stated when helping her child through

sadness, "I just, just sit next to him, I just caress him." (Mother 2), whereas another

mother described her approach in more detail:

> I would hold him. Or you know give, him his blanket or ask him what he might
>
> need to feel better. I very much allow you know my child to, in the best way that
>
> he can, verbalize what he needs. And some of the time that's just crawling into my
>
> lap. (Mother 4)

In addition to providing physical comfort, some mothers reported using coping strategies

to soothe physical symptoms:

> Yeah yeah, no I work with him, like to calm his breathing, and well we do the
>
> blow out the candles trick where he visualizes blowing out candles to calm his
>
> breathing and everything. (Mother 5)

Problem-focused reactions. Problem-focused reactions reflected mothers' focus

on the source of the problem. Mothers who used a problem-focused responded in ways

such as: coming up with a solution, providing the child with information to increase

understanding of the situation/problem, or helping to view the problem in a different light

(i.e., cognitive reframing). All mothers described using the problem-focused approach

during the management of at least one negative emotion, with seven mothers using

problem-focused approach during at least two negative emotions.

The problem-focused approach was frequently employed when children were

experiencing fear. For instance, two mothers described how their children experienced

fear at the thought of someone breaking into their home. To help ease the feelings of

anxiety, the mothers described the steps taken by the family to deter such an event. For

example, the following mother provided the child with information to explain that the

house was safe:

> Like we tell him we live in a good neighbourhood, we have fantastic neighbours
>
> and if anything like that was to happen, if anybody was trying to break into the
>
> house the neighbours would call the police. And I said, 'we do have dogs…'
>
> (Mother 1)

Similarly, other mothers responded to their children's fear but highlighted all of the

possible solutions, or offered a different perspective to combat the negative emotion:

> Tell me what you're afraid of. Which is generally in the same order every time.
>
> And we go through it with you know each individual point. Well you think you're
>
> not going to have a job. Why do you think you're not going to have a job? You
>
> know, what do you enjoy doing in school, there a lots, you're good in school,
>
> you're very good in this area. You're able to do lots of things and succeed at them.
>
> Those are important things for having a job. (Mother 5)

Two mothers offered a problem-solving approach whereby they oriented toward fixing a

broken mechanism (e.g., toy, headphones) that led their children to feel sad.

> I just told him that, you know, that we could take the toy and we could see if
>
> daddy could fix it and if not that they have them in the store and we could try,
>
> maybe he could spend some of his money to maybe buy a new one. (Mother 4)

> ***Expressive encouragement***. Expressive encouragement represented the way in

which mothers' validated their children's negative emotions, or encouraged them to

express their negative emotions. Four mothers used expressive encouragement during one

emotion-related event, and therefore was less frequently described than other supportive

reactions. One mother simply stated, "We'll just tell him that it's ok to be sad." (Mother

7). A more detailed account of expressive encouragement is as follows:

> Like just let her, try to guide her through the emotion, let her have the emotion
>
> because the one thing I don't want to say is 'you can't feel that,' you know, if she
>
> is angry. Because nobody hates it worse than when somebody tells you don't feel
>
> whatever it is you feel. (Mother 9)

Combination of supportive reactions. Frequently, interviewees provided accounts

of using a combination of supportive reactions when responding to their children's

emotion-related event. Expressive encouragement was the only supportive reaction that

was almost always in combination with other supportive reactions. As emotion-focused

and problem-focused reactions were most common, mothers often used them jointly when

reacting to their children's negative emotions, in addition to providing an opportunity for

parent-child discussion. For example, in this quote, the mother responding using an

emotion-focused approach (comfort) and a problem-solving approach (suggestions).

> I told him how proud of him I was and everything and I made sure to comfort him
>
> and help him get into that calm spot again. And I also help provide some
>
> suggestions to him about if I was gone for another community event and he had
>
> decided to stay home and he got tired. (Mother 6)

Use of all three of the supportive reactions was also observed on occasion. For example,

one mother displayed expressive encouragement (express), an emotion-focused reaction

(take a deep breath), and a problem-focused reaction (scripting what to say), in addition to

engaging in discussion when her child felt sadness.

> Normally the first thing that we do is remind him to take a deep breath. Because
>
> it's just sort of that cleansing moment to help you slow down some. Encouraging

him to express what it was he as upset about. And what he was trying to

communicate to his friend. To help guide him through that. Just sort of slowing it

down and then almost, almost scripting for him what he could say to his friend.

(Mother 5)

De-escalating reactions. Although parents were directed to reflect on an incident

that elicited a mild to moderate degree of emotion (i.e., not a meltdown), some mothers

indicated that even a lower-level emotional experience for their children could sometimes

lead to extreme emotion, loss of control, self-harm, aggression, or violence. Therefore,

some mothers reacted in ways to decrease the emotion before providing emotion

socialization.

Safety-focused reactions. Safety-focused reactions emerged as a theme during the

thematic analyses process. It was not originally identified through theory like many of the

emotion socialization related codes. However, the theme emerged as three mothers

reacted to their children's emotional experience in a way to keep their children or others

safe. Safety-focused reactions were always followed by supportive reactions and/or

discussion of the event/emotion. An example of a safety-focused response is as follows:

So to try and stop the self-harming and stop his being upset from rolling into a

larger longer upset. (Mother 5)

Following Mother 5's initial reaction, she explained that she then helped to navigate the

emotion, normalized sadness, and helped to teach him coping skills in hopes to decrease

his self-harming response.

Another mother spoke about how her response to her child's anger involved her

"backing down" in order to prevent violence. In this scenario, the mother made a request

of her daughter that caused the child to feel angry.

Just like I said, she can get really violent. And so there are times that I just drop

the problem expectation. Cause I want to avoid the violence. (Mother 3)

Distraction. Distraction was a reaction that was identified through the thematic

analyses process. Distraction, or commonly referred to as redirection within the ASD

literature, is a very common behavioural strategy used redirect the child to another

activity (National Autism Center, 2015). It is particularly helpful when trying to contain

the emotion or situation, preventing escalation. Two mothers utilized a distraction

approach to manage their children's emotion. One mother reported that she distracted her

child by talking about entirely different topics, in which she oriented away from the

child's emotion as quickly as possible.

I'm trying to think fast on my feet you know (laughs). Let's just de-escalate this as

quickly as possible. And move onto something else. Distract. Distract distract

distract. This is one of... one of our mantras. Because if you can distract her before

she gets really honed in on it, you can avoid a lot of drama. Is what I say. (Mother

9)

Whereas another mother, instead of using conversation to distract, utilized technology to

divert her child from continuing to experience anger. In this situation, the family had

planned to go to a store following breakfast. They had prepared their child for a specific

store, but upon arriving it was closed. The family decided to go to a different store

instead. Because of the unexpected change in schedule, the child became angry. To help

de-escalate the child but still follow through on going to the store, the mother quickly set

up a tablet to let him watch videos.

You can look at the videos, we're gonna get some things for dinner, we will be in

and out in 20 minutes. (Mother 7)

Ignoring reactions. The subtheme of ignore was identified through the thematic

analyses process. Ignore reactions reflected the behaviour of ignoring the event or

emotion; mothers did not orient toward the emotion. The concept of ignoring reactions

has previously been established in the emotion socialization literature as an unsupportive

reaction (see Neglect; e.g., Silk et al., 2012). However, within the thematic analysis of the

scenarios, ignoring reactions appeared to serve a specific purpose: to de-escalate the

child's emotional response. Therefore, ignoring within the thematic analyses represented

this common approach, in which mothers delayed the emotion socialization process,

waiting for a more appropriate time when their child could take in the information that the

mother wanted to impart. Ignoring reactions were infrequently classified; only two

interviewees engaged in ignoring the emotional experience of their child. One mother

described a situation when her daughter was feeling anxious. In this quote, the mother

indicated that ignoring the emotion (which is what her daughter wants to do) was the best

thing to do:

> She just wants to pretend it's not happening, that's the best thing to do…I don't,
>
> we don't talk about it, and we don't, at least not in the moment. Like we can come
>
> back later and talk about it but not in the moment. And definitely don't try to
>
> reach out to her… We just went about normal, you know, we tried to be as normal
>
> as possible. (Mother 9)

The mother further described why it is so important to react in a way that is line with her

daughters' needs.

> Once she starts up the curve with her emotions, they have to kinda reach the
>
> pinnacle before she can come down. And once she starts...and that whole process
>
> has to happen for her. It's like, if I don't stop it somehow before it gets too much

for her. You know if I can't figure out a way to pull her back and get her emotion,

get her frustration and her anxiety pulled back, she will really... she just loses

control. She will lose body control, she cries, and she sobs and she is

completely...can be completely incoherent and unrealistic. (Mother 9)

The other mother who used the ignoring approach indicated that it was important that her

child begin to learn how to deal with low grade emotions independently, as she was an

adolescent and needed to develop these skills. The mother stated:

I provided some distance… The fewer the words the better… I think if it's low

grade, trying to disengage and give her potentially the opportunity to try to calm

down independently. (Mother 3)

This mother then followed up with a supportive approach of problem-solving and

expressive encouragement, after her daughter was given the opportunity to work through

it herself initially.

Unsupportive reactions. Unsupportive reactions represented more unhelpful

behaviours that mothers engaged in when responding to their children's negative

emotional expression. On the whole, unsupportive reactions were much less frequent than

supportive reactions, and often were reported during only one of three emotion-related

scenarios for mothers. Approximately half of the mothers followed up the initial

unsupportive response with a supportive reaction or discussion of the incident after some

time had passed.

Minimizing reactions. Minimizing reactions included maternal responses of

diminishing the seriousness of the situation and/or invalidating the child's emotional

reaction. Minimizing responses captured responses that may have involved telling the

child they are overreacting, telling them to forget it, that they will feel better soon, or that,

"...it's not that big a deal" (Mother 7). Three mothers described a minimizing reaction.

For example:

> You can't think of the other options that might help you get out of that situation.
>
> So I just try to get him to put it aside, and put it away and put it out of his mind.
>
> (Mother 6)

Another mother used a minimizing reaction in an attempt to rid her child of feeling anger.

In this case, the mother dismissed the experience of anger and attempted to turn the

negative emotion into a positive emotion. Instead of helping the child to figure out what

was making him feel angry (e.g., problem-focused reaction), the mother devalued the

feeling of anger because she believed that it was not healthy or fun.

