

IS MARITAL SATISFACTION A MODERATOR IN  
THE RELATION BETWEEN DEVELOPMENTAL  
RISK AND CHILD BEHAVIOR  
PROBLEMS?

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of Master of Science in Psychology

By  
Emily Christine Day  
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CERTIFICATION OF APPROVAL

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## DEDICATION

This thesis is dedicated to my mother, Terry, and my late Grandmother, Jimzy Day. These two incredible women taught me that I am capable of achieving anything I set my mind to. I am deeply grateful for the support and love they have both given me, as well as the significant role they both played in showing me how to be a strong, independent, and empathetic human being.

In addition, this thesis is dedicated to Danny and Diane Guadagnolo. You both taught me many important life skills, and the success of my college career is in large part due to the support and flexibility you provided through allowing me to be a part of the team at your small business. Working at D'boni's pizza, with and for you, will continue to have a positive lasting impact on my life, and for that I thank you both.

Last, but certainly not least, this thesis is dedicated to Alice, Emmett, and Reddick. The three of you have been by my side during my entire college career. You brought me joy when I was overwhelmed, and you were always willing to listen to me as I read through my writing to ensure it made sense. You also made sure that I took breaks and saw the sun. Thank you for all of the smiles, love, and support.

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## ABSTRACT

Children with developmental delays have been found to be at higher risk for behavior problems. Marital satisfaction has been found to have strong correlations with child behavior problems. Based on existing research, it is not yet clear whether marital satisfaction plays a role in the development of child behavior problems for families of children with developmental delays. The purpose of this study was to examine marital satisfaction as a moderator in the relation between developmental risk group (children with or without developmental delays) and child behavior problems. Participants included 58 families with a focal child aged 3-5 years of which 29 were children with developmental delays and 29 were children who were typically developing. Children completed a developmental assessment of intelligence, and parents completed questionnaires regarding marital satisfaction and child behavior problems. Results indicated that mothers' marital satisfaction was found to significantly moderate the relation between developmental risk group and mothers' ratings of child behavior problems; specifically, children's internalizing and total behavior problems. When mothers' marital satisfaction was low, child behavior problems were similar across developmental risk groups. Yet, when mothers' marital satisfaction was high, mothers rated their typically developing children as having significantly fewer behavior problems than mothers of children with developmental delays. Fathers' marital satisfaction was not found to moderate the relation between child developmental risk and child behavior problems. No significant differences were found in regard to

mother and father marital satisfaction. Fathers of children with developmental delays, as compared to fathers of children who were typically developing, were found to rate their child as having significantly more internalizing behavior problems. Ultimately, the inclusion of fathers' unique perspectives proved worthwhile in the current study. In addition, marital satisfaction plays an important role in mothers' ratings of internalizing and total behavior problems.

## CHAPTER I

### INTRODUCTION

Child behavior problems, such as aggression and depression, can be stressful for parents. According to data from the 2016 National Survey of Children's Health, 7.4% of children in the United States are currently diagnosed with a behavioral or conduct problem (Ghandour et al., 2019). Children with developmental delays, in particular Intellectual Disability, Autism Spectrum Disorder, Down Syndrome, etc. are at high risk for behavior problems (Caplan et al., 2015; Ellingsen, et al., 2014; Feldman et al., 2000; Kurtz-Nelson & McIntyre, 2017; Tervo, 2012). Approximately 17% of United States children between the ages of 3 and 17 years old have been diagnosed with developmental delays (Zablotsky et al., 2019). In addition, children diagnosed with developmental delays have been found to be about three times more likely to have more behavior problems than typically developing children (Crnic et al., 2017). Children with developmental delays and behavior problems experience persisting mental health concerns that continue into adulthood, as well as difficulties obtaining employment and living on their own (Hauser-Cram & Woodman, 2016). Due to the prevalence of developmental delays as well as the fact that these children are at a higher risk for behavior problems, it is useful to evaluate what factors may intervene in the relation between developmental delays and child behavior problems. Identifying intervening family factors, specifically, may help in targeting interventions to support families of children with developmental delays. In particular, marital satisfaction may be an important family factor in the development of child behavior problems.

The relationships between parents and their children have been found to be transactional, such that family factors in the form of parental stress and marital satisfaction impact levels of child behavior problems (Benson & Kersh, 2011; Woodman et al., 2015). Though there has been some conflicting evidence regarding the impacts of behavior problems and family factors on families of children with developmental delays (Hartley et al., 2011; Namkung et al., 2015), some research has shown that marital satisfaction is inversely related to child behavior problems in families of children with developmental delays (Benson & Kersh, 2011). Specifically, it has been seen that when marital satisfaction is higher, the rate of child behavior problems is lower (Hartley et al., 2012). Additional research is needed in order to obtain a more concrete understanding regarding the relation between child developmental delay, parent marital satisfaction, and child behavior problems.

CHAPTER II  
REVIEW OF THE LITERATURE

**Child Behavior Problems**

**Conceptualizing and Measuring Behavior Problems**

When studies look at child behavior problems, they tend to focus specifically on externalizing behavior problems. These behavior problems in children are routinely seen as aggression, being disruptive, dissension with others, and destructiveness (Anthony et al., 2005; Choi & Jackson, 2011). While the aforementioned behaviors may be a common understanding of behavior problems, this neglects consideration of other important behavior problems such as feeling anxiety/depression and emotional reactivity (Narayanan & Nærde, 2016). Indeed, some research focuses exclusively on externalizing behavior problems (e.g., aggression, rule-breaking) while disregarding internalizing behavior problems (e.g., anxiety, depression; Choi & Jackson, 2011; Kochanska et al., 2013). This is problematic, as it is common for children to exhibit both internalizing and externalizing behavior problems (Edwards & Hans, 2015). Children that experience both internalizing and externalizing behavior problems are likely to experience adversity such as lawbreaking, involvement with deviant peers, and relational difficulties (Fanti & Henrich, 2010). Thus, research should examine both externalizing and internalizing behavior problems as they both clearly lead to negative outcomes.

In order to examine a child's behavior problems, researchers have used various measurement techniques including observation, teacher-report, child report, and parent report. Observational measures such as the Evaluation of Social Interaction (Fisher & Griswold, 2009) does not rely on a caregiver's memory, making this a beneficial way to measure child behavior problems. However, observational data may not be reflective of a child's patterns of behavior across time. To address this, child behavior problems may be measured by teacher reports such as The Teacher Observation of Classroom Adaptation–Revised (TOCA-R; Werthamer-Larsson et al., 1991) in which teachers are asked to rate the prevalence of the child's behavior problems during school. This method examines patterns of behavior across time, yet only captures behaviors displayed in the school setting. Alternatively, a child's ratings of their own behaviors may provide a particularly insightful assessment of behavior as shown in the use of measures such as the Berkeley Puppet Interview (Ablow et al., 1999). Though self-reporting allows the child the opportunity to communicate their perspective on their behavior problems, the child might not be the most reliable reporter, especially in regard to their externalizing behavior problems (Ablow et al., 1999). On the other hand, a more reliable reporter might be found in the child's parents.

Many consider parents to be the best judge of their child's problem behavior, as parents observe their child across multiple settings, view patterns over time, and communicate with other caregivers (such as teachers), arguably giving the parents the most nuanced and accurate ability to reflect on their child's behavior. One of the most

frequently used parent-report measures is the Child Behavior Checklist (CBCL; Achenbach & Rescorla 2001). This measure is designed to examine both internalizing behavior problems (e.g., emotional reactivity, anxiousness, somatic issues, and depression) and externalizing behavior problems (e.g., aggressive behavior, issues with attention, and dissension with other people) in children (Holmes et al., 2015). The CBCL is highly regarded in its accuracy of measuring behavior problems in young children.

### **Consequences of Child Behavior Problems**

Child Behavior problems can lead to various repercussions. Children that exhibit externalizing behavior problems (e.g., aggression, rule-breaking) are at a higher risk for future unlawful behavior (Dalsgaard as cited in, Gewirtz et al., 2019). Externalizing behavior problems can be a precursor for future conduct problems and can also disrupt a child's academic achievement (Barriga et al., 2002). Additionally, children who exhibit internalizing behavior problems (e.g., depression) are increasingly susceptible to forming an insecure attachment with their parents, as well as avoiding social interactions with peers (Fanti & Henrich, 2010; Van der Voort et al., 2014). Thus, the child is not the only person impacted by their behavior problems.

Child behavior problems negatively impact both the lives of the child as well as the family (Dalsgaard as cited in, Gewirtz et al., 2019; Van der Voort et al., 2014). Child behavior problems have several negative impacts on parents, such as parents' elevated levels of stress, poor marital adjustment, family distress, and parent mental

health problems (Baker et al., 2005; Herring et al., 2006; Robinson & Neece, 2015). Due to the extensive negative consequences of child behavior problems, it is crucial to consider significant predictors of behavior problems. Identifying predictors of behavior problems may help with prevention, or in developing beneficial interventions.

### **Child Developmental Risk as a Predictor of Behavior Problems**

Developmental risk can be conceptualized as a grouping label given to children who either have or do not have developmental delays (Pedersen et al., 2015; Gerstein et al., 2011). Thus, developmental risk is described as either high developmental risk, in which children have developmental delays, or low developmental risk, in which children are considered to be typically developing. In particular, the term developmental delay is widely used to describe developmental disability diagnoses such as Autism Spectrum Disorder, sensory processing disorder, intellectual disability, and Down Syndrome (Zablotsky et al., 2019). Overall, the term developmental delay is used to categorize disorders that are marked by significant struggles in areas such as learning, language, autonomy, and behavior (Zablotsky, 2017; Crnic et al., 2017). Such cognitive delays are often considered to be marked by an intelligence quotient (IQ) of 75 or lower on a standardized test of intelligence.