> You know, we stop him when he starts to wind up. Cuz you know you can always
>
> tell when he starts to wind up. And it's like ok, let's think about this logically why
>
> are you getting angry? And if he can't give us a sound answer, we'll say 'well
>
> getting angry just to get angry isn't good for you, it doesn't make you happy. And
>
> it doesn't make you healthy, so let's work on what is more fun, being happy? Or is
>
> it more fun being angry? (Mother 1)

Distress reactions. A distress reaction was identified when mothers' reported

reacting with distress (e.g., anger, anxiety) themselves when their child experienced

negative affect. In addition to the question assessing mothers' reactions to their children's

negative emotions, the question "Did you experience any emotions during this situation?

If so, what were they?" and the follow-up of, "Did you express your emotion or emotions

to the child? If so, how did you express the emotion(s)?" also helped to identify distress

reactions. Therefore, when mothers were asked what emotions they experienced, their

emotional expressions were taken into consideration as to whether or not they represented

a distress reaction. Two mothers reported responding with a distress reaction. One mother reported having less control over her emotion during two of the events that she retrospectively reported on. Any example is as follows:

> "I was crying and she was crying by that point because I'd yelled at her." (Mother 9)

In contrast, the other mother felt more in control of her emotions, but used her anger as a mechanism to control her child's behaviour and curb his anger (during one emotion-related event), "I show him my anger then he knows that I am really angry." (Mother 2)

Punitive reactions. A punitive reaction was defined when interviewees responded punitively to their child's emotional expression – sending the child to their room, warning of consequences, or scolding them for their emotional response. The theme of punitive reaction was quite uncommon. Only one mother endorsed a punitive approach during one emotion-related event:

> We would remind him about the discipline, we would remind him about you know, take a break, walk away. Most of the time he would spend some time, but if he gets even more angry and he starts to throw up the tantrum and cry and yell, we cannot handle him at that time, 'ok go to your room. Ok go to your room, that's it.' Ok time out for everybody. (Mother 2)

Despite the initial unsupportive response to the child's emotion, this interviewee further detailed that when her child was calmer, she "took time to sit with him" and discuss the event, which would have then been coded as an emotion-focused reaction.

Maternal Emotional Experience

Mother's emotional experience is an aspect of emotion socialization that captured mothers' affect and expression of emotion. Unlike meta-emotion philosophy and maternal reactions, codes within the theme of maternal emotional experience were not initially developed with the assistance of questionnaires within the quantitative portion of the study. Although a questionnaire focusing on positive and negative expressiveness was used in the study, it captured expressiveness within the context of the family. The questionnaire did not assess for expressiveness elicited by children's affect.

Mothers were directly asked about their experience of emotion during each emotion-related situation described in the interview. The questions that assessed the general theme of maternal emotional experience included: Did you experience any emotions during this situation? If so, what were they? Did you express your emotion or emotions to the child? If so, how did you express the emotion(s)? Codes and themes were developed from the thematic analyses. First, the emotions that mothers experienced were coded. From there, it was coded whether or not mothers expressed the emotion. Therefore, the two subthemes that emerged included *maternal affect* and *maternal expressivity.* It is important to note that when mothers responded in the sad-, fear- or anger-related situation with anger, upset, discomfort, anxiety, or embarrassment, a distress reaction code was considered if the emotional expression appeared to occur as a direct response to the child's negative emotion. The rationale being that some mothers may not have not reported that they responded with anger, only focusing on their direct actions or communication (e.g., what was said to the child).

Maternal affect. All mothers conveyed that they experienced emotions during at least two emotion-related situations with their children. The majority of mothers

experienced emotions when their child was experiencing sadness and fear. Mothers used terms to describe their emotional experience such as: frustrated, sad, anxious, disappointed, upset, concern, overwhelmed, shock, anger, amused, proud, annoyed, hurt, guilty, embarrassed, empathetic, and thankful. During these times, it was common for mothers to have an emotional reaction in response to a discrete emotion in the children (e.g., sad or upset). For instance, one mother described a situation in which her child was anxious about the thought of death. The mother stated, "I never want to see my children upset. So it's a little bit of you know, sadness based on the fact that he was not, that he was having a difficult time with that concept…" (Mother 4).

Mothers described experiencing emotions for a number of reasons. One mother experienced worry, as she was concerned that her child's emotion would escalate. Disappointment was experienced in two very different situations. One mother felt disappointed when her child did not want to sit and talk with her about the situation, whereas another mother felt disappointed in her child's reaction of anger. Mothers' also identified mixed emotions, or multiple emotions during the event described. For instance:

> I mean I was, I was upset. I was proud of him, it's odd to explain. Proud of him because he wanted to have a good score, right. But yet upset because he was upset, right. (Mother 7)

Maternal expressivity. Although all mothers reported experiencing emotions as a result of the emotion-related events with their children, five mothers reported displaying their emotion during at least one negative emotion-related event. Emotional expression was more frequently coded when mothers reported on their children's experience of sadness, such that they displayed empathy toward their children. For example, one mother reported, "There has been times that if you catch me at the wrong time then I will cry too"

(Mother 5). Another mother described mirroring her son's emotion, "So I would just be sad with him" (Mother 2).

One mother felt that during some emotion-related events with her child, she could not control her emotions, and thus they were displayed. She stated "…my response then becomes more emotional than it should be. And then I'm not a good role model…" (Mother 9). However, this mother also discussed how she uses her emotions as a teaching tool, especially when she has more control of her own emotions: "And so yeah I do share my emotions. Because I thought for years, I'm like, 'I have to teach her about these emotions' you know." (Mother 9). Although this mother described her emotional expression as a fault at times, she also had the ability to reframe and use emotions as a way to socialize emotion with her child.

The majority of responses indicated that, although an emotion was experienced, it was important for the mothers to stay calm, themselves. For example: "I try to stay calm so he can become calm himself" (Mother 6). "It was upsetting for me, but I, I was like not showing that. You know, but yeah I was upset" (Mother 7). "Just very calmly, rationally, trying to be that frontal lobe" (Mother 3).

Additional Themes

Additional themes emerged during the thematic analyses that were not originally considered. The themes corresponded to mothers' emotion socialization practices. The themes included mother-child discussion, discrepancy and dedication.

Mother-child discussion. Discussion is a main component of emotion socialization and therefore this theme is consistent with the literature within the area. All mothers endorsed the use of parent-child discussion during the emotion-related events. Mothers used discussion to help further explain the situation that caused the emotion, to

help problem-solve, to help teach their child, or to help their child to understand and

process the emotion. It was quite common for mothers to engage in discussion with their

children under the conditions of a problem-solving approach and when the child

experienced fear.

> ***Immediate vs. delayed mother-child discussion.*** Occasionally, it was noted that

some discussions occurred following a delay. That is, discussion did not occur during or

shortly after an emotion-related event. Three mothers reported a delay in discussion, in

which the discussion occurred hours following the event (e.g., discussion could occur

during bed time, even though the event occurred earlier in the day). One mother indicated

throughout her interview that when her child is experiencing negative emotion, a

discussion cannot occur at that time.

> I don't, we don't talk about it, and we don't... at least not in the moment. Like we
>
> can come back later and talk about it but not in the moment. (Mother 9)

Similarly, a mother also described the importance of calming her child before discussion

of the emotion or event took place, "Then once he's not emotional I listen to his

concerns" (Mother 5). Another mother provided a more detailed account of a delayed

discussion process. This mother reacted during the emotion-related event by providing

physical comfort, noting that her son was not ready to talk.

> And I truly respect his feelings and his preference. On the way to school when I
>
> give him a ride, if I try to talk to him something and he says, 'Mum I don't want
>
> to talk about that'. I say, 'ok no problem I'm sorry.' … But when it is important
>
> and he wants to cut me off, I would not stop. I would let him know that I am
>
> disappointed in him and then say that his reaction is inappropriate. And say 'I
>
> have not finished the sentence yet' so he has to listen to the end. And then he's

quiet and he listen to me. So it's good, it's like give and take. (Mother 2)

Discussion of mothers' emotion. In addition to displaying their emotion, mothers could draw upon their emotional experiences as a direct topic of discussion, using their experiences as a teaching moment. Two mothers were found to use their emotional responses as a point of discussion, in two very different ways. One mother described how she talks to her daughter about how she feels, while imposing appropriate boundaries.

> "I talked to her before about how I feel about not everything. Because something's you just don't tell your kid. Like how frustrating they can be, or how (hard) it really is." (Mother 9)

Therefore, the mother's discussion likely provides a teachable moment as she refrains from sharing more harmful thoughts and feelings that she may harbor. In contrast, another mother used her emotional experience as a time to validate her child's experience, giving examples in which she encountered a similar experience, "I can give him some examples that is close to his experience. This takes time, but it's worth it though." (Mother 2)

Discrepancy. A theme emerged whereby some mothers discussed the difference between how they wanted to respond to their child, compared to how they actually responded. Three mothers made distinctions between their wants/thoughts and their behaviours, which represented the discrepancy theme. One mother even highlighted discrepancy in three of the emotion-related events. One mother detailed how she would like to respond by providing comfort, but her son does not allow for it:

> I want to hug him. But I know not to. I just wanna hold him in my arms and just make it all better the way I usually do with my other kids, and I can't do that with him. (Mother 8)

Another mother went into detail about her struggles between her actual and ideal reaction

when her daughter experiences negative emotion. The mother wished that she could respond calmly to her daughter, to help her cope with the emotion. Instead, the mother lost control of her emotion. As a result, she felt that she could not socialize emotion as she would have liked to.

> So it's like I want her to experience it and so in a perfect world I would be able to not respond emotionally myself, and be able to guide her. That's not usually what happens though, because usually I get caught up in the emotion of the moment… My response then becomes more emotional than it should be. And then I'm not a good role model, and so then we, then I'm, then I'm not helping her, I'm not guiding, you know what I mean? I'm showing her how to be angry. A lot of times you know. Or frustrated or hurt, instead of 'let's talk through it' or 'why does that make you angry? What is it really that's making you angry? Is it really that that person stepped on your foot or is it really more about something the person may have said to you.' Figuring it out and figuring out where her anger is coming from, instead of reacting in the moment. (Mother 9)

Dedication. A final theme emerged which symbolized mothers' continuous learning and dedication to socializing their children's negative emotions. Two mothers spoke about how they may spend an hour or more following the experiences of their child's emotion of anger, sadness, or fear, from beginning to end. One mother said, "The longest would be almost an hour" (Mother 2), in speaking about how long it could take to help her child work through the emotional experience. Despite the time commitment, the mother viewed the process as important and necessary for her child.

Mothers also spoke about how they have had to learn new ways to parent their children to meet their children's emotional needs. To illustrate, one mother described her

previous approach to emotion socialization and the subsequent changes she made to accommodate her child.

> So, I'm relearning on how to communicate with him and so when there's an issue that arises, instead of reacting first, because we used to react first. And we'd punish and we were like 'we're taking away your privileges or till you can prove otherwise.' But that wasn't effective at all with him. And I realized it wasn't teaching him anything. He wasn't learning anything. Except to either be scared of us… So what we, I tend to do now is, I sit down and I try to talk to him. My biggest thing is just talking. And so, when something goes on, we sit down. (Mother 8)

CHAPTER IV

Discussion

To the author's knowledge, the current study was the first to examine emotion

socialization processes in mothers of children with ASD, while taking into account

maternal BAP features and distress. In the study, quantitative and qualitative methods

were used to explore emotion socialization practices and the outcome of child problem

behaviours.

To better understand the differences between mothers with BAP status and

mothers of without BAP status, mother groups were compared on measures of distress,

emotion socialization, and child problem behaviours. Quantitative results indicated that

mothers with BAP status reported higher levels of anxiety, depression and negative

expressiveness than did mothers without BAP status. Mothers without BAP status

reported greater supportive reactions in comparison to mothers of BAP status.

Another purpose of the study was to understand the relation between emotion

socialization and child problem behaviours in mothers with and without BAP status.

Emotion socialization practices alone did not predict child problem behaviours in either

BAP status group. However, with the inclusion of distress as a moderator, the relation

between emotion socialization and problem behaviours revealed differences between the

groups. That is, in mothers without BAP status, when predicting child problem

behaviours, stress moderated the three predictors of emotion coaching, supportive

reactions, and positive expressiveness. Anxiety and parenting stress also moderated

emotion coaching. In mothers with BAP status, stress and parenting stress moderated the

relation between negative expressiveness and child problem behaviours.

The final purpose of the study was to provide a more in-depth exploration of

emotion socialization in mothers of children with ASD. Quantitative methodologies have dominated the literature with respect to understanding emotion socialization. A very limited number of studies have utilized a qualitative approach to investigate emotion socialization (e.g., Parker et al., 2012). In the current study, a thematic analysis revealed that mothers of children with ASD use a number of emotion socialization approaches when their children are experiencing negative emotions. Themes consistent with emotion socialization practices within typically developing populations emerged, as well as additional themes that have not been adequately captured in the literature (e.g., socialization that often accommodates children's behavioural and emotional challenges) and therefore may be more unique to mothers parenting children with ASD.

Patterns of Emotion Socialization

In this section, qualitative findings are reviewed to understand emotion socialization practices in mothers of children with ASD.

Meta-emotion philosophy. Meta-emotion philosophy represents parents' beliefs, attitudes, and feelings toward their own and their children's emotions (Gottman, 1997; Gottman et al., 1996; Hooven et al., 1995). The thematic analysis revealed that the majority of mothers consistently held emotion coaching beliefs. Throughout the retrospective reporting of three emotion-related events, all but one mother described beliefs that were consistent with an emotion coaching approach. Mothers provided detail highlighting their perceived role in socializing negative emotions, using a variety of words that were indicative of the theme of emotion coaching such as understand, processes, teach, regulate, and comfort. Therefore, the results of the interviews suggest that mothers of children with ASD tend to primarily hold emotion coaching beliefs, and they engage in emotion socialization using primarily emotion coaching practices, even

though their children tend to have emotional limitations. As many supportive and

adaptive reactions were also described throughout the interviews, it is likely that emotion

coaching beliefs are directing mothers' behaviour when responding to their children's

negative emotions. As emotion coaching was noted to be so prevalent throughout the

interviews, it appears likely that mothers of children with ASD hold emotion coaching

beliefs similar to that of mothers of children without ASD (e.g., Gottman, 1997; Gottman

et al., 1996).

Emotion dismissing philosophy represented mothers' beliefs that children's

negative emotions should be not experienced; they should be stopped, fixed, or managed

quickly. Emotion dismissing was rarely endorsed. In fact, only one mother was found to

discuss beliefs and thoughts about her child's emotions that corresponded with an

emotion dismissing philosophy. One might be tempted to assume that dismissing negative

emotions of ASD children would be beneficial because often times the negative emotions

may arise quickly and without basis and the mother just wants the child to stop. Contrary

to this assumption, however, the data revealed that these mothers engaged in strategies

that are designed to help children to learn about emotions and how to control them

themselves.

Awareness also emerged as a theme within the meta-emotion philosophy

framework. Within awareness, the two subthemes were identified: awareness of parental

impact and awareness of processing limitations. Although the construct of awareness has

been established in the literature as part of positive emotion socialization practices

(Gottman, 1997; Gottman et al., 1996; Hooven et al., 1995), the subthemes revealed

aspects of emotion socialization that are not usually made distinct in models of emotion

socialization. Awareness of parental impact described mothers' understanding that their

reactions to their children's emotion may impact their children. Mothers described the importance of staying calm in the face of their children's display of negative affect as to not enhance or escalate their children's experiences.

In line with awareness of parental impact, the theme of awareness of processing limitations represented responses in which mothers indicated awareness of their children's processing difficulties (e.g., including processing emotional information or social information) and how they approached emotion socialization with their children's specific needs in mind. Therefore, some mothers reported that they understood that their children were experiencing strong negative emotions due to misread cues or due to difficulty in emotional processing, which are typical of children with ASD (Samson, Huber, & Gross, 2012). This finding of awareness helps to highlight the bidirectional relation inherent to emotion socialization processes. It also underscores that awareness in populations of mothers who have children with disabilities has to include both the emotion and other contextual factors, such as the child's capability to process emotion.

Overall, there is evidence to suggest that mothers of children with ASD are accepting of their children's emotions and strive to cultivate an environment that helps their children to process, understand, and cope with negative emotions. It is likely that many parenting behaviours are guided by these adaptive thoughts and beliefs captured by the theme of meta-emotion philosophy. Subsequently, the theme of reactions further indicates that mothers engage in a number of behaviours with a goal to help their children to cope with negative emotions.

Maternal reactions. Moving from the more cognitive-based processes of meta-emotion philosophy, maternal reactions captured the ways in which mothers actively responded to their children's negative affect. Supportive reactions included emotion-

focused reactions, problem-focused reactions, and expressive encouragement. Unsupportive reactions included minimizing reactions, distress reactions, and punitive reactions. In addition to the supportive reactions and unsupportive reactions that were themes driven by emotion socialization theory and the questionnaires in the quantitative portion of the study, another distinct reaction category emerged during the thematic analysis. De-escalating reactions was identified as an additional facet of maternal reactions, which included safety-focused reactions, distraction, and ignoring reactions.

Supportive reactions. During the interview, supportive reactions were very frequently reported. In the majority of emotion-related scenarios, mothers described using an emotion-focused or problem-focused approach. It was common for mothers to use a variety of supportive approaches, such as to cognitively reframe a problem, provide physical comfort, suggest relaxation strategies or steps to problem solve. Expressive encouragement was the reaction that was reported more infrequently, and when endorsed, it was typically in combination with emotion-focused or problem-focused reactions.

Expressive encouragement involved mothers' encouraging or validating their children's negative affect. Due to emotional processing difficulties that are often present in children with ASD (e.g., Lartseva et al., 2015), it is not surprising that expressive encouragement was endorsed the least. Many children with ASD may not understand the complexities of their experience of negative emotion; therefore, trying to explain, discuss, or express their experience may cause frustration, further adding to the experience of negative emotion.

Unsupportive reactions. In the qualitative analysis, the endorsement of unsupportive responses was infrequent compared to supportive reactions. Additionally,

while unsupportive reactions may have occurred initially, mothers often followed through with a supportive reaction.

Three mothers described a minimizing reaction. Although minimizing reactions are typically categorized as an unsupportive approach in the existing literature, a minimizing reaction may represent a more adaptive approach for socializing emotion in children with ASD because of their emotional processing deficits. In a systematic review, Lartseva and colleagues (2015) noted that even though individuals with ASD may know how to label specific emotions, they may not have developed abstract concepts necessary to fully understand a complex emotional experience. As such, children with ASD may require more substantial direction in order to learn the associations between situations and emotions. A minimizing response may help to shape more socially appropriate or proportional emotional reactions.

Two mothers reported responding to their children with distress during the emotional-related events. While infrequently reported, the features of the distress reactions differed between the two mothers. A distress reaction occurred for one mother as she acknowledged losing control, consequently expressing the negative emotion to her child. Conversely, the other mother felt that she was in control of her emotions and decided to use her anger as a mechanism to diminish her child's unwanted behaviour and suppress his expression of anger. The mother who reported losing control of her emotions also endorsed higher levels of stress than the other mother. Stress may impact mothers' ability to control the expression of emotion, particularly when faced with both their children's distress and their own distress (Eisenberg et al., 1998). Perhaps distress reactions could be expanded to encompass two separate categories – an automatic distress reaction and an intentional distress reaction. It seems possible that an intentional distress

reaction may actually be more helpful in some situations and therefore may not necessarily fit within the framework of an unsupportive reaction. For example, an intentional distress reaction may be a quick and effective method to help the child reduce their affect to a level at which more effective coping can take place. If the child understands that his/her mother is angry, he/she may engage in more self-regulation strategies to help cope within the situation. Once the child has returned to a calmer state, the mother may socialize the emotional experience in such a way that the child can learn from the experience. However, when a distress reaction is automatic in nature, mothers may feel emotionally overwhelmed themselves, requiring time to processes through the emotion and return to a more balanced state. They may miss the opportunity to provide further socialization to their child in the moment. In addition, the distress reaction may have the potential to further escalate their children's experience of emotion (Green & Baker, 2011), in which the mother's emotional display may increase the children's arousal, making it more difficult for the child to process and cope in the moment (Eisenberg et al., 1998).

Punitive reactions were described by only one mother. During the emotion-related event, the mother sent the child to his room. Despite the initial punitive response to the child's emotion, this interviewee further detailed that when her child became calmer, she provided an opportunity for discussion. Although punitive response was coded under unsupportive reactions, remaining consistent with previous literature in typically developing children, it is important to point out that the punitive reaction in this case may have alternatively been categorized under de-escalating reactions. The age of the child brings into question the unsupportive nature of the reaction. The child was an adolescent and in this situation, the mother may have expected greater emotional control from her

child. Clinically, a common strategy recommended to parents to promote self-control is to

provide opportunities, as well as a safe space, for children to regroup and self-soothe.