Though the term developmental delay is often used to refer to children with a low IQ (less than 75), children with an IQ of 75-85 are also at risk of future problems. This range of IQ is typically referred to as borderline intellectual functioning, and though it is not a formal diagnosis, it is associated with risk for issues academically,

socially, and emotionally (Fenning et al., 2014). Children that have borderline intellectual functioning are excluded from the diagnostic category of intellectual disability, as they are not considered to have significant enough delays to warrant a diagnosis, yet they are also not able to meet the same milestones as children who are typically developing (Fenning et al., 2007). Children who have developmental delays have a higher level of behavior problems when compared to typically developing children (Baker et al., 2003). In addition, children with borderline intellectual functioning also have higher levels of behavior problems than typically developing children (Fenning et al., 2007). The inclusion of children with borderline intellectual functioning in research on child developmental delay is important, as studies suggest that these children are more comparable to children with developmental delays than they are to children that are typically developing (Fenning et al., 2007; Fenning et al., 2014).

### **Methodological Issues in Existing Research on Developmental Delay**

Research regarding developmental risk and child behavior problems tends to encounter complications in the sampling of families of children with a developmental delay or intellectual disability. Firstly, in studies that include both a typically developing group and a developmentally delayed group, sample sizes are frequently unequal, limiting the conclusions that can be drawn. For example, Wieland and Baker (2010) examined the relationships between marital quality, spousal support, and child behavior problems amongst families of children with and without intellectual disabilities. They found that it was difficult to detect significant relationships between

the aforementioned variables for the families of children with intellectual disabilities. The researchers attributed this to the fact that they had a smaller sample of families with intellectual disabilities as compared to the sample of families of children without intellectual disabilities. Similar research examined families of children aged 0-5 years where 55 of the families included children with developmental delays and 183 families had children who were considered to be typically developing (Boström et al., 2010). These are just a few examples of how studies comparing families of children with developmental delays and families of children that are typically developing tend to have unequal sample sizes, with the former group usually being far outnumbered by the latter. This stark mismatch in sample size is concerning as it may lead to a lack of statistical power to detect existing effects.

Another sampling issue that occurs in studies of developmental delay can be seen when researchers do not properly account for the developmental age of children in the study. One such example exists in the study by Boström et al., (2010) in which the researchers did not control for the children's age. As age was not a controlled variable in the study, it is impossible to say whether the variation in age may have had an effect on the parents' ratings of their child's temperament or the child's impact on the family. Wieland and Baker (2010) also posited that the difficulty in detecting significant relationships in their research could be due to the age range in which they examined the children that had developmental delays. Though the study examined children ages 6 to 8 years old, researchers suggested the families might have had different responses if they were examined closer to the time in which the child was

initially diagnosed as having intellectual disabilities (typically 3 to 5 years old; Wieland & Baker, 2010). Both studies may have benefitted from studying children during the developmental stage in which they are likely to receive their diagnosis.

While sampling complications are clearly important to consider, there may also be other factors to assess. Studies have also shown conflicting findings in regard to the impact that children with developmental delays have on their families. Some studies have found that parents of children with developmental delays rate their children as having a less positive impact on the family as compared to the ratings of parents whose children are typically developing (Boström et al., 2010). In contrast, other researchers have found that some mothers rate their child as having a high positive impact on their life, regardless of whether or not the child has an intellectual disability (Blacher et al., 2013). Blacher et al. (2013) posited that the parents' perspectives and mindsets could be more relevant than the child's diagnosis or lack thereof. Additionally, researchers have found that parents who actively use healthy coping strategies were more likely to endorse more positive experiences in raising their child with developmental delays as compared to parents who did not (Minnes et al., 2015). It is possible that these inconsistent findings may be explained by intervening variables' impact on family well-being factors. For example, the level of marital satisfaction in the home may affect parents' ratings of a child's impact on the family.

## Conceptualizing and Measuring Marital Satisfaction

Marital satisfaction, marital quality, marital adjustment, and relationship satisfaction are often used as interchangeable terms with generally the same intended meaning: an individual's personal evaluation of their romantic relationship with a spouse or significant other (Gottman et al., 1998; Graham et al., 2011; Hanetz Gamliel et al., 2018; Heyman et al., 1994). While the terms are used interchangeably, it is important to consider the connotations of each term and how that might impact the information gathered from a couple. The phrase "relationship satisfaction" does not require nor imply marital status but simply the level of contentment and pleasure in a relationship. The term "marital adjustment" refers to the process and outcome of a couple learning to be in a relationship together (Heyman et al., 1994). The phrase "marital quality" as used by Norton (1983) is intended to describe the "goodness of the relationship." Norton (1983) went on to explain that evaluating the "goodness of the relationship" should involve looking specifically at the semantics of the items on the measure as opposed to including elements that are more loosely related (i.e. closeness, interest in similar activities, and how they express affection). It could be argued that marital quality has more evaluative and critical connotations, whereas marital satisfaction refers to global contentment in a marriage. While most of these terms would be appropriate to use interchangeably, *marital satisfaction* has been used to encompass the factors previously described and seems most comprehensive. Thus, for the purposes of the current study, I will be referring to the construct of marital

satisfaction. In order to thoroughly examine marital satisfaction, it is paramount that researchers are discerning when selecting their measures.

Marital satisfaction can be measured using various questionnaires. One of the most common questionnaires used is the Locke-Wallace Marital Adjustment Test (LWMAT; Locke & Wallace, 1959) which assesses a heterogeneous scope of factors related to marital adjustment. While this measure has been used in the past to examine a more “global” (e.g., holistic) perspective of marital satisfaction, it has been criticized for being outdated, and it has been found to more accurately measure specific factors *related* to marital satisfaction (such as agreement on financial matters, the individual’s overall happiness, thoughts and feelings regarding their spouse) rather than measuring global marital satisfaction (Graham et al., 2011). Another widely used measure of marital satisfaction is the Dyadic Adjustment Scale (DAS; Spanier, 1976). While this measure can gather information on a plethora of factors related to marital satisfaction, more specifically marital adjustment as intended by the author, it is comprised of 32-items, which may be more than necessary in order to evaluate marital satisfaction (Vajda et al., 2019). A more expeditious measure can be seen in the Quality of Marriage Index (QMI), which is comprised of 6 items that focus specifically on the global evaluation of marital satisfaction (Norton, 1983). This measure was made in part as a reaction to the DAS, which was judged to have too expansive an emphasis on the causes and effects of marital satisfaction, rather than focusing on a more global evaluation of marital satisfaction specifically (Graham et al., 2011; Norton, 1983). The QMI has been found to be a reliable and valid measure

that is also more efficient than similar measures at collecting a global marital satisfaction score (Woods et al., 2013). Therefore, the QMI was used in the current study.

### **Marital Satisfaction as an Intervening Variable**

Marital satisfaction may intervene in the relation between developmental risk and child behavior problems. Research has found negative correlations between mothers' ratings of marital satisfaction and child behavior problems, such that when marital satisfaction is low, child behavior problems are high (Benson & Kersh, 2011; Wieland & Baker, 2010). Considering how children with developmental delays tend to have higher levels of behavior problems, research examining the potential for marital satisfaction to intervene in this relation appears informative (Caplan et al., 2015; Ellingsen et al., 2014; Feldman et al., 2000; Kurtz-Nelson & McIntyre, 2017; Tervo, 2012).

Although marital satisfaction levels and divorce rates are not equivalent, these factors are related. Historically, parents of children with developmental delays have been seen to have higher divorce rates than parents of children who are typically developing (Hartley et al., 2010; Namkung et al., 2015). On the other hand, marital satisfaction has also been seen to be rated similarly between families of children that were typically developing, and families of children with developmental delays (Baker et al., 2005). Therefore, research should consider additional factors in order to accurately understand the relations between these variables.

Furthermore, Hartley et al., (2011) found that parents of children with Autism Spectrum Disorder who experienced lower marital satisfaction reported higher perceived parenting burden, as compared to parents who experienced higher marital satisfaction. While feeling burdened by one's child may be due to multiple factors, it is likely that burden is at least somewhat related to a child's level of behavior problems. This suggests that it may be worthwhile to study a connection between marital satisfaction and behavior problems, as perhaps parents who have higher marital satisfaction are more likely to rate their child as having lower behavior problems. This may be due to either the protective nature of marital satisfaction on the parents' perceptions of their child, or the potential process by which marital satisfaction might be associated with fewer behavior problems.

### **Mothers' and Fathers' Unique Perspectives**

To gain a fuller understanding of family functioning in families of children with development delays, marital satisfaction and child behavior problems seem to be important factors to consider. However, it is relevant to address the unique perspectives that mothers and fathers have on their families. For instance, one should consider how mothers' and fathers' differing perspectives of their children's behavior problems could possibly be related to unique parenting styles common for each gender. One illustration of differing parenting styles can be found when considering how mothers are typically involved in behaviors such as comforting their children and engaging in imaginary play, while fathers tend to have a more physically playful relationship with their child, which is known as "activative fathering" (Majdandžić et

al., 2016; Stevenson & Crnic, 2013a; Stevenson & Crnic, 2013b). Activative fathering involves play behaviors such as wrestling and exploring the environment, in comparison to how mothers tend to predominantly provide comfort and security (Stevenson & Crnic, 2013a; Stevenson & Crnic, 2013b). This style of interacting with a child is likely to give the activative father a unique relationship with his child, as well as a different perspective on the child's behavior problems. Fathers may attribute a more positive perspective to the types of behaviors exhibited based on this physical style of play (e.g., physical aggression and “acting out”), while mothers may see these types of behaviors as more problematic. Clearly, mothers and fathers have unique relationships with their children, and thus it is useful to consider how their unique perspectives may be related to other family factors.

Nevertheless, most research on families tends to focus heavily on the mother’s perspective, while predominantly ignoring the insights that may come from including the fathers’ perspectives. For example, in research that includes both partners in a marriage, women tend to report lower marital satisfaction than men; yet most research studies tend to neglect to obtain ratings such as these from both partners (Jackson et al., 2014). While the information gathered from only mothers is still informative, it is clear that research must incorporate both parents’ ratings in order to proclaim more valid results (Benson & Kersh, 2011; Wieland & Baker, 2010). In addition, the importance of including fathers in research is further supported by findings such as those that show how the quality of the father-child relationship was related to marital satisfaction, whereas the mother-child relationship was not seen to

be related to marital satisfaction (Hartley et al., 2011). Fathers have also been observed to report higher levels of marital satisfaction as well as lower stress and fewer perceived child behavior problems as compared to the mothers' ratings (Deater-Deckard & Scarr, 1996). This difference between fathers and mothers is a common finding in research on marital satisfaction (Kamp Dush et al., 2008; Myers & Booth, 1999; Stevenson & Wolfers, 2009; Whiteman et al., 2007). Indubitably, the information that is gathered when both parents' ratings are obtained is highly beneficial to the field of research and additionally can be quite thought-provoking.

Unfortunately, when studies examine child behavior problems, mothers are likely to be the only parent filling out questionnaires that assess both the severity of the child's behavior problems in addition to parental well-being and marital quality (Benson & Kersh, 2011; Ellingsen et al., 2014; Lovell & Wetherell, 2016; Woodman et al., 2015). However, focusing only on mothers' impressions of their families limits the conclusions that can be drawn. Due to the unique aspects of each parents' perspectives, research should aim to include both parents while also considering other relevant factors that may be involved.

### **Developmental Risk, Marital Satisfaction, and Child Behavior Problems**

Though considerable research has shown a link between developmental risk and child behavior problems (Baker et al., 2003; Fenning et al., 2007; Fenning et al., 2014; Hauser-Cram & Woodman, 2016), fewer studies have explored how marital satisfaction may intervene in this relation. However, there is evidence that marital satisfaction may intervene in the relation between other family or child-related

factors. For instance, marital satisfaction has been seen to moderate the success of mindfulness-based stress reduction in treating child behavior problems (Robinson & Neece, 2015). Families with high levels of marital satisfaction saw a slight reduction in child behavior problems over time when using mindfulness-based stress reduction, whereas families with low levels of marital satisfaction saw a more significant reduction in child behavior problems (Robinson & Neece, 2015). In other words, families with low marital satisfaction may have been more strongly impacted by therapy than families with higher marital satisfaction. This highlights the role of marital satisfaction in predicting other family functioning-related variables (such as child behavior problems). Additionally, Benson and Kersh (2011) found that in families of children with ASD, marital satisfaction was significantly related to child behavior problems, in that higher levels of marital satisfaction were found to be related to lower levels of child behavior problems. Overall, it seems clear that literature examining the specific relations between developmental risk, marital satisfaction, and child behavior problems has uncovered intriguing signs that these variables may be important to consider in order to obtain a fuller understanding of family functioning.

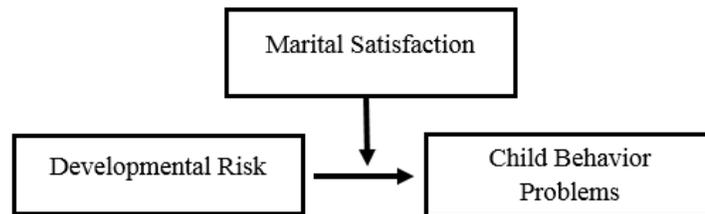
### **The Current Study & Hypotheses**

The current study examined whether marital satisfaction is a moderating variable in the relation between developmental risk and child behavior problems. The study also considered the differences in the responses given by mothers and fathers in regard to both marital satisfaction and child behavior problems. The study had 3

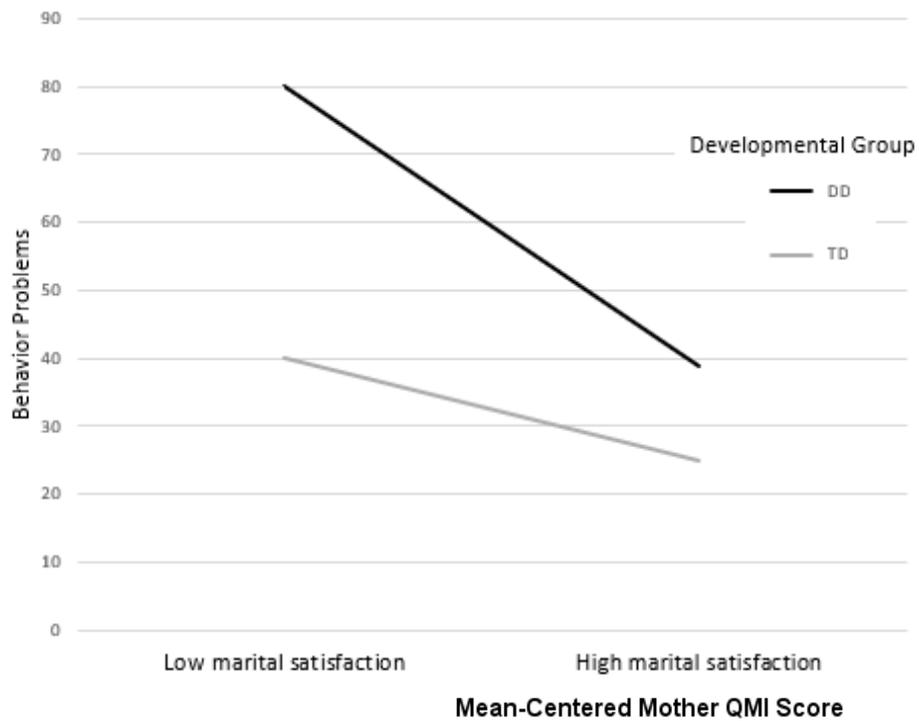
hypotheses. The first hypothesis in the current study was that marital satisfaction would moderate the relation between child developmental risk and parent ratings of child behavior problems. This hypothesis had two sub-hypotheses, specifically: 1a) mother ratings of marital satisfaction would moderate the relation between child developmental risk and mothers' ratings of behavior problems, and 1b) father ratings of marital satisfaction would moderate the relation between child developmental risk and fathers' ratings of child behavior problems. For each of these sub-hypotheses, the expectation was that parents of children with developmental delays who also reported low marital satisfaction would rate their children as having significantly more behavior problems than parents who reported high marital satisfaction (whether or not their children have developmental delays; see figures 1 and 2). The second hypothesis was that fathers would rate marital satisfaction as higher than mothers. The third hypothesis was that fathers would report fewer child behavior problems as compared to mothers.

**Figure 1**

*A Model of the Moderating Role of Marital Satisfaction in the Relation Between Child Developmental Risk and Child Behavior Problems.*

**Figure 2**

*A Model of the Proposed Moderation Effect.*



## CHAPTER III

### METHOD

#### **Participants**

The following methods are part of a larger study known as the Family Interaction Study which examined family interaction patterns in families with and without children with developmental delays. The participants included families of children aged 3-5 years. The child aged 3-5 years was labeled as the “focal child” for the purposes of the study. The families were recruited using flyers placed at local preschools and agencies that provide services for children with special needs, as well as through parenting group pages on Facebook ([www.facebook.com](http://www.facebook.com)). In order to participate, the focal child was required be able to communicate in single words or more, perform physical activities such as walking and running; and use his or her hands for activities such as playing with puzzles and blocks. The family also needed to be able to speak English fluently during the family observation and have enough English fluency to complete questionnaires in English. For the purposes of the current study each focal child was identified as being either typically developing or developmentally delayed based on IQ data as well as parent report.

The participants received a total of \$100 in gift cards as compensation. After attending the initial visit, i.e. the child intellectual assessment, the parents received a \$40 gift card. When the family returned for the second visit, i.e. the family observation, they received a \$20 gift card for turning in completed questionnaires and

a \$40 gift card after participating in the second visit. The focal child and their siblings were allowed to choose a small toy from a prize box after completing each of the two visits. The toys were valued at less than \$1 each. The families also received a report summarizing the child's intellectual functioning as assessed in the first visit. The procedure for this study was approved by the Stanislaus State University Psychology Internal Review Board (IRB Approval #P-16-24).

## **Measures**

### **Demographic Questionnaire**

The Family Information form was created for use in the current study. It is a demographic questionnaire that gathers information such as age, gender, race/ethnic background, and marital status (See Appendix A).

### **Wechsler Preschool and Primary Scales of Intelligence, 4th Edition (WPPSI-IV; Wechsler, 2012)**

In order to test the child's intelligence and obtain a Full-Scale IQ (FSIQ), the WPPSI-IV was used. This measure is designed to be used with children in the age range of 2 years, 6 months to 7 years, 7 months. The FSIQ assessment involves a verbal comprehension index (e.g., identifying the correct picture when asked to identify "water"), a nonverbal index (e.g., putting together puzzles that increase in difficulty), a working memory index (e.g., after being shown a shape, identifying that shape amongst other shapes), and a processing speed index (e.g., swiftly and correctly completing grapho-motor tasks). Due to reasons of test security, the WPPSI is not appended to this document. However, copies are available for review upon request.

Raw scores for each index are obtained through correct responses given by the child. These raw scores are converted to scaled scores using norming data for peers of the same age. The scaled scores range from 1-19 and have a mean of 10 and a standard deviation of 3. Scaled scores between 7-13 are considered average. In order to obtain a FSIQ score, the scaled scores are summed and compared to peer norms. FSIQ scores range from 40-160 and have a mean of 100 and a standard deviation of 15. FSIQ scores between 85-115 are considered average. Numerous research studies have found the WPPSI-IV to be both reliable and valid (Wechsler, 2012). Internal consistency of the Full-Scale IQ score is high ( $\alpha = .88$ ), which indicates adequate reliability, and the WPPSI-IV has also shown strong reliability when compared to previous versions of this measure (Narayanan & Nærde, 2016).

### **Quality of Marriage Index (QMI)**

The QMI (Norton, 1983) is designed to measure marriage quality (see Appendix B). It is a 6-item questionnaire where the first 5 questions include items such as: “We have a good marriage/relationship” and “My relationship with my partner makes me happy”. The items are responded to using a 7-point Likert Scale from 1 (“I do not agree at all”) to 7 (“perfect”). The 6th item asks participants to “Circle the point that best describes the degree of happiness in your marriage/relationship” using a 10-point Likert scale where 1 means “Very Unhappy”, 5 means “Happy”, and 10 means “Totally Perfect”. There are no reverse scored items. The scores are summed and can range from 6 to 45 with higher scores indicating a higher level of Marital Quality. The QMI has high internal consistency (e.g.,  $\alpha = .96$ )

and shows high convergent validity with the DAS, which is a well-recognized measure of marital satisfaction (Heyman, Sayers, & Bellack, 1994; Woods, Priest, & Denton, 2013). For the current study, internal consistency was high for both mothers ( $\alpha = .97$ ) and fathers ( $\alpha = .95$ ).