Therefore, the mother may have been using an appropriate strategy, trying to teach the

child to self-regulate and use coping strategies independently before being provided with

assistance.

      De-escalating reactions. The theme of de-escalating reactions emerged through

the thematic analysis, capturing unique reactions of mothers of children with ASD. Three

subthemes exemplified de-escalating reactions, including safety-focused reactions,

distraction, and ignoring reactions.

      Safety-focused reaction emerged as two mothers' response described a way to

keep their child or others safe. Safety-focused reactions may be more unique to mothers

of children with ASD. Taking into consideration common challenges that children with

ASD face (e.g., meltdowns, aggression, self-injurious behaviours), it is not surprising that

mothers have developed approaches in response to their children's behaviour. As such,

safety-focused reactions also highlight the importance of bidirectionality in the area of

emotion socialization. For instance, a typical primary response from a mother would not

be to cover her child's hands (to prevent biting) when the child experiences sadness. This

reaction occurred in response to the child's behaviour. To the author's knowledge, safety-

focused reactions in response to children's emotional experiences have not been captured

with the emotion socialization literature. Generally, mothers of typically developing do

not have to consider safety when socializing emotion in their children.

      Safety-focused reactions further highlight the delay that may occur between

children's experience of negative emotions and a subsequent, more comprehensive,

emotion socialization approach (e.g., discussion of the emotion-provoking event). As

such, as revealed through the interview, when a safety-focused reaction was the initial

response, mothers followed up with supportive approaches after time had passed. This

may indicate that emotion socialization may occur on a different timeline in comparison

to mothers of typically developing children, for whom emotion socialization may be more

immediate following the children's affective expression.

      Distraction emerged as an additional reaction subtheme in the thematic analysis.

Two mothers utilized a distraction approach to manage their children's emotion.

Distraction represented mothers' attempt to distract and redirect their child in an attempt

to take focus off the negative emotion. One mother illustrated the approach by noting that

she distracted her child by talking about an entirely different topic. The second mother

utilized technology to distract her child in an attempt to stop the escalation of anger.

Distraction is a concept taught within ABA practices to help de-escalate behaviour and

emotion (Sicile-Kira, 2014). Therefore, in the case of maternal reactions, distraction may

represent an appropriate and clinically relevant approach to socialize emotion. Distraction

may allow for decreasing or stopping the negative emotion before it intensifies. Some

children may become overstimulated by the emotional experience and situation, and as

such, distraction may serve as an efficient method to curb a meltdown. Distraction may

also be an effective and efficient approach if a mother understands that her child needs

ample time to process the negative emotion, yet does not have the luxury of time. When

the child is calm and there is more time, mothers can choose to socialize the emotion

more thoroughly.

      Ignoring reactions reflected the maternal behaviour of disregarding the child's

emotional experience – there was no acknowledgment that the emotion was occurring.

Two interviewees engaged in ignoring reactions. One mother, following the initial

ignoring reaction, followed up with a supportive approach which included problem

solving, expressive encouragement and discussion of the event. When coded in isolation,

the ignoring reaction might have misrepresented the complex emotion socialization that

this mother engaged in. For the mothers who reported an ignoring approach, they may

have recognized signs in their children that pointed toward the possibility of escalation.

Some children escalate when in the presence of additional stimuli, such as social

interaction and communication (Sicile-Kira, 2014). Therefore, these mothers chose to

respond in a way that may have prevented behavioural outburst and delayed the process

of emotion socialization until the child was in a state to benefit from maternal teaching

and coaching.

    Summary of reactions. It has been suggested that parents who have children with

disabilities tend to place greater focus on accommodating the special needs of their

children that are more directly related to the children's diagnosis (Baker & Crnic, 2009;

Greenberg et al., 2006). Results from the current study suggest that mothers of children

with ASD value their children's negative emotions; they facilitate coping, promote

understanding, and support the emotional development in their children.

    The qualitative results for parental reactions revealed that mothers react to their

children's negative affect in numerous ways. Moreover, they sometimes react in ways

that differ from what has been typically documented in research with typically developing

children. While the majority of themes were guided by previous research within the area

of emotion socialization, additional themes that may be more unique to an ASD

population emerged. It is important to note that the thematic analysis did not account for

child outcomes and therefore conclusions cannot be made as to whether some reactions

are more adaptive, supportive or positive than others. As such, this would be an important

area for future research to focus. Future research is required to explore the link between maternal reactions and child outcomes in order to better understand the complexities of emotion socialization and child development in an ASD population.

Maternal experience of emotion. Many mothers reported experiencing emotions themselves during the emotion-related events that they reported during the interview. Although all mothers acknowledged experiencing emotions during the event, approximately half reported expressing affect in a way that was likely visible to the children. The direct expression of emotion primarily reflected empathically-driven affect. That is, mothers' felt sympathy for their children's emotional state and experience. The emergence of the theme of maternal experience of emotion supports two main ideas. First, the emotion socialization process elicits emotions in mothers. As such, mothers not only have to process and cope with their children's emotions, but also with their own. Second, the empathically-driven affect may represent a means of bonding. By sharing similar emotions or emotional experiences, it is possible that this is one mechanism that helps to build a positive, supportive, and securely attached relationship between the mother and child.

Additional qualitative findings. Additional themes emerged in the thematic analysis that further helped to identify aspects of emotion socialization in mothers of children with ASD. While discussion of emotion was not directly assessed in the study, it nevertheless emerged as a theme. Discussion of emotion is an important aspect of the parental emotion socialization processes (e.g., Eisenberg et al., 1998). Mothers used discussion to socialize emotion in a number of ways including to explain, problem-solve, and teach. Mothers also reported that they used their emotional experiences to facilitate discussion about emotions. Discussion was most often reported when mothers were

describing their socialization process during fear-related examples. Interestingly, discussion did not always happen immediately. That is, mothers occasionally reported engaging in discussion about the emotion-related event hours later. However, this is not necessarily an unexpected finding and is likely advantageous overall. Many clinicians recommend facilitating discussion only after the child is in a calm state (Sicile-Kira, 2014). In fact, limiting language during an emotional time for the child is a common strategy used in behavioural interventions in children with ASD (Sicile-Kira, 2014). Too much language may increase arousal in the child, making it more difficult to self-regulate and cope with the emotions.

The idea of a delayed discussion is important to consider for future research. Within the research area of emotion socialization, many studies assess discussion through observation of parent-child interactions. Results from the current study suggest that discussion between mother and child occurs, just sometimes outside of the immediate moment. Therefore, it is a possibility that the nuances of mother-child discussion within an ASD population could be missed or overlooked by conventional methodological approaches used capture emotion socialization through discussion.

Another theme emerged whereby some mothers discussed the difference between their thoughts and their actual displayed behaviour. Specifically, a number of mothers noted that they wanted to respond to their child in certain ways, but responded differently. This discrepancy was also related to the theme of awareness, as well as dedication. For instance, one mother wanted to hug her child, but knew that it would make her child react more negatively, and therefore she could not respond in the way that came more naturally to her. Again, this finding provides evidence for the bidirectional effects of the emotion socialization process. Mothers may adapt their emotion socialization style in response to

the needs of their children (Baker & Crnic, 2009), in addition to socializing in a way that fits with their beliefs and parenting style.

Moderating Effect of Distress in the Without BAP Status Group

Studying the emotion socialization styles (i.e., emotion-related beliefs, reactions, and expressiveness) is useful, but it is also important to connect it with actual outcomes in children. Therefore, the quantitative analyses in the current study looked at child problem behaviours – a very common difficulty in children with ASD and an outcome often associated with nonadaptive parenting practices in typically developing populations. The results revealed that emotion socialization practices, alone, did not predict child problem behaviours in either group. These nonsignificant findings are particularly surprising as parental expressivity (e.g., Denham et al., 2000; Duncombe et al., 2012; Newland & Crnic, 2011; Ramsden & Hubbard, 2002), emotion-related beliefs (e.g., Lunkenheimer et al., 2007; Stocker et al., 2007; Wilson et al., 2013) and reactions (e.g., Fabes et al., 2001; Paczkowski & Baker, 2007) have all predicted problem behaviours in children. Perhaps the relation between emotion socialization and problem behaviours in an ASD population is more complex. As such, emotion socialization practices were found to predict problem behaviours when moderating variables of distress were included.

Stress and Parenting Stress. Stress experienced by mothers has been found to impact various parenting practices (e.g., Nelson et al., 2009; Osborne & Reed, 2010), and in turn, predict more problem behaviours in children (e.g., Osborne et al., 2008). In the current study, stress separately moderated the relation between problem behaviours and emotion coaching, supportive reactions, and positive expressiveness. When interacting with stress, all positive emotion socialization variables revealed similar patterns – in mothers with low stress, positive emotion socialization practices were associated with

fewer problem behaviours. That is, when mothers experienced low levels of stress, adaptive emotion socialization practices produced more optimal child outcomes. However, in mothers with greater stress, high levels of positive emotion socialization were associated with greater problem behaviours. Therefore, in high stress mothers, children seemed to not benefit from what are typically considered to be adaptive emotion socialization practices.

Similarly, parenting stress was found to moderate the relation between emotion coaching and problem behaviours. In mothers experiencing low parenting stress, greater emotion coaching predicted fewer problem behaviours. In mothers experiencing moderate/high stress, greater emotion coaching predicted greater problem behaviours.

Stress has been understood to interfere with parenting practices that help regulate children's emotions and behaviour (Anthony et al., 2005). Perhaps adaptive practices can only go so far in the face of stress and therefore, produce favourable outcomes up to a certain extent. There may be a different quality of positive socialization when mothers experience high stress, such that there is a spillover of stress into their behaviours (Nelson et al., 2009). By virtue, those mothers who practice positive emotion socialization practices may spend significant periods of time interacting with their children (e.g., more time for discussion, working on problems, providing comfort) but consequently may expose their child to more stress-related behaviours. Mothers with high stress may still employ similar quantities of positive socialization as compared to mothers with low stress, but they may be less effective in the strategies because of stress. Mothers may model reactions of stress and children learn similar regulatory strategies that are not necessarily adaptive, therefore contributing to the development or maintenance of behaviours that are considered problematic. Increased stress may also produce stronger

emotional reactions in mothers, which in turn, decreases the child's ability to regulate their emotions and control their behaviour.