### **Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001)**

The CBCL measures internalizing and externalizing behavior problems in children. Due to reasons of test security, the CBCL is not appended to this document. However, copies are available for review upon request. Parents respond to 99-items such as “avoids looking at others”, “Disobedient”, and “Picks nose, skin, or other parts of body” by circling either 0 (“not true”), 1 (“sometimes true”), or 2 (“very true/often true”). Calculation of raw scores involves summing all items for each subscale (internalizing, externalizing) as well as a total problems score. The subscale regarding internalizing behavior problems includes the following subscales: emotionally reactive behaviors, anxious/depressed behaviors, somatic complaints, and withdrawn behaviors. The subscale for externalizing behavior problems includes the following subscales: attention problems and aggressive behavior. The total problems score includes the internalizing and externalizing behaviors as well as sleep problems. The raw scores were then compared to peer norms to create T-scores for each subscale (internalizing, externalizing, and total problems). T-scores of 50-60 are considered in the normal range, 60-63 is considered borderline clinical, while 63 and greater is considered clinical range (Achenbach & Rescorla, 2001). T-scores were treated as a continuous variable for the purposes of this study.

Across multiple studies, the CBCL has been shown to be highly valid and reliable (Baker et al., 2003; Crnic et al., 2005; Nakamura et al., 2009). The CBCL has also been used internationally and the mean scores were highly consistent across countries (Rescorla et al., 2011). In the current study, the subscales for internalizing behavior problems for mothers ( $\alpha = .93$ ) and fathers ( $\alpha = .99$ ), externalizing behavior problems for mothers ( $\alpha = .78$ ) and fathers ( $\alpha = .99$ ), and total behavior problems for mothers ( $\alpha = .95$ ) and fathers ( $\alpha = 1.00$ ), all showed adequate levels of internal consistency.

### **Design**

The current study is cross-sectional and correlational. The predictor variable is developmental risk group. The focal children were identified as typically developing ( $n = 29$ ) if they had an IQ of 85 or greater based on the Full-Scale IQ of the Wechsler Preschool and Primary Scales of Intelligence, 4th Edition (WPPSI-IV; Wechsler, 2012) and also did not have a diagnosis of developmental disability (e.g., Autism Spectrum Disorder, Down Syndrome, Intellectual Disability, etc.) according to parent report. In order to be identified as developmentally delayed ( $n = 29$ ) the focal children had to have an IQ below 85 based on the WPPSI-IV and/or parent report of a diagnosis of developmental delay or disability (e.g., Autism Spectrum Disorder, sensory processing disorder, Down Syndrome, etc.) This is a categorical variable where “0” is used to represent families in the “Typically Developing (TD)” group while “1” is used to represent families in the “Developmentally Delayed (DD)” group. The outcome variable is child behavior problems, as measured by the CBCL

subscales (internalizing, externalizing) as well as the overall score (sum of internalizing subscale, externalizing subscale, and remaining CBCL items that are not on either subscale). This is a continuous variable; high scores indicate a greater number of behavior problems. The moderating variable is marital satisfaction, as measured by the QMI, which is a continuous variable in which high scores indicate greater marital satisfaction.

### **Procedure**

The current study was extracted from a larger, longitudinal study of family interactions involving families of children with and without developmental delays. IRB approval was obtained for all phases of this study. The first phase involved the intellectual assessment of the focal child using the WPPSI-IV, a family observation visit that was video-recorded, and questionnaires that were completed by both parents as well as a questionnaire filled out by any sibling over the age of 7. The current study focused on data retrieved from the intellectual assessment as well as 3 of the parents' questionnaires.

After IRB approval, families were recruited using flyers or Facebook posts which prompted interested families to contact the laboratory coordinator via email or phone. The laboratory coordinator contacted the families and conducted a phone screening in order to determine if the families met the exclusion criteria. Upon completing the phone screening, the laboratory coordinator scheduled the child assessment visit. This visit required one parent to bring the focal child to the lab. The child assessment visit was either conducted by a trained research assistant or the

principle investigator who obtained informed consent from the parent that was present and then obtained informal assent from the child before beginning the WPPSI-IV.

After the WPPSI-IV was complete, the parent received two packets of questionnaires, one for each parent. Out of the questionnaires included in the packets, the current study will focus on the WPPSI-IV, the CBCL, and the QMI. The parent was informed that the packets were to be filled out by both parents separately before the family observation visit. Upon arriving for their second laboratory visit, trained research assistants collected questionnaires, then checked the questionnaires for completion and immediately addressed any incomplete items or unclear responses at the family observation visit.

### **Data Analysis Plan**

Initial zero-order correlations were run to determine relevant covariates (such as socioeconomic status, age of parent, parent race, level of education, etc.) The “developmental risk” variable was dummy-coded, with 0 representing “typically developing” and 1 representing “developmental delay.” Missing data was excluded pairwise, to minimize loss of statistical power. Data was examined for outliers; if outliers were found, all analyses would have been run twice – both with and without outliers, to test for any statistical impact of the outliers.

To test the first two hypotheses (marital satisfaction will moderate the relation between child developmental risk and child behavior problems), moderation analyses were conducted using the PROCESS macro for SPSS (Hayes, 2013). The PROCESS

macro utilizes regression to test for moderation, which involves entering the main predictor variable (developmental risk group, either TD or DD), moderator variable (QMI score), dependent variable (CBCL score), and relevant covariates into the model. The PROCESS macro creates an interaction term that is included as a separate variable in the regression by multiplying the main predictor variable and moderator variables together after the variables have been mean-centered. The dependent variable of the regression is child behavior problems. If the interaction is significant, moderation is supported. If found, the nature of the interaction was interpreted from plotting the interaction. Paired-samples *t*-tests were used to test the third hypothesis (that fathers would rate marital satisfaction higher than mothers) as well as the fourth hypothesis (that fathers would report fewer child behavior problems as compared to mothers' ratings).

## CHAPTER IV

### RESULTS

#### **Demographic Characteristics of the Sample**

The sample in this study included 60 families, of which 30 families had typically developing children, and 30 families had children with developmental delays. One family of a typically developing child declined to complete questionnaires, while one family of a child with developmental delays did not return fully completed questionnaires. Thus, these families were excluded from the current data set, resulting in a total of 29 families of typically developing children and 29 families of children with developmental delays. Tables 1, 2, and 3 include selected demographic information related to the sample while table 4 includes descriptive statistics for the key variables in this study. The average age for mothers in the present sample was 33 years old and fathers' average age was 34. A majority of the participants were white or Hispanic. A majority of mothers had received some amount of college education. Mothers and fathers both reported having an average of 15 total years of education. A majority of mothers and fathers reported having no psychiatric diagnosis. Most of the focal children were male. The median yearly family income was approximately \$68,500

The average FSIQ score for typically developing children was 106, and the average FSIQ score for children with developmental delays was 84. Of the focal children with developmental delays, 25 either had a suspected or confirmed diagnosis

of Autism Spectrum Disorder (ASD) according to parent report, and 4 of those 25 had a co-occurring disorder (such as an emotional disorder, language processing disorder, or ADHD). In addition, 2 children with developmental delays had low FSIQ scores (between 54 and 84), and no co-occurring developmental disability diagnosis. One of the children with developmental delays had an IQ that was in the “normal” range yet had a speech delay, while another was diagnosed with Down syndrome. The focal child’s average age was 4 years old.

Of the 29 families of children with developmental delays, there were 29 mothers and 24 fathers that completed the questionnaires. In the 29 families of children who were considered typically developing there were 29 mothers and 26 fathers who completed the questionnaires. Of the 58 mothers in this sample, 44 were married to their child’s biological father, 8 were separated or divorced from the child’s biological father, 2 were widowed by the biological father, and 4 lived with but were never married to the biological father. All mothers were biological parents of their children while 4 mothers responded that the father figure was not the biological parent of the focal child and 54 were the biological father.

**Table 1**

*Parent Age and Total Years of Education for Present Sample*

Characteristic	<i>M</i>	<i>SD</i>	Minimum	Maximum
Mother Age	32.60	6.25	24	45
Mothers’ total Years of Education	15.43	2.94	10	25
Father Age	34.26	6.17	24	57
Father Total Years of Education	14.83	2.84	11	24

**Table 2***Selected Descriptive Statistics for Present Sample*

Characteristic	<i>N</i>	Total %
<b>Mothers' Race</b>		
Hispanic/Latino	16	27.6
African American	3	5.2
Asian	2	3.4
White (Non-Hispanic)	31	53.4
Other	6	10.0
<b>Fathers' Race</b>		
Hispanic/Latino	20	35.1
African American	4	7.0
Asian	1	1.8
White (Non-Hispanic)	32	56.1
<b>Mothers' Highest Degree Earned</b>		
None	2	3.4
Highschool Diploma/GED	19	32.8
AA/Vocational Degree	8	13.8
Bachelor's Degree	17	29.3
Graduate Degree	12	20.7
<b>Fathers' Highest Degree Earned</b>		
None	3	5.2
Highschool Diploma/GED	25	43.1
AA/Vocational Degree	7	12.1
Bachelor's Degree	13	22.4
Graduate Degree	8	13.8
<b>Mother has Psychiatric Diagnosis</b>		
No	47	81.0
Yes	11	19.0
<b>Father has Psychiatric Diagnosis</b>		
No	52	89.7
Yes	3	5.2
<b>Child Gender</b>		
Male	34	57.6
Female	25	42.4

*Note.* Total % columns do not add to 100% due to missing data and rounding.

GED = General Education Diploma

AA = Associate of Arts

**Table 3***Descriptive Statistics for Focal Children by Developmental Group*

Variable	Typically Developing Children				Children with Developmental Delays			
	<i>n</i>	<i>M</i>	<i>SD</i>	Min.- Max.	<i>n</i>	<i>M</i>	<i>SD</i>	Min.- Max.
FSIQ Score	30	105.93	10.46	86-121	32	83.78	19.32	53-127
Age in Years	29	3.82	0.72	3-5	30	3.85	0.79	3-5

*Note.* FSIQ score = Focal Child's Full-Scale IQ Score according to WPPSI-IV

**Table 4***Descriptive Statistics for Main Study Variables*

Variable	Typically Developing Children				Children with Developmental Delays			
	<i>n</i>	<i>M</i>	<i>SD</i>	Range	<i>n</i>	<i>M</i>	<i>SD</i>	Range
Mothers' QMI	29	35.45	6.42	24	23	29.69	9.78	36
Mothers' CBCL INT	29	46.41	10.69	42	29	59.21	11.90	57
Mothers' CBCL EXT	29	46.00	9.82	45	29	55.65	14.73	51
Mothers' CBCL Total	29	45.86	9.89	41	29	59.62	14.06	58
Fathers' QMI	26	35.77	5.73	23	22	28.82	8.63	33
Fathers' CBCL INT	26	48.35	8.66	38	24	61.25	9.17	33
Fathers' CBCL EXT	26	48.08	8.47	35	24	55.54	9.08	34
Fathers' CBCL Total	26	47.96	8.76	36	24	60.04	10.23	36

*Note.* QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, INT = Internalizing behaviors, EXT = Externalizing behaviors

### Zero-Order Correlations

In order to begin to characterize relations between key variables of interest (see tables 5 and 6), zero-order correlations were initially run. Correlations were run separately for mothers and fathers.

Mothers' correlation results are summarized in Table 5. For mothers, analyses indicated a statistically significant positive correlation between child developmental risk group and mothers' ratings of their child's CBCL scores, such that mothers of children in the developmental delay group were more likely to rate their children as having higher behavior problems (internalizing, externalizing, and total behaviors). Child developmental risk group was also found to be significantly correlated with mother marital satisfaction, such that mothers of children with developmental delays rated their marital satisfaction as lower. Mothers' marital satisfaction was found to be significantly correlated with mothers' CBCL ratings (internalizing, externalizing, and total behaviors), such that mothers who rated themselves as having lower marital satisfaction, rated their children as having higher behavior problems. Mothers' marital satisfaction was also found to be significantly correlated with mothers' ratings of their child's externalizing CBCL score, such that mothers who rated themselves as having lower marital satisfaction rated their children as having higher externalizing behavior problems. In addition, mothers' marital satisfaction was found to be significantly correlated with mothers' ratings of their child's total CBCL score, such that mothers who rated themselves as having lower marital satisfaction rated their children as having higher total behavior problems. Mothers' ratings of internalizing, externalizing, and total CBCL scores were found to be significantly intercorrelated, such that when mothers rated their child as having high behavior problems on one scale (internalizing, externalizing, total), they also rated their child as having high behavior problems on the remaining scales.

Correlations between several key demographic variables and the outcome variable (mother CBCL ratings) were explored to identify relevant covariates. Covariates that were found to significantly predict mothers' CBCL ratings include whether or not the mother had a psychiatric diagnosis, whether or not the father had a psychiatric diagnosis, fathers' total years of education, and whether or not the sibling had a diagnosis. Thus, these variables were used as covariates in the moderation analysis for mothers.

**Table 5***Results of Correlation Analyses for Mothers*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Dev. Group <sup>a</sup>	-											
2. Mothers' QMI	-.34*	-										
3. Fathers' QMI	.13	.04	-									
4. Mothers' CBCL INT		-.29*	.07	-								
5. Mothers' CBCL EXT	.36**	-.31*	-.04	.79**	-							
6. Mothers' CBCL Total	.50**	-.32*	.03	.93**	.93**	-						
7. Mothers' Psychiatric Diagnosis <sup>b</sup>	.03	.14	-.06	.31*	.20	.29*	-					
8. Fathers' Psychiatric Diagnosis <sup>b</sup>	.30*	-.37**	-.04	.25	.35**	.32*	.25	-				
9. Mothers' Yrs. of Ed.	-.47**	.24	-.04	-.22	-.26	-.28	-.03	-.31*	-			
10. Fathers' Yrs. Of Ed.	-.29*	.39**	.38**	-.16*	-.25	-.24	.28	-.38	.66**	-		
11. Siblings' diagnosis <sup>c</sup>	.29*	-.20	-.06	.19	.25	.26*	-.08	.19	.20	-.23	-	
12. Yearly Family Income	-.33*	.16	.08	-.17	-.21	-.21	.06	-.31*	-.66	-.57**	-.11	-

*Note.* Dev. Group = Developmental Group, QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, INT = Internalizing behaviors, EXT = Externalizing behaviors, Yrs. Of Ed. = Years of Education, Mothers' Psychiatric Diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' Psychiatric Diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup>0 = typically developing and 1 = developmental delay

<sup>b</sup>0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

<sup>c</sup>0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

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

Zero-order correlations were run separately for fathers in order to begin to characterize relations between key variables of interest (see table 6). Fathers' marital satisfaction was found to have a significant negative correlation with fathers' ratings of child internalizing behavior problems, such that when fathers rated their marital satisfaction as high, they rated their child's behavior problems as low. Fathers' ratings of internalizing, externalizing, and total CBCL scores were found to be significantly intercorrelated, such that when fathers rated their child as having high behavior problems on one scale (internalizing, externalizing, total) they also rated their child as having high behavior problems on the remaining scales (see table 6).

Correlations between several key demographic variables and the outcome variable (father CBCL ratings) were explored to identify relevant covariates. Covariates that were found to significantly predict fathers' CBCL ratings include mothers' BMI score, mothers' psychiatric diagnosis, mothers' total years of education, and fathers' total years of education (see table 6). Due to significant correlation, these variables were used as covariates in the moderation analysis.

**Table 6***Results of Correlation Analyses for Fathers*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Dev. Group <sup>a</sup>	-												
2. Mothers' QMI	-.34*	-											
3. Fathers' QMI	.13	.04	-										
4. Fathers' CBCL INT	.20	-.24	-.29*	-									
5. Fathers' CBCL EXT	.17	-.30*	-.24	1.0**	-								
6. Fathers' CBCL Total	.19	-.29*	-.28	1.0**	1.0**	-							
7. Mothers' Diagnosis <sup>b</sup>	.04	.14	-.06	.31*	.30*	.31*	-						
8. Fathers' Diagnosis <sup>b</sup>	.30*	-.37**	-.04	.16	.18	.19	.19	-					
9. Mothers' Yrs. Of Ed.	-.47**	.24	.02	-.28*	-.28*	-.28*	-.03	-.31*	-				
10. Fathers' Yrs. Of Ed.	-.29*	.39**	.38**	-.29*	-.38**	-.35*	.03	-.30*	.66**	-			
11. Siblings' diagnosis <sup>c</sup>	.29*	-.20	-.06	.37**	.37**	.37**	.07	.19	-.03	-.11	-		
12. Yearly Family Income	-.33*	.16	.08	-.20	-.21	-.21	-.08	-.31*	.66**	.36**	-.11	-	
13. Mothers' Age in Years	-.08	.10	.10	-.64**	-.64**	-.64**	-.06	.28*	.32*	.34*	-.17	.34*	-

*Note.* Dev. Group = Developmental Group, QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, INT = Internalizing behaviors, EXT = Externalizing behaviors, Yrs. Of Ed. = Years of Education, Mothers' diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup> 0 = typically developing and 1 = developmental delay

<sup>b</sup> 0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

<sup>c</sup> 0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

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

### **Testing Hypothesis 1**

Multiple regression analyses using the PROCESS macro were conducted to test the first hypothesis (that marital satisfaction would moderate the relation between child developmental risk and parent ratings of child behavior problems). The predictor variables (child developmental risk and marital satisfaction) were mean-centered to decrease the influence of multi-collinearity. In order to test the moderating role of marital satisfaction on the relation between child developmental risk group and mother and father marital satisfaction levels, an interaction variable was created by multiplying the mean centered child developmental risk group variable by the mean centered marital satisfaction variable for both mothers and fathers. Analyses were run separately for mothers and fathers, with the child developmental risk group variable entered as the predictor variable, mothers' or fathers' marital satisfaction entered as the moderator variable, and CBCL scores entered as the dependent variable. In addition, analyses were run separately for each subscale of the CBCL (mothers' or fathers' internalizing, externalizing, or total CBCL scores). Thus, a total of 6 moderation analyses were run. Relevant covariates were included in all analyses. (see Tables 7 - 12).

Results indicated certain significant moderation effects for mothers: first, marital satisfaction was found to significantly moderate the relation between child developmental risk group and mothers' ratings of their child's internalizing behavior problems (see table 7). To help visualize the interaction, marginal means were plotted (see Figure 3). Specifically, when mothers' marital satisfaction was low, internalizing

child behavior problems were nearly identical across developmental risk groups. Yet when mothers' marital satisfaction was high, mothers rated their typically developing children as having far fewer internalizing behavior problems than mothers of children with developmental delays.

In addition, developmental group was found to significantly predict child internalizing behaviors such that children with developmental delays were rated as having more internalizing behavior problems than the children considered to be typically developing. Also, mothers' QMI score was found to significantly predict child internalizing behaviors, such that low marital satisfaction predicted higher behavior problems.