Heightened stress in combination with greater adaptive socialization approaches may impact the level of responsiveness of mothers. High stress mothers may be less in tune with their children's needs. They may spend less time to fully working through a problem, leaving their child in an unresolved emotional state. Perhaps mothers may become clouded in their ability to read their children's emotional experience and employ a socialization approach that may not have been what their children needed. For instance, mothers may provide comfort instead of problem solving during an emotion-related situation. While either approach may appear appropriate in theory, some children may not respond as well to an emotion-focused approach compared to solving a problem, which was highlighted in the thematic analysis. As well, the situation may not call for the particular reaction. It is also plausible that mothers under high stress may still respond supportively, but may miss subtleties in their children's emotional experiences, and as a result, miss opportunities to provide a more comprehensive response. Responsivity in mothers may also increase, causing mothers to become overly reactive or overly involved. They may coach the negative emotion immediately, when instead, the children require time to "cool down" before they can cognitively process the emotion to cope. As such, mothers may be employing strategies when children are not ready, and consequently, children are missing out on the positive benefits that adaptive socialization offers.

Another explanation may be that greater adaptive emotion socialization approaches and high stress predict more problem behaviours because mothers under high stress may see more problems to report. When mothers are experiencing high stress, they may feel more easily overwhelmed by certain problem behaviours that may not

necessarily bother mothers experiencing lower levels of stress. Greater levels of stress may cause mothers to be more affected by milder problem behaviours. Conversely, accounting for the reciprocal nature of mother-child relationships, it is also possible that children with greater problem behaviours create a challenging environment for mothers to provide optimal emotion socialization.

Stress has been found to moderate aspects of emotion socialization (e.g., parenting beliefs about emotions) in typically developing populations as well (Stelter & Halberstadt, 2011). As such, it may be that mothers without BAP status are impacted by stress in similar ways of typically developing mothers. However, conclusions cannot be made without directly comparing the groups, representing an area for future research.

Anxiety. Anxiety was found to interact with emotion coaching to predict problem behaviours. Similar to the model with stress, there was an association between greater emotion coaching and fewer child problem behaviours in mothers with low levels of anxiety. In contrast, in mothers with high anxiety, greater emotion coaching predicted higher levels of behaviour problems.

Parents' emotion coaching has been typically associated with fewer internalizing (Stocker et al., 2007) and externalizing (Wilson et al., 2003) problems in children. In the current study, it was rather unexpected that in mothers with greater anxiety, higher levels of emotion coaching were associated with greater child problem behaviours. Again, as speculated with stress, it may be that maternal anxiety disrupts the benefits of emotion coaching in a way that mothers may not respond or behave in a similar manner to what mothers with low anxiety would. Importantly, emotion coaching in the current study mainly captured mothers' general philosophy of how they approach their children's emotions, rather than what they actually did when their children were distressed. Mothers

may be reporting an emotion coaching approach, but in reality, they may be displaying more unhelpful practices to socialize emotion. As well, as highlighted in the thematic analyses, there may be discrepancy between mothers' meta-emotion philosophy and their behaviours.

Anxiety could cause mothers to become more overprotective and involved (Hudson & Rapee, 2001) in a way that does not synchronize with the child's emotional needs. They may also try to over-manage situations for their children, creating more discomfort and discouraging independence (Bögels & Brechman-Toussaint, 2006; van Brakel, Muris, Bögels, & Thomassen, 2006). Many studies, including those using child self-report studies (e.g., van Brakel et al., 2006), parent-report (Hudson & Rapee, 2005) and observations (e.g., Hudson & Rapee, 2001) have all found that when parents excessively restricted their children's activities and granted less autonomy, their children exhibited symptoms of anxiety. Within the ASD population, greater anxiety can contribute to more problem behaviours. As such, children may require more space, or a different approach than what is provided by their mother with high anxiety. As such, high anxiety may be derailing the approach taken by mothers who report greater emotion coaching. A positive approach that is thought to be beneficial may not become useful when mothers are highly anxious.

Summary. Stress, anxiety, depression or parenting stress did not moderate negative expressiveness or unsupportive reactions to predict child behaviour problems. The current results suggest a spillover effect in which maternal distress may impact child outcomes through parenting approaches. Emotion coaching appears particularly vulnerable to distress, as it was found to interact with stress, anxiety and parenting stress to predict child problem behaviours. On the whole, in order for children to benefit from

positive emotion socialization practices in mothers without BAP status, lower levels of

maternal distress (stress, anxiety, and parenting stress) should be present.

Moderating Effect of Distress in the BAP Group

For mothers with BAP status, anxiety and depression did not moderate the relation

between emotion socialization variables and problem behaviours. In comparison to the

without BAP status group, stress did not interact with emotion coaching, positive

expressiveness, or supportive reactions to predict problem behaviours. However, stress

and parenting stress did moderate the relation between negative expressiveness and

problem behaviours. In both models, when mothers had lower levels of stress/parenting

stress, lower levels of negative expressiveness was associated with fewer problem

behaviours. This finding is consistent with previous studies in which low to moderate

levels of negative expressiveness within the family predicted optimal outcomes in

children (Green & Baker, 2011; Halberstadt et al., 1999). For mothers with low

stress/parenting stress, they may emote negative emotions less frequently overall, creating

a warmer, positive-focused environment.

However, in mothers with greater stress/parenting stress, greater negative

expressiveness was associated with fewer child problem behaviours. It is unexpected that

a combination of high stress and high negative expressivity would predict fewer problem

behaviours in children. Perhaps when mothers are experiencing high stress, they could be

displaying ways of coping with negative emotion and stress through their negative

expressiveness. Negative expressiveness may help children to learn how their mothers are

feeling, in addition to socializing how to experience and express emotions. Due to the

social and emotional challenges in children with ASD, they may benefit from greater

displays of maternal negative expressiveness than typically developing children (Green &

Baker, 2011).

Consistent with past research, mothers with BAP status in the current study reported greater anxiety and depression in comparison to mothers without BAP status. Inherent to the symptomatology of internalizing disorders, greater negative affect is typically experienced. Similarly, some children with ASD experience and emote more negative affect than typically developing children (Samson et al., 2012). As such, mothers with BAP status and their children with ASD may be more emotionally in tune with each other with respect to the experience and expression of negative emotion. Therefore, greater negative expressiveness in high stress mothers may provide greater synchrony, or goodness of fit, between mother and child. "Within the realm of parent–child relationships, *goodness of fit* refers to the extent that parenting characteristics and child characteristics are well matched." (Lagacé-Séguin & Coplan, 2005, p.14). Goodness of fit may therefore be an explanation as to why greater negative expressiveness in high stress mothers predict favourable child outcomes.

Previous research has asserted that parental negative expressiveness is an essential aspect in the development of children's problem behaviours (Duncombe et al., 2012). The current study provided some evidence to support this assertion within an ASD population, as negative expressiveness impacted problem behaviours in children; however, the relation between negative expressiveness and problem behaviours was dependent on the level of stress and parenting stress. Therefore, the present data reflect a more complicated picture, demonstrating that negative expressiveness may have both beneficial and negative consequences (Green & Baker, 2011; Halberstadt et al., 1999). Future studies employing an observational methodology may help to further understand parental expressiveness and outcomes in children. It would be important to consider parental

expressiveness both broadly (within the family context) and in a narrower context (expressiveness within parent-child interactions).

Conclusion of Moderation Findings

Distress interacted with emotion socialization variables differently depending on group status. Generally, in the without BAP status group, distress moderated positive emotion socialization variables to predict child problem behaviours, such that lower distress and greater positive emotion socialization practices predicted the least amount of problem behaviours in children. In the BAP status group, stress and parenting stress moderated negative expressiveness to predict problem behaviours. Negative emotion socialization practices (e.g., unsupportive reactions) did not reveal any significant patterns in either group.

Although BAP status mothers trended towards having higher levels of stress, mothers did not statistically differ with respect to stress or parenting stress. Stress and parenting stress were important variables in both with and without BAP status groups, as both were found to impact parenting practices. That is, regardless of BAP status, stress and parenting stress moderated emotion socialization variables to predict problem behaviours. This may suggest that stress and parenting stress are particularly important to consider when working with mothers of children with ASD in general, as it has the ability to influence important socialization practices that could affect child outcomes.

Most surprising was the lack of interaction between depression and emotion socialization variables in both groups. Depression has been shown to impact parenting behaviours (Lovejoy et al., 2000), as well as predict problem behaviours in children (e.g., Beck, 2001). It has been hypothesized that depressed mothers experience deficits in emotion regulation (Bradley, 2000; Gross & Muñoz, 1995), and consequently, may not

have the skills to assist their child to adaptively cope with distress (Morris, Silk, Steinberg, Myers, & Robinson, 2007). However, the current results are in line with Breaux and colleagues (2015), suggesting that depression may not be significantly associated with parental reactions to children's negative emotions, which in turn, do not predict problem behaviours. Unlike stress, parenting stress, and anxiety, maternal depressive symptoms may not spill over into mothers' socialization practices (Nelson et al., 2009).

Anxiety was only found to impact emotion coaching in the without BAP group. Although mothers with BAP status reported significantly higher levels of anxiety than mothers without BAP status, anxiety appeared to have more of an impact on socialization practices in mothers without BAP characteristics. Mothers without BAP status may be more similar to mothers of typically developing children in the way in which maternal anxiety influences parenting practices and child outcomes. Research has shown that parents who are anxious may reinforce children's avoidant responses, excessively warn children about experiencing dangers, and model maladaptive avoidant and fearful behaviour (e.g., van Brakel et al., 2006). It may be that mothers without BAP status in the current sample behaved in such ways, as well. However, this is a speculation, and future research should explore parent anxiety-related behaviours within an ASD population.

Taken together, the current results underscore the importance of considering distress and BAP characteristics when examining emotion socialization practices in mothers of children with ASD. Distress impacts a broad range of emotion socialization practices, which may ultimately result in greater problem behaviours in children with ASD. The current results also revealed that when mothers experience less stress, regardless of BAP status, many emotion socialization practices lead to optimal child

outcomes. These results are what would be expected, as research within the area of emotion socialization would suggest. Therefore, it may be when mothers of children with ASD experience low stress, regardless of BAP status, their emotion socialization practices are similar to that of typically developing mothers.

Additional Differences Between Groups

Mothers without BAP status reported greater supportive reactions to their children's negative emotions. Even more specifically, mothers without BAP status reported using significantly more problem-focused reactions than mothers with BAP status. This may reflect a more flexible thinking approach in mothers without BAP status. Preliminary research has suggested that individuals with BAP status display less flexibility in their thinking (e.g., Parr et al., 2015). Supportive reactions, such as problem-focused reactions may require more creativity, as there can be many ways to come to a solution. However, drawing from the qualitative analyses, a number of adaptive reactions that mothers of children with ASD engage in were not captured quantitatively. Therefore, if all reactions were captured, the differences in reactions between BAP status and without BAP status mothers may not have been present.

Mothers with and without BAP status did not differ on their levels of positive expressiveness. That is, all mothers displayed similar levels of positive expressiveness within the context of family environment. Researchers have suggested that depression is highly associated with the BAP (Ingersoll et al., 2011; Piven & Palmer, 1999), which was confirmed within the current sample. Given that individuals with higher levels of depression experience fewer positive emotions (Lovejoy & Steuerwald, 1995), it was surprising that mothers of BAP status expressed positive affect to the same degree as

mothers without BAP status. As expected, mothers of BAP status reported more negative

expressiveness than mothers without BAP status.

Conceptualization of Stress

Another important aspect of the research that emerged were the possible

differences between the two stress variables: stress and parenting stress. The way in

which stress has been conceptualized and evaluated in the literature has not been

consistent. For instance, stress can be understood from an environmental perspective, in

which it is defined by stressful life events and experiences. Stress can also be defined

within a psychological framework. Popularized by Lazarus and Folkman (1984), the

psychological determinants of stress underscore the importance of how individuals

perceive and evaluate a situation as stressful. Another common definition of stress

focuses on the biological nature of stress, which captures physiological responses in the

body due to physical or psychological demands in day to day activities. Looking

specifically within the ASD literature, stress has been operationalized as child and family-

related problems (e.g., Beer et al., 2013), parenting stress (e.g., Derguy et al., 2016; Dunn,

Burbine, Bowers, & Tantiefff-Dunn, 2001; Lecavalier et al., 2006; McStay et al., 2014),

stress-related somatic symptoms (e.g., Weiss, 2002), perception of physiological response

(e.g., Falk et al., 2014) and the degree to which typical life activities (e.g., work, health,

finances, relationships, etc.) have impacted functioning (Benson & Karlof, 2009).

Regardless of how stress has been measured, there has been strong consensus that

mothers of children with ASD experience high levels of stress. In the current study, the

type of stress examined yielded marginally different results when compared between

mothers with and without BAP features. Additionally, within the current sample, stress

and parenting stress were not significantly correlated in the without BAP status group,

which means that it is likely they measured two distinct constructs. However, in the BAP status group, stress and parenting stress were significantly related.

There is evidence to suggest that physiological aspects of stress (e.g., tension, agitation, irritation tendency to overreact) tend to be higher in mothers who report higher levels of anxiety and depression (e.g., Henry & Crawford, 2010). As such, we would expect significant correlations between anxiety, depression, and stress in the BAP status group, in which there was a trend in higher levels of stress reported. However, anxiety, depression, and stress were only significantly associated in the without BAP group (with only stress and parenting stress significantly associated in the BAP group). This was an unexpected finding, in addition to the lack of significance of physiological aspects of stress between groups. However, it could be that the nonsignificant results are more of a product of low sample size, rather than a true lack of difference between levels of physiological stress in the mother groups.

The measure of parenting stress selected for the current study was developed specifically for use within populations with development disabilities. In comparison to more common measures of parenting stress, the current measure takes into account the unique experience of parenting a child with ASD. Regardless of BAP status, mothers experienced parenting stress to similar degrees. Duarte and colleagues found that regardless of psychological distress, communication difficulties, and rigidity, mothers of children with ASD encounter heightened levels of caregiving stress due to the additional burden of having a child with special needs (Duarte et al., 2005). For example, mothers may have more concerns for their child academically, such as making sure their child is receiving appropriate supports (Myers, Mackintosh, & Goin-Kochel, 2009). In the current study, 63% of children were noted to have academic problems and 77% had an

individualized education plan (IEP) at school, demonstrating that a large portion of

mothers likely are very involved in monitoring their children's education, adding further

stress (e.g., extra time spent for homework, checking in with teachers). As well, mothers

may experience increased financial strain and a demanding schedule in order to access

services (Myers et al., 2009). In the current study, 86% of children had a comorbid

diagnosis, adding to the complexity of their needs. Therefore, regardless of the BAP

status of mothers, it is likely that mothers of children with ASD experience a number of

stressors related to caregiving demands.

Clinical Implications

"Most interventions for ASD are evaluated only in terms of child outcomes,

ignoring parent and family factors that may have an influence on both the immediate and

long-term effects of therapy." (Karst, Vaughan, & Hecke, 2012, p. 248). As the current

study further substantiates the role of maternal characteristics in understanding parenting

and problem behaviours in children with ASD, the results may lend to clinical

applications.

Boonen and colleagues (2014) noted that intervention programs targeting problem

behaviours in children with ASD need to focus on enhancing parenting skills. There have

been many interventions developed to treat problem behaviours in children with ASD

(Brookman-Frazee et al., 2006) and of these interventions, many are parent focused (e.g.,

Brookman et al., 2006; Sanders, Mazzucchelli, & Studman, 2004; Solomon, Ono,

Timmer, & Goodlin-Jones, 2008) in which child behaviour is altered through changes in

parenting practices. In addition to improvements in child problem behaviours, positive

parental outcomes such as greater positive affect (Solomon et al., 2008) and increased

parental satisfaction and efficacy (Whittingham, Sofronoff, Sheffield, & Saunders, 2008)

have also resulted. Thus, interventions with a focus on improving problem behaviours in children also have the capacity to improve parent characteristics that may also further benefit the child. As the current study may suggest, enhancing mothers' skills within the area of emotion socialization may prove beneficial. Therefore, another avenue to consider for treatment is emotion socialization focused intervention within an ASD population.

Findings from other studies suggest that interventions focused on parental emotion coaching may prove beneficial for increasing self-regulation in children with socio-behavioural problems (Katz & Windecker-Nelson, 2006; Wilson et al., 2014). In the current study, an emotion coaching approach in mothers without BAP status appeared particularly vulnerable to distress to predict problem behaviours in children. Therefore, mothers without BAP status may benefit from an emotion coaching focused intervention to increase emotion coaching and decrease stress, leading to fewer child problem behaviours.

A more broad-based emotion socialization approach to intervention has also been shown to change parenting behaviour, which may, in turn, impact child behaviour. For example, a recent intervention study for children with conduct problems resulted in a reduction of emotion dismissing in parents who were part of the intervention condition, compared to those in the control group. At the end of the treatment, parents displayed increased empathy and decreased negative expressiveness (Havighurst et al., 2014).

It may be important for interventions to take maternal BAP status into account to maximize best outcomes. As suggested by Parr and colleagues, BAP characteristics may be a significant moderator or mediator within an intervention. Mothers with BAP characteristics may require additional support in the area of distress management, coping, or even flexibility in their parenting approach (Parr et al., 2015). As the results of the

current study suggest, mothers with and without BAP status differ in their approach to their children's emotions. Moreover, the way in which distress impacts emotion socialization differs by BAP status. As such, depending on the type and focus of the intervention, mothers may benefit from a more individualized approach which accounts for BAP characteristics.

In addition to BAP characteristics, distress symptoms of mothers should be considered. Regardless of BAP status, distress in mothers impacts parenting behaviours, which, in turn, influence behaviour problems in their children. Rao and Beidel (2009) believed that treatment outcomes for both the child and the family would be optimized if parental stress was addressed during interventions for children with ASD. As evidenced by Osborne and colleagues (2008), fewer gains were made when parenting stress levels were high, particularly in more time intensive treatments. The results of the current study help to highlight that distress (such as stress, parenting stress, and anxiety) may derail parenting practices and therefore need to be accounted to enhance the effects of an intervention. Specifically, in mothers without BAP status who reported high levels of distress, emotion socialization practices were associated with problem behaviours. Conversely, in mothers with low distress, emotion socialization practices were associated with fewer problem behaviours. Therefore, particularly with mothers without BAP status, decreasing distress and increasing emotion socialization practices may contribute to lowering problem behaviours in their children. Similarly, lower stress and lower negative expressiveness in the BAP status group predicted few problem behaviours. Mothers with BAP status may benefit from learning to decrease their negative expressiveness within the family environment. While other emotion socialization practices did not associate with problem behaviours in mothers with BAP status, it would be important for future research

to help identify other possible parenting behaviours in mothers with BAP status that contribute to problem behaviours, creating another avenue to focus interventions.

Taken together, mothers of children with ASD should be provided with additional support to help to decrease high levels of distress. From the thematic analysis, it was evident that mothers of children with ASD use a variety of strategies to help their children cope with their emotions. Many strategies appear to be very positive, beneficial and helpful. However, without outcomes, we cannot fully understand the impact of the parenting practices, positive or negative. It is important to recognize that mothers of children with ASD are making emotion socialization efforts, but may require additional support. Drawing from the quantitative analysis, emotion socialization practices alone did not predict problem behaviour. However, distress appeared to be an important variable to consider due to the impact on the relation between emotion socialization and problem behaviours. Therefore, a large focus for future interventions with the ASD population should be to assist mothers in coping with distress, which may ultimately lead to optimal parenting practices and child outcomes.

Limitations and Future Directions

There were a number of strengths of current study. Most importantly, it was one of the first studies to use a mixed method approach to evaluate emotion socialization practices in mothers of children with ASD, while taking into account mother characteristics such as BAP status and distress. While the findings from the present study help fill an important gap in the literature, there are a number of considerations to take into account for future research.

Multi-method and multi-informant. Only mothers were recruited to participate in the current study. Mothers reported on their parenting approach, characteristics, and

their children's behaviours. Problem behaviours would have benefited from a multi-informant approach (e.g., teacher report, father report) to understand behaviours within various contexts. As mothers were the only informants in the study, the association between mother characteristics and problem behaviours were captured only from a mothers' perspective. Although mothers typically take on a larger portion of the caregiving role and are more involved in children's emotional lives (Zeman, Klimes-Dougan, Cassano, & Adrian, 2007), future research should include participation of fathers. In typically developing populations, fathers' emotion socialization practices have been shown to result in different outcomes in comparison to mothers (Chaplin, Cole, & Zahn-Waxler, 2005; Klimes-Dougan et al., 2007). Moreover, exploring emotion socialization through sibling interactions may also capture how children with ASD learn to process, cope, and regulate emotions. As such, future research should focus on both mothers and fathers, in addition to siblings, to fully understand emotion socialization within the family.