**Table 7**

*Results of Multiple Regression PROCESS Analysis for Moderation to Test Hypothesis 1 for Mothers' Ratings of Child Internalizing Behavior Problems*

Model & Variable	<i>B</i>	<i>SE</i>	<i>t</i>
Developmental Group <sup>a</sup>	9.25*	3.30	2.80
Mothers' QMI	-.45*	0.20	-2.22
Interaction: Dev. Group x QMI	1.09*	0.38	2.85
Mothers' Total Years of Education	.52	0.56	0.93
Mothers' Diagnosis <sup>b</sup>	5.96	4.11	1.45
Fathers' Diagnosis <sup>b</sup>	5.72	4.99	1.15
Siblings' Diagnosis <sup>c</sup>	-2.47	4.97	-0.50

*Note.* (N = 52), Dependent Variable = Mother CBCL Internalizing behavior Score QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, Mothers' diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup> 0 = typically developing and 1 = developmental delay

<sup>b</sup> 0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

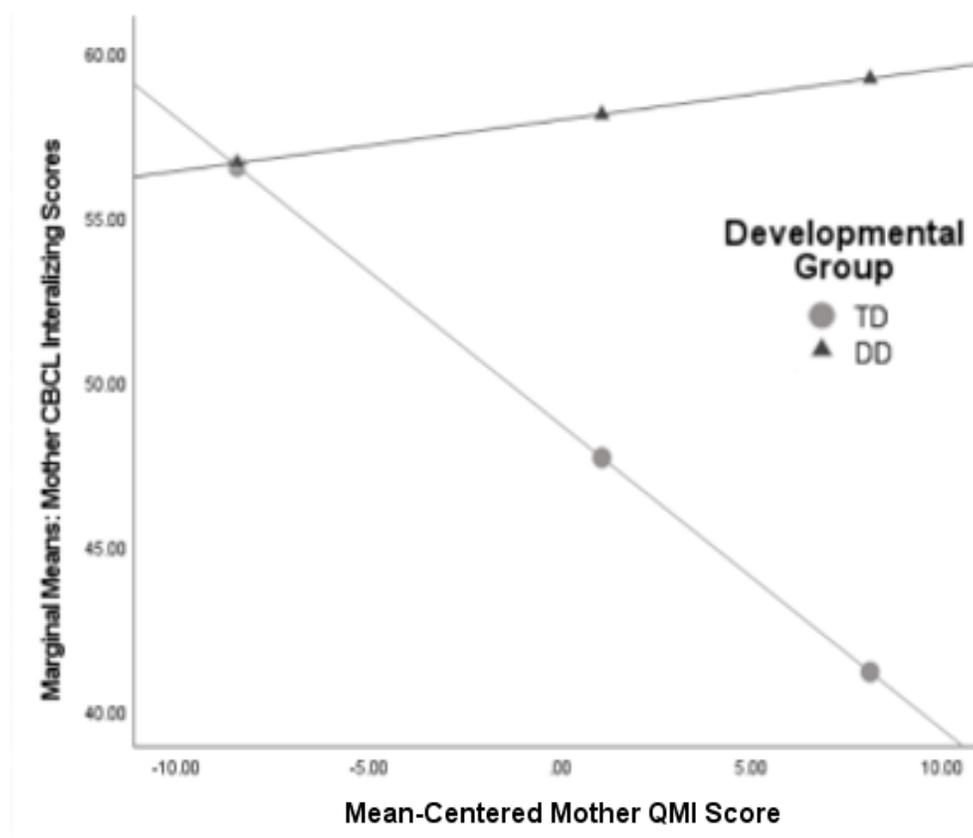
<sup>c</sup> 0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

R<sup>2</sup> For Entire Model = .41

\*  $p < .05$ .

**Figure 3**

*Graph of Estimated Marginal Means: Mother Marital Satisfaction Moderates the Relation Between Child Developmental Risk and Internalizing Child Behavior Problems*



*Note.* CBCL = Child Behavior Checklist, TD = Typically Developing,

DD = Developmentally Delayed

Mothers' marital satisfaction was not found to moderate the link between developmental group and child externalizing behavior (see Table 8). That said, fathers' psychiatric diagnosis was found to significantly predict mothers' ratings of child externalizing behaviors, such that when fathers had a psychiatric diagnosis, mothers' ratings of behavior problems were higher.

**Table 8**

*Results of Regression Analysis for Moderation to Test Hypothesis 1 for Mothers' Ratings of Child Externalizing Behaviors*

Model & Variable	<i>B</i>	<i>SE</i>	<i>t</i>
Developmental Group <sup>a</sup>	2.93	3.56	0.82
Mothers' QMI	-0.33	0.22	-1.53
Interaction: Dev. Group x QMI	0.66	0.41	1.62
Mothers' Total Years of Education	0.34	0.61	0.56
Mothers' Diagnosis <sup>b</sup>	1.09	4.43	0.25
Fathers' Diagnosis <sup>b</sup>	12.59*	5.38	2.34
Siblings' diagnosis <sup>c</sup>	2.53	5.36	0.47

*Note.* (N = 52). Dependent Variable = Mother CBCL Externalizing behavior Total Score  
 QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, Mothers' diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup>0 = typically developing and 1 = developmental delay

<sup>b</sup>0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

<sup>c</sup>0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

R<sup>2</sup> For Entire Model = .28

\**p* < .05.

Mothers' marital satisfaction was found to significantly moderate the relation between child developmental risk group and mothers' ratings of their child's total CBCL scores (see Table 9). In particular, when mothers' marital satisfaction was low, child behavior problems were nearly identical across developmental risk groups. Yet when mothers' marital satisfaction was high, mothers rated their typically developing children as having far fewer total behavior problems than mothers of children with developmental delays. To visualize the interaction, marginal means were plotted (see Figure 4).

In addition, developmental group was found to be a significant predictor of

mothers' ratings of total child behavior problems such that when the child had developmental delays, mothers' ratings of total behavior problems were higher.

Also, mothers' QMI scores were nearing significant prediction of total child behavior problems, such that when mother marital satisfaction was high, mothers' ratings of behavior problems were noticeably lower. In addition, fathers' psychiatric diagnosis was nearing significant prediction of total child behavior problems such that when fathers had a psychiatric diagnosis, mothers' ratings of child behavior problems were noticeably higher.

**Table 9**

*Results of Regression Analysis for Moderation to Test Hypothesis 1 for Mothers' Ratings of Total Child Behavior Problems*

Model & Variable	<i>B</i>	<i>SE</i>	<i>t</i>
Developmental Group <sup>a</sup>	8.45*	3.44	2.45
Mothers' QMI	-0.38 <sup>†</sup>	0.21	-1.80
Interaction: Dev. Group x QMI	0.86*	0.40	2.16
Mothers' total Years of Education	0.35	0.59	0.59
Mothers' diagnosis <sup>b</sup>	4.29	4.29	1.00
Fathers' diagnosis <sup>b</sup>	8.91 <sup>†</sup>	5.21	1.71
Siblings' diagnosis <sup>c</sup>	0.16	5.19	0.03

Note: Dependent Variable = Mother CBCL Total Score (N = 52). QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, Mothers' diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup> 0 = typically developing and 1 = developmental delay

<sup>b</sup> 0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

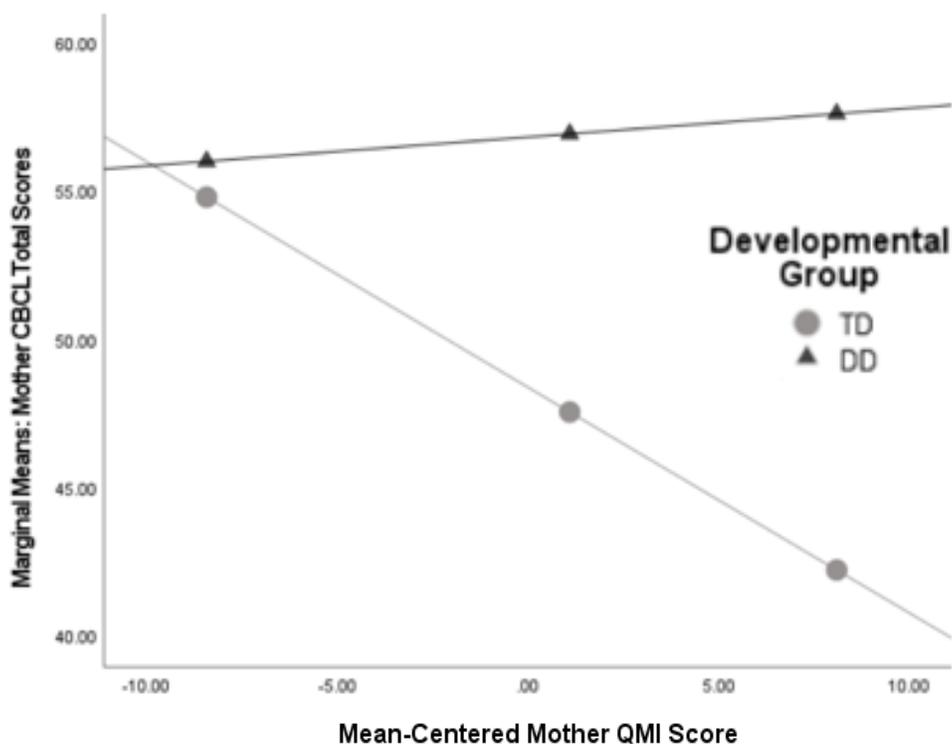
<sup>c</sup> 0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

R<sup>2</sup> For Entire Model = 0.38

\*  $p < .05$ . <sup>†</sup>  $p < .10$

**Figure 4**

*Graph of Estimated Marginal Means: Mother Marital Satisfaction Moderates the Relation Between Child Developmental Risk and Total Child Behavior Problems*



*Note.* CBCL = Child Behavior Checklist, TD = Typically Developing, DD = Developmentally Delayed

Fathers' marital satisfaction was not found to significantly moderate the link between developmental group and internalizing child behavior problems (see table 10). Despite a lack of significant moderation, significant predictive relations were seen, such that when the child had developmental delays, fathers' ratings of internalizing child behavior problems were significantly higher than when a father had a typically developing child.