It is important to bear in mind the systematic biases that may exist in parent report, such that parents who have their own psychopathology (e.g., anxiety, depression) are at risk of over-pathologizing their own child (e.g., Briggs-Gowan, Carter, & Schwab-Stone, 1996). Furthermore, there is a risk of individuals endorsing more socially desirable responses. Therefore, it is important to obtain information using a multi-method approach. It has been proposed that using an observational method in emotion-related research is the gold standard (Klimes-Dougan et al., 2007). Observation would allow for an in-depth examination of socialization practices, while skirting around problems inherent with question-related methodology. Observation data would have been particularly useful in the current study to capture more nonverbal behaviour related

to emotion socialization. For instance, during the interview process, mothers were asked

whether they displayed their emotions during the situation described with their child. By

relying on mother report and not observing actual behaviour, it was not possible to

observe the subtleties that typically can be assessed through observation. Although an

observational approach is not without its faults (e.g., participant reactivity, low

feasibility, high cost), employing an observational method in addition to questionnaires

or interviews would optimize research in the area of parent-child emotion research

(Hirschler-Guttenberg et al., 2015).

      Measurement. Measurement of emotions socialization variables within the

quantitative portion of the study also bring to light possible problems with the use of

questionnaires developed within more typical populations. For instance, in the MESQ, the

emotion dismissing subscale could not be used due to unacceptable reliability. An

examination of the items revealed that deletion of three items would have made the scale

reach acceptable levels of internal consistency. The problematic items in the current

sample included: When my child is sad, I am expected to fix the world and make it

perfect; Sadness is something that one has to get over, to ride out, not to dwell on; I prefer

a happy child to a child who is overly emotional. For the first two items, the average

endorsement was lower than the scale mean, suggesting that more mothers disagreed with

the statements more than the other questions in the subscale. Conversely, parents

endorsed the question regarding a happy child to a higher degree than the average of the

other items. It is plausible that these three questions may not capture aspects of emotion

dismissing in mothers of children with ASD, especially as the MESQ was developed

within a typically developing sample. With respect to two questions regarding sadness,

mothers may have disagreed to a higher extent because they understand that when their

children experiences sadness, it is not something that can be dealt with quickly. Their

children require time to process the emotion and parental involvement may be necessary

and time consuming in order to assist in the coping process. Many children with ASD

may experience a meltdown when the emotion of sadness is present (due to poor emotion

regulation; Mazefsky & White, 2014); therefore, the idea that these children will "ride it

out" seems more unlikely to fit with the parenting experience of mothers with children

with ASD. In the interview portion of the study, one mother acknowledged that it can

take upwards to two hours to help her child process, regulate, and cope with the emotion

of sadness. Overall, mothers may also recognize their children's difficulty in handling

negative emotions and have developed cognitions surrounding their children's affect to

match their reality and expectations. Moreover, for mothers of children with ASD,

endorsing the question that they would prefer a happy child may represent their desire for

their child to experience a more carefree childhood, instead of facing additional

challenges that ASD-related symptoms may create (e.g., difficulties forming and

maintaining peer relationships). As previously referenced, individuals with ASD have

also been shown to experience greater negative emotions in comparison to typically

developing children (Samson et al., 2012). For mothers who have a typically developing

child at home, they may be more aware of the affective differences between children with

ASD and without ASD. As such, wishing their child appear more happy-go-lucky in this

case may not represent emotion dismissing beliefs. Future research should therefore

develop ways to accurately measure emotion dismissing in atypical populations.

     In addition to problems with the MESQ in the current sample, the discrepancies

between CCNES and the qualitative results suggest that the CCNES may not be tapping

into all the reactions that mothers of children with ASD employ when responding to their

children's negative emotional expression. For instance, the thematic analysis revealed the theme of de-escalating reactions, which was not accounted for within the quantitative data. Problem-focused reactions were also defined more broadly within the thematic analysis compared to the CCNES, which may lead to some conflicting findings. Future studies need to take questionnaire selection into account and supplement with additional information from interviews or observation to more accurately capture the picture of emotion socialization in parents of children with ASD.

Consideration of the categorization of reactions within an ASD population need to be taken into account in future research as well. For instance, ignoring reactions within the qualitative analysis appeared to be a beneficial approach to de-escalate children's arousal. However, in research with typically developing children, it has been categorized as an unsupportive and maladaptive response to children's emotions (e.g., Silk et al., 2012).

A limitation of the interview used within the current study was that mothers were not asked to speak about their children's problem behaviours and the impact it may have on their parenting. As such, the thematic analysis could not lend to further understanding the relation between emotion socialization and problem behaviours. Future research should aim to include this, as it would give a richer description of the reciprocity between mother and child and speak to the bidirectional nature of emotion socialization.

The quantitative and qualitative measurement of mothers' expression of emotion did not map onto one another as cohesively as the data within the areas of meta-emotion philosophy and maternal reactions. There is an important distinction to make between the questionnaire results and interview results. Maternal positive and negative expressiveness measured by the questionnaire focused on how mothers expressed themselves within their

family environment (e.g., praising someone, showing contempt for another's actions, crying after a disagreement), whereas the interview evaluated expressiveness that occurred specifically during situations in which children experienced negative emotion. A future area of research could be to further explore the differences in maternal expressiveness within the family context versus expressiveness specifically with the child.

In line with the methodological considerations, future research should aim for an ample sample size. In the current study, there was a lower sample size than desired to obtain adequate power, particularly in the BAP status group. Furthermore, a number of statistical analyses were planned a priori and corrections were not made to account for Type 1 error. Likewise, the number of interviews for the qualitative portion makes interpretation of group differences somewhat challenging (Parker et al., 2012). The qualitative portion of the study provided richer information, but the findings may be limited to the current small sample. Overall, caution is warranted in interpreting the quantitative and qualitative findings until the findings can be replicated in larger samples.

Bidirectionality. It is important to consider the correlational nature of the current investigation. Theoretically, the study was established to investigate the direction of parenting to child outcomes. Longitudinal research has helped to establish the path of parenting to problem behaviours. For instance, Bader and Barry (2014) found that parenting behaviour (expressed emotion) at Time 1 predicted externalizing behaviours in at Time 2. This relation was consistent when controlling for parental distress, and the opposite relation (externalizing behaviours to parenting) was not observed. However, while the current study focused more on the unidirectional aspects of emotion socialization, it is understood that children impact mothers' thoughts, beliefs, actions,

responses, and expression. Although parental emotion socialization practices may shape

child outcomes, the behaviour of children is likely to alter the ways that parents respond

Duncombe and colleagues (2012) nicely illustrated bidirectionality in this quote:

> "It is, however, unclear whether a child's behaviour becomes more problematic
>
> when faced with high levels of parental stress or whether parental stress occurs
>
> because of the child's ongoing behavioural difficulties. Both explanations are
>
> plausible. A high level of parent well-being can foster a child's ability to regulate
>
> their own behaviour, which, in turn, strongly reduces the likelihood of problem
>
> behaviour. Conversely, children who demonstrate effective strategies for
>
> managing emotional arousal can result in a lowering of parental stress, which also
>
> reduces the likelihood of child problem behaviour." (p. 729)

There are many instances within the literature that highlight the bidirectionality within

parent-child dynamics. Studies have revealed that child problem behaviours predict

heightened levels of maternal distress (e.g., Smith et al., 2008), and distress effects

problem behaviours in children (e.g., McStay et al., 2014). The thematic analysis helped

to highlight bidirectionality to some extent. For instance, some mothers explained that

they responded in certain ways in order to meet their children's needs, implicating the

influence of children's behaviour on parenting. Mothers discussed that over time, they

learned which responses were most effective in helping their children to cope with

negative emotions. One mother specifically detailed that her approach differs depending

on the level of the emotion that her child experiences. For this mother, while she had a

repertoire of approaches, the reaction employed was dependent on the child.

As it is understood that the relation between parent and child variables are much more complex than the unidirectional approach, care should also be taken when interpreting the results in a unidirectional fashion.

Discrete emotions. Within the qualitative portion of the study, it became evident that some mothers used different strategies depending on the type of negative emotion they were socializing (fear, sadness, anger). Mothers provided an emotion-focused approach more often when dealing with sadness and a problem-focused approach when dealing with fear. It was also noted that mothers were more likely to engage in discussion with their children in fear-inducing situations. Mothers also appeared to display more sympathy when socializing sadness. The current study has not been the only study to observe different patterns in the socialization of discrete emotions. For instance, within an ASD population, Hirschler-Guttenberg and colleagues (2015) found that parents helped to co-regulate the emotion of anger and fear differently.

Taken together, perhaps mothers of children with ASD tend to approach their emotion socialization with attention to the type of emotion experienced by the children. This further speaks to bidirectionality and to mothers' awareness of how different emotions manifest in their children. Future research should focus on the nature of the emotion that is being socialized to obtain a more comprehensive understanding of emotion socialization within an ASD population. By studying how specific emotions are socialized, interventions may be tailored depending on the optimal socialization practice for that emotion. That is, mothers can be taught to provide more problem-focused solutions to combat child anxiety in children with ASD, if, in fact, problem-focused reactions maximize outcomes over other reactions.

Children characteristics. The age of children in the current study was relatively broad, spanning school-aged to adolescence. In comparison to younger children, adolescents typically have more independence when dealing with emotions. It would be of interest for future studies to examine emotion socialization within more homogeneous age categories to appreciate socialization across the developmental span in children with ASD. Particularly of interest is whether there would be differences within age groups as seen in typically developing populations (Eisenberg et al., 1998). As children with ASD are likely to remain emotionally immature for longer due to emotional and social processing deficits, they may continue to require their mothers' assistance for regulation longer than would developmentally be expected. Longitudinal studies of emotion socialization would help to capture the changes in the socialization process of parents and highlight whether aspects of emotion socialization are more age dependent.

In the current study, the gender of the children was predominately male. Future research should explore whether parents socialize emotion differently depending on the gender of the child. Within typically developing populations, several studies suggest that parents socialize differently depending on whether the child is male or female (e.g., Root & Denham, 2010).