**Table 10**

*Results of Regression Analysis for Moderation to Test Hypothesis 1 for Fathers' Ratings of Internalizing Child Behavior Problems*

Model & Variable	<i>B</i>	<i>SE</i>	<i>t</i>
Developmental Group <sup>a</sup>	13.58*	3.39	4.00
Fathers' QMI	-0.08	0.24	-0.33
Interaction: Dev. Group x QMI	-0.02	0.43	-0.05
Mothers' total Years of Education	0.86	0.58	1.49
Mothers' diagnosis <sup>b</sup>	1.84	3.98	0.46
Fathers' diagnosis <sup>b</sup>	13.72	8.63	1.59
Siblings' diagnosis <sup>c</sup>	2.97	4.67	0.64
Mothers' age	-0.12	0.36	-0.33

*Note.* (N = 47). Dependent Variable = Father CBCL Internalizing behavior Score  
 QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, Mothers' diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup> 0 = typically developing and 1 = developmental delay

<sup>b</sup> 0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

<sup>c</sup> 0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

R<sup>2</sup> For Entire Model = .43

\*  $p < .05$ . †  $p < .10$

Fathers' marital satisfaction was not found to moderate the link between developmental group and fathers' ratings of externalizing child behavior problems (see table 11). In addition, developmental group was nearing significant prediction of child behavior problems, such that when the child had developmental delays, fathers' ratings of externalizing child behavior problems were markedly higher than when a father had a typically developing child.

**Table 11**

*Results of Regression Analysis for Moderation to Test Hypothesis 1 for Fathers' Ratings of Externalizing Child Behavior Problems*

Model & Variable	<i>B</i>	<i>SE</i>	<i>t</i>
Developmental Group <sup>a</sup>	6.54 <sup>†</sup>	3.40	1.92
Fathers' QMI	-.07	0.24	-0.28
Interaction: Dev. Group x QMI	-.13	0.44	-0.29
Mothers' total Years of Education	.45	0.58	0.77
Mothers' diagnosis <sup>b</sup>	-2.95	4.00	-0.74
Fathers' diagnosis <sup>b</sup>	12.56	8.66	1.45
Siblings' diagnosis <sup>c</sup>	5.23	4.69	1.12
Mothers' age	-.10	0.36	-0.28

*Note.* (N = 47). Dependent Variable = Father CBCL Externalizing behavior Score  
 QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, Mothers' diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup> 0 = typically developing and 1 = developmental delay

<sup>b</sup> 0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

<sup>c</sup> 0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

R<sup>2</sup> For Entire Model = .23

\*  $p < .05$ . †  $p < .10$

Fathers' marital satisfaction was not found to moderate the link between developmental group and fathers' ratings of total child behavior problems (see table 12). Significant predictive relations were seen in regard to developmental group such that when the child had developmental delays, the fathers' ratings of total child behavior problems were significantly higher than when a father had a typically developing child.

**Table 12**

*Results of Regression Analysis for Moderation to Test Hypothesis 1 for Fathers' Ratings of Total Child Behavior Problems*

Model & Variable	<i>B</i>	<i>SE</i>	<i>t</i>
Developmental Group <sup>a</sup>	11.72*	3.58	3.28
Fathers' QMI	-.09	0.25	-0.36
Interaction: Dev. Group x QMI	-.07	0.46	-0.16
Mothers' total Years of Education	.68	0.61	1.11
Mothers' diagnosis <sup>b</sup>	-.76	4.20	-0.18
Fathers' diagnosis <sup>b</sup>	15.42	9.11	1.69
Siblings' diagnosis <sup>c</sup>	4.95	4.93	1.01
Mothers' age	-.08	0.38	-0.22

*Note.* (N = 47). Dependent Variable = Father CBCL Total

QMI = Quality of Marriage Index, CBCL = Child Behavior Checklist, Mothers' diagnosis = Whether or not the mother has a psychiatric diagnosis, Fathers' diagnosis = Whether or not the father has a psychiatric diagnosis, Siblings' diagnosis = Whether or not the focal child's sibling has a psychiatric or developmental diagnosis

<sup>a</sup>0 = typically developing and 1 = developmental delay

<sup>b</sup>0 = no psychiatric diagnosis and 1 = psychiatric diagnosis present

<sup>c</sup>0 = no psychiatric or developmental diagnosis and 1 = psychiatric or developmental diagnosis present

R<sup>2</sup> For Entire Model = .38

\**p* < .05. †*p* < .10

### Testing Hypothesis 2

Paired samples *t*-tests were used to test the second hypothesis that fathers ( $M = 32.58$ ) would rate marital satisfaction as higher than mothers ( $M = 32.73$ ). Results indicated no significant differences between mother and father marital satisfaction scores ( $t [47] = .14, p = .000$ ).

### Testing Hypothesis 3

In addition, paired samples *t*-tests were used to test the third hypothesis that fathers ( $M = 54.54$ ,  $M = 51.66$ ,  $M = 53.76$ ) would report fewer internalizing, externalizing and total child behavior problems respectively as compared to mothers ( $M = 52.34$ ,  $M = 50.88$ ,  $M = 52.10$ ). Results indicated a significant difference in that, as compared to the ratings by mothers, fathers rated their children as engaging in more internalizing behaviors ( $t [49] = -2.04$ ,  $p = .000$ ). In regard to externalizing behaviors, no significant differences were indicated between mothers and fathers' ratings ( $t [49] = -1.25$ ,  $p = .22$ ). Similarly, no significant differences were found between mothers' and fathers' ratings of total behavior problems ( $t [49] = -1.51$ ,  $p = .14$ ).

## CHAPTER V

### DISCUSSION

The purpose of the present study was to examine the role of marital satisfaction in moderating the relation between developmental risk and child behavior problems. The first hypothesis was that marital satisfaction would moderate the relation between child developmental risk and parent ratings of child behavior problems. This hypothesis had two sub-hypotheses: 1a) mothers' ratings of marital satisfaction would moderate the relation between child developmental risk and mothers' ratings of behavior problems, and 1b) fathers' ratings of marital satisfaction would moderate the relation between child developmental risk and fathers' ratings of child behavior problems. The second hypothesis was that fathers would rate marital satisfaction as higher than mothers. The third hypothesis was that fathers would report fewer child behavior problems as compared to mothers.

The findings for the first hypothesis were as follows: sub-hypothesis 1a was partially supported, in that mothers' marital satisfaction was found to moderate the relation between child developmental risk group and both internalizing behavior problems as well as total behavior problems, such that when mothers' marital satisfaction was low, they rated their child's behavior problems nearly identically regardless of developmental risk group. However, when mothers' marital satisfaction was high, mothers of typically developing children reported significantly fewer internalizing and total behavior problems than mothers of children with developmental delays. In contrast, mother marital satisfaction was not found to

moderate the link between developmental risk group and child externalizing behavior. Sub-hypothesis 1b was not supported in that fathers' marital satisfaction was not found to significantly moderate the relation between developmental risk group and fathers' rating of child behavior problems.

The findings regarding moderation help draw compelling conclusions as to how marital satisfaction is related to developmental risk and child behavior problems. Past research has found significant relations between marital satisfaction and child behavior problems particularly in families of children with developmental delays (Benson & Kersh, 2011; Hartley et al, 2012). In addition, previous research has found significant relations between marital satisfaction and internalizing behavior problems for typically developing children (Leve et al., 2005). These past studies are consistent with current study findings regarding the moderating role of mothers' marital satisfaction on ratings of internalizing and total behavior problems. In addition, the levels and range of behavior problems found in the current study reflect those found in similar studies (Ellengsen et al 2014; Hauser-Cram & Woodman, 2016). Yet given the findings of past research, it would have been expected that marital satisfaction also moderated the impact of developmental risk group on mothers' ratings of child externalizing behavior problems, as well as fathers' ratings of child behavior problems. However, this was not the case. It is interesting to consider the possible explanations for this difference. One could conclude that the relation between marital satisfaction and internalizing behavior problems is unique in that sadness or disagreements amongst parents may lead children to experience feeling withdrawn,

emotional reactivity, worry, anxiety, somatic complaints, or depression, which are common internalizing behavior problems as measured in the CBCL internalizing behaviors subscales (Narayanan & Nærde, 2016; Wechsler, 2012). In addition, previous research may have been far too focused on externalizing behavior problems in children with developmental delays to address the link between marital satisfaction and internalizing behavior problems (Choi & Jackson, 2011; Kochanska et al., 2013). Externalizing behaviors such as attention problems and aggressive behavior are measured in the CBCL externalizing subscales and warrant the need for continued research as well, but not to the exclusion of internalizing behavior problems (Wechsler, 2012). Thus, the findings of the current study lead one to consider the relation between marital satisfaction and internalizing behavior problems quite differently than has been commonly done.

In addition, given the current study's findings, developmental delays do not seem to interact with marital satisfaction in the hypothesized manner. It was posited that parents of children with developmental delays who also experienced low marital satisfaction would rate their children as having significantly more behavior problems than parents who reported high marital satisfaction. This was not supported by the current study. Instead, study results showed that behavior problems were essentially identical amongst typically developing and developmentally delayed children when mothers rated their marital satisfaction as low. Yet it is salient to note that marital satisfaction was found to be correlated with behavior problems in the current study, and the regression findings did show marital satisfaction predicting internalizing and

total behavior problems for the combined sample. Previous research partially supports the aforementioned findings in that low marital satisfaction has been shown to be negatively correlated with child behavior problems in families of children with developmental delays (Benson & Kersh, 2011; Wieland & Baker, 2010). However, the current study showed that marital satisfaction seemed to have little impact in regard to moderating the relation between children with developmental delays and behavior problems. In the current study, only when mothers rated their marital satisfaction as high, did typically developing children see a marked difference in behavior problems. This appears to be a significant difference between children of divergent developmental risk groups, as children in the developmental delay group saw no marked differences in behavior problems when their mothers rated themselves as having high marital satisfaction. This is in contrast to previous research that has found higher levels of marital satisfaction to be significantly related to lower levels of child behavior problems in children with ASD (Benson & Kersh, 2011). It may seem discouraging that marital satisfaction does not appear to impact behavior problems in children with developmental delays as seen in previous research. Yet, one interpretation of these results is that low marital satisfaction may not have as negative an impact as one may have thought in families of children with developmental delays. While families of children with developmental delays tend to report low marital satisfaction (Hartley et al., 2010; Namkung et al., 2015), one could utilize the current study's results to conclude that low marital satisfaction might not contribute to a

child's behavior problems as much as was once thought for families of children with delays.

Regarding sub hypothesis 1b, fathers' marital satisfaction was not found to moderate the link between developmental group and fathers' ratings of total child behavior problems. One could conclude that a father's perspective on their child's behavior problems is related to a factor other than father marital satisfaction. The lack of significance found amongst fathers' ratings in the current study, when compared to the moderation found regarding mothers' marital satisfaction, indicates the unique views mothers and fathers have on their family's functioning. Thus, there is a need for gathering and reporting data from both parental figures. One may conclude that the current study obtained results inconsistent with previous research in part due to the limited data that exists on fathers, due to a bias in the field that ignores fathers. In addition, the current study gathered and reported data from fathers separately from the data gathered and reported from mothers. While previous research has focused on the combined concept of parental perspective, the current study aimed to consider each parent's perspective as unique (Benson & Kersh, 2011; Jackson et al., 2014; Wieland & Baker, 2010). Thus, while the parents may agree on some factors, it is important to gather data from both parents in order to understand how fathers' and mothers' perspectives are both alike and different.

The second hypothesis was not supported, in that no significant differences were found between mother and father marital satisfaction ratings. These results are not in line with what was expected: that fathers would rate marital satisfaction as

higher than mothers. Indeed, previous research has shown that fathers report higher levels of marital satisfaction than mothers (Deater-Deckard & Scarr, 1996; Kamp Dush et al., 2008; Myers & Booth, 1999; Stevenson & Wolfers, 2009; Whiteman et al., 2007). However, a meta-analysis of studies on this topic has found the effect size for differences between genders reporting on marital satisfaction are quite small: Cohen's  $d = 0.04$  (Jackson et al., 2014). The small effect size solidifies the notion that while mother-father differences may exist; they are likely much smaller than one would assume. Given the small sample size in the current study, it is likely that a small effect size would not be detected. Thus, replicating this study with a larger sample could potentially find a small, but significant, difference between mothers' and fathers' marital satisfaction. Or a possible conclusion could be that factors other than parent gender may be influencing ratings of marital satisfaction. While the assumption of the current study's hypothesis was regarding finding a significant difference, finding that mothers and fathers are actually on the same page in regard to their marital satisfaction challenges commonly held assumptions that they are more likely to disagree. This finding is encouraging, as it can lead to the conclusion that marital satisfaction is far more similar between partners in marriages than one would believe.

The third hypothesis was not supported in that fathers were not found to rate their children's behavior problems as lower than mothers. In contrast, fathers rated their children as engaging in significantly more internalizing behavior problems than mothers. This is unlike previous research which found that fathers reported fewer

child behavior problems compared to mothers' reports (Deater-Deckard & Scarr, 1996; Kamp Dush et al., 2008; Myers & Booth, 1999; Stevenson & Wolfers, 2009; Whiteman et al., 2007).

### **Reconceptualizing Fathers' Unique Perspective**

When considering the paucity of fathers' perspectives in family research, as well as the current study's findings that fathers do indeed rate their children differently than mothers, reasonable conclusions can be made. One such conclusion could be that important nuance is lost when fathers' data are combined with mothers' data to form a variable representative of the parental perspective as has been done in past research (Benson & Kersh, 2011; Ellingsen et al., 2014; Lovell & Wetherell, 2016; Woodman et al., 2015). In addition, one could conclude that the societal perspective of the passive or busy-at-work father leads to unjust assumptions. This perspective could lead people to believe that fathers, being passive or busy-at-work, lack involvement with their families as compared to the stereotypical mother, thus being unable to provide a full perspective on their child's behaviors. On the other hand, this societal perspective may be off track, and fathers may indeed be able to provide a full and unique perspective on their child's behaviors. Thus, the findings of the current study are contrary to what was expected and strengthen the notion that fathers do have a unique perspective on their children as compared to the mother's perspective.

It is interesting to consider that the traditionally comforting role of a mother and the "activative fathering" role of physical play may be related to which behavior

problems, internalizing or externalizing, are perceived as problems by each parent (Majdandžić et al., 2016; Stevenson & Crnic, 2013a; Stevenson & Crnic, 2013b). It is possible that the mother's traditional role of being comforting and attentive to their child's feelings may lead them to rate their child's externalizing behaviors more severely, while internalizing behaviors may not be rated as occurring often if at all. Concurrently, "activative" fathers, holding the traditional "rough and tumble" father role, may lead fathers to view internalizing behavior problems more critically, while externalizing behaviors are viewed with more lenience. This notion assumes that parents would be more accepting of behaviors that more closely match the types of behaviors they are socialized to believe are normal. Hereafter, I will be referring to this notion as "socialized acceptance of matched behaviors." Seemingly in support of this theory, the current study found that, compared to mothers, fathers rated their children as having significantly more internalizing behavior problems. This could mean that "activative" fathers viewed their children's internalizing problems as more unusual and therefore problematic, as these behaviors were not in keeping with their more externalizing norm for behavior. However, socialized acceptance of matched behaviors makes many assumptions about cultural and societal roles, and gathering additional data related to the origins of parental beliefs and perspectives is necessary to clarify whether this is an appropriate explanation for the current findings.

Indeed, previous research at times goes against the idea of socialized acceptance of matched behaviors. For example, some studies show that mothers do indeed rate their children's internalizing behavior problems as clinically severe

(Trapolini et al., 2007). Thus, mothers may at times, view internalizing behavior problems as concerning. One could suppose that, based on typical social roles, mothers may spend more time with their children, which allows them to see the full range of their child's behaviors. Thus, they may find problem behaviors to be equally concerning, no matter whether they are internalizing or externalizing. From this approach, we would expect that mothers would rate behavior problems as more intense than fathers, as mothers have a supposedly clearer view of their child's behavior. However, the current study found that fathers rate internalizing behaviors more severely than mothers. This may indicate that, in the current study, fathers' perceptions of their children more clearly aligned with the theory of socialized acceptance of matched behaviors.

In addition, previous research has found that fathers tend to rate their children as having fewer behavior problems when compared to mothers' ratings (Deater-Deckard & Scarr, 1996; Alakortes et al., 2017). In contrast, research has also found significant correlations between mothers and fathers' ratings of their children's internalizing, externalizing, and total behavior problems (Trapolini et al., 2007). Unfortunately, fathers' perspectives have historically been ignored, with mothers' perspectives being prioritized, and an assumption is made that fathers will share the same interpretation (Benson & Kersh, 2011; Ellingsen et al., 2014; Lovell & Wetherell, 2016; Trapolini et al., 2007; Woodman et al., 2015). It is reasonable to consider that a father might have a unique perspective and understanding of their child's behavior problems, as compared to mothers.

### **Limitations**

This study aimed to advance understanding regarding how marital satisfaction affects the relationship between the child's developmental risk group (either developmentally delayed or typically developing) and the level of child behavior problems. Nonetheless, several factors limit generalizability. One such factor is the cross-sectional design. This does not permit for a scrupulous understanding of relations between variables across time. However, this study was able to capture significant results that will contribute to future longitudinal explorations planned for the same study participants.

Another factor is small sample size. While a small sample size may not be as generalizable as a larger sample, moderate to large effect sizes are possible to detect. In particular, the current study was able to significantly detect small effect sizes when examining moderation effects tested in hypothesis 1 (Cohen's  $d = 0.01 - 0.09$ ), thus showing that a small sample size can still produce statistically significant results. In addition, finding a small effect size with such a small sample suggests the effects in the current study was robust.

Another possible limitation is the use of a heterogeneous sample of children with developmental delays as opposed to a more homogenous sample, such as restricting the sample to children with Autism Spectrum Disorder only. Studying a homogenous sample could provide data more specific to a particular diagnosis thus helping in acquiring targeted interventions for that population. Despite the complexity of studying a heterogeneous group, a heterogeneous sample is a more accurate

representation of the population of individuals with developmental delays. Thus the current study may better serve families who have children with developmental delays, such that the focus on the heterogeneous group may encapsulate a more full range of diagnosis, symptoms, and behavioral problems than would be seen by solely studying a homogenous sample.

In addition, using the parent self-report of developmental disability as a way to group the children into the developmentally delayed or typically developing group might not be as precise as obtaining an assessment from a medical or mental health provider. However, parents may be highly capable of communicating information regarding their child's mental and physical health and are likely to have been accurately informed by medical providers regarding their child's developmental level. In addition, the current study incorporated results from the WPPSI which was used to assess the child's IQ. For all participants in the current study, the child's IQ matched the developmental risk group as per parent report. In addition, it is possible that examining developmental delays utilizing a dichotomous coding, as opposed to examining them more continuously, may have been a limitation in the current study. Previous research has grappled with this complex task and found that grouping the children simply by IQ or diagnosis is limiting in and of itself (Barroso, 2018; Fenning et al., 2007; Fenning et al., 2014). Thus, it is an ongoing consideration in this area of research.

Furthermore, it is necessary to consider the impact sibling behavior problems may have had on the parent's ratings of marital satisfaction. The current study only

gathered parent reports of the focal child's behavior problems, which leaves the possible behavior problems of the siblings' unknown. Thus, error variance due to multiple-sibling behavior problems is a variable that was not controlled. Assuredly, some siblings may have had behavior problems that could have impacted the parent's marital satisfaction. That said, one could argue the impact of unstudied siblings on family functioning may be ubiquitous in much of family research. Even when research includes measures that could assess the impact of siblings on the family, the impact is often not addressed (Blacher et al., 2013; Boström et al., 2011). Accordingly, future research should consider including assessment of the sibling's behavior problems and controlling for the potential impact on the family.

Lastly, this study relies solely on questionnaire and intelligence testing data and does not incorporate the observational data gathered in the larger study. This reliance on questionnaire data may limit the depth of insight that may have been possible using both questionnaire and observational data. Nevertheless, the questionnaire data are a bountiful source of insight into the parent's distinctive perspectives on their family. Additionally, one could deduce that the significance found in the current study is ample reasoning