Culture. Future research should explore emotion socialization practices within the framework of culture. Perhaps practices may differ depending on collectivistic vs individualistic cultural values (Halberstadt & Lozada, 2011). Without consideration of culture, we may be at risk in broadly pathologizing certain practices, which may in fact, produce optimal outcomes within a certain cultural context. For example, a study conducted by Lugo-Candelas, Harvey, and Breaux (2015) revealed that while Latina mothers commonly employed a minimizing approach in response to their children's

negative affect, negative consequences did not result. Using a qualitative approach (focus groups), Parker and colleagues (2012) found African American parents to be more accepting of the expression of emotion within the family, as it was believed that emotions should not be bottled up. Conversely, the European American and Native American (Lumbee) groups held beliefs more consistent with "emotional restriction," in that emotion expression was viewed as unnecessary on many occasions.

Comparison groups. The majority of research within the area of emotion socialization captures that of typically developing children and their families. Future research should seek to understand the differences in how mothers socialize emotion in typically developing populations compared to ASD populations. The results of the current study point towards many similarities between mothers of children with ASD and mothers of typically developing children. For instance, all mothers were found to hold emotion coaching beliefs, use supportive strategies and express emotions within the family environment. However, the interactions between emotion socialization and distress may reveal different results, depending on the population and overall outcome being studied.

Conclusion

The present study sought to better understand emotion socialization practices within an ASD population, making a sizable contribution to the current literature as emotion socialization has been rarely studied within this population. The current study indicated that mothers of children with ASD socialize emotion in a variety of ways, some of which may be more unique in comparison to mothers of typically developing children. The study also highlighted the importance of considering maternal characteristics, such as distress and the mothers' BAP status, when examining emotion socialization practices

and child outcomes. Overall, the current study provides preliminary evidence for the

usefulness of the emotion socialization framework within an ASD population, which has

implications for both researchers and professionals working with this population. In an

ASD population, the children have unique challenges and "one-size" parenting may not

fit all families and children. Further research needs to be conducted to develop a more

comprehensive paradigm for guiding families in the socialization of emotion for children

with ASD.

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APPENDIX A

Abbreviations and Classification of Questionnaires

Measure	Construct Assessed	Function	Number of Items	Scale
Autism Spectrum Screening Questionnaire (ASSQ)	High functioning ASD symptoms	Screening questionnaire	27	3-point rating
The Broad Autism Phenotype Questionnaire (BAPQ)	The broad autism phenotype	Grouping (BAP vs. without BAP); Continuous for full dataset correlations	36	6-point Likert-type
Maternal Emotion Styles Questionnaire (MESQ)	Emotion-related beliefs	Dependent variable (t-test); Independent variable (Regression)	14	5-point Likert
Coping with Children's Negative Emotions Scale (CCNES)	Reactions to children's negative emotions	Dependent variable (t-test); Independent variable (Regression)	12	7-point Likert-type
Self-Expressiveness in the Family Questionnaire (SEFQ)	Expression of affect	Dependent variable (t-test); Independent variable (Regression)	40	9-point Likert-type
Parental Stressor Scale: Developmental Disabilities (PSS:DD)	Parenting stress	Dependent variable (t-test); Moderator variable (Regression)	27	5-point Likert-type
Depression Anxiety Stress Scales – 21 (DASS-21)	Symptoms of anxiety and depression	Dependent variable (t-test); Moderating variables (Regression)	21	4-point Likert-type
Nisonger Child Behaviour Rating Form (NCBRF)	Child behaviour problems	Dependent variable (t-test); Dependent variable (Regression)	70	4-point Likert-type

APPENDIX B

Maternal Emotion Socialization Interview

I would like to ask you some questions about your experiences with three different types of negative emotions that your child might experience on an everyday basis. You have already answered some questions about emotions and your child in the questionnaire phase of the study, but I would like to gain a deeper understanding about your and your child's experiences. Remember to speak about the same child whom you have already answered questions about previously. There is a broad range of possible answers for questions about emotions. There are no right or wrong responses, so please try to describe your experiences as you recall them. Do you have any questions?

When your child experienced *sadness*

1. Describe a recent situation when your child experienced [sadness]. Exclude any times when your child was having a tantrum/meltdown.

(a) What led up to the incident?

(b) What happened during the incident?

(c) How did your child express his/her emotion?

2. Rate how intensely your child felt [sadness] during this situation on a scale of 1 to 10 with one being the lowest and 10 being the most intense.

3. Describe how you responded to your child during this situation in which your child experienced [sadness].

4. What were you thinking during this situation when your child experienced [sadness].

5. Did you experience any emotions during this situation? If so, what were they?

(a) How intense was your experience of the emotion on a scale of 1 to 10, with one being the lowest and 10 being the most intense?

(b) Did you express your emotion or emotions to the child? If so, how did you express the emotion(s)?

6. As a parent, what do think you need to do when your child experiences [sadness]? What do you feel is your role in managing your child's emotion of [sadness]?

7. In the situation in which your child experienced [sadness] what was the outcome for your child? Did your child feel better?

When your child experienced *anger*

8. Describe a recent situation when your child experienced [anger]. Exclude any times when your child was having a tantrum/meltdown.

(a) What led up to the incident?

(b) What happened during the incident?

(c) How did your child express his/her emotion?

9. Rate how intensely your child felt [anger] during this situation on a scale of 1 to 10 with one being the lowest and 10 being the most intense.

10. Describe how you responded to your child during this situation in which your child experienced [anger].

11. What were you thinking during this situation when your child experienced [anger].

12. Did you experience any emotions during this situation? If so, what were they?

(a) How intense was your experience of the emotion on a scale of 1 to 10, with one being the lowest and 10 being the most intense?

(b) Did you express your emotion or emotions to the child? If so, how did you express the emotion(s)?

13. As a parent, what do think you need to do when your child experiences [anger]? What do you feel is your role in managing your child's emotion of [anger]?

14. In the situation in which your child experienced [anger], what was the outcome for your child? Did your child feel better?

When your child experienced *fear*

15. Describe a recent situation when your child experienced [fear]. Exclude any times when your child was having a tantrum/meltdown.

(a) What led up to the incident?

(b) What happened during the incident?

(c) How did your child express his/her emotion?

16. Rate how intensely your child felt [fear] during this situation on a scale of 1 to 10 with one being the lowest and 10 being the most intense.

17. Describe how you responded to your child during this situation in which your child experienced [fear].

18. What were you thinking during this situation when your child experienced [fear].

19. Did you experience any emotions during this situation? If so, what were they?

(a) How intense was your experience of the emotion on a scale of 1 to 10, with one being the lowest and 10 being the most intense?

(b) Did you express your emotion or emotions to the child? If so, how did you express the emotion(s)?

20. As a parent, what do think you need to do when your child experiences [fear]? What do you feel is your role in managing your child's emotion of [fear]?

21. In the situation in which your child experienced [fear], what was the outcome for your child? Did your child feel better?

General Parenting

22. Has having a child with Autism Spectrum Disorder changed the way in which you parent or think about parenting? If so, in what way?

23. *Only for mothers with a typically developing child in addition to child with ASD.* We discussed ways that you may parent when your child experiences sadness, anger and fear. You have indicated that you have a child that does not have ASD. Does your parenting differ depending on what child you are parenting? If so, please describe.

APPENDIX C

Qualitative Codes

Code	Brief Description	Example
Meta-Emotion Philosophy		
Emotion Coaching	Reflects cognitive processes in which children's experience of negative emotions are viewed as an opportunity for intimacy, teaching, encouragement, or exploration.	"… my role is just to try to help him understand his emotions and try to help him think out his options."
Emotion Dismissing	Reflects cognitive processes in which children's negative emotions are viewed as harmful, unnecessary, invalid, or that they should not be experienced.	"holy crap we gotta fix this…"
Awareness of Parental Impact	Reflects mothers' awareness that their emotions or responses impact their children's behaviour or emotional experiences.	"… that little tiny bit of worry begins to pop up of an awareness that I need to be very mindful of how I respond so that things do not escalate further."
Awareness of Processing Limitations	Reflects mothers' understanding that their children encounter difficulty when processing information (e.g., emotional, social).	"I know that it's miscommunication somewhere and so far he has not able to pick it up, but that's the way it is."
Supportive Reactions		
Emotion-Focused Reactions	Reflects mothers' strategies that are designed to help children feel better through comfort, soothing, or use of relaxation strategies, etc.	"I just sit next to him, I just caress him."
Problem-Focused Reactions	Reflects mothers' response to help children solve the problem that caused the distress.	"…we could take the toy and we could see if daddy could fix it…"
Expressive Encouragement	Reflects mothers' validation of emotion or encouragement toward their children to express negative affect.	"We'll just tell him that it's ok to be sad."

De-escalating Reactions		
Safety-Focused Reactions	Reflects mothers' attempt to keep their children or others safe when their children experience negative emotion.	"So to try and stop the self-harming…"
Distraction	Reflects mothers' attempts to distract or redirect children when they experience negative emotion.	"Let's just de-escalate this as quickly as possible. And move onto something else. Distract. Distract, distract, distract."
Ignoring Reactions	Reflects the reaction of disregarding, neglecting, or ignoring children's negative emotions.	"She just wants to pretend it's not happening, that's the best thing to do…I don't, we don't talk about it…"
Unsupportive Reactions		
Minimizing Reactions	Reflects mothers' response to minimize the seriousness of the situation or the children's emotions.	"It's not that big a deal."
Distress Reactions	Reflects mothers' experience of distress when children express negative affect.	"I was crying and she was crying by that point because I'd yelled at her."
Punitive Reactions	Reflects providing consequences, discipline, or punishment when children experience negative emotions.	"Ok go to your room, that's it. Ok, time out for everybody."
Maternal Emotional Experience		
Maternal Affect	Reflects the emotions that mothers reported experiencing (e.g., sadness, anger, pride, surprise, etc.)	"I was upset. I was proud of him, it's odd to explain."
Maternal Expressivity	Reflects mothers' expression of emotion, during which the reaction is visible to the children.	"So I would just be sad with him."
Additional Themes		
Immediate vs. Delayed Discussion	Reflects whether or not mother-child discussion occurred and if it occurred during the emotion-related event or later.	"I don't, we don't talk about it, and we don't... at least not in the moment. Like we can come back later and talk about it but not in the moment."

Discussion of Mothers' Emotion	Reflects mothers' discussion with their children about their own emotional experiences.	"I can give him some examples that is close to his experience. This takes time, but it's worth it though."
Discrepancy	Reflects a discrepancy between mothers' thoughts/desires and their actual reactions.	"I want to hug him. But I know not to."
Dedication	Reflects mothers' continuous learning and dedication to socializing their children's negative emotions.	"I'm relearning on how to communicate with him…"

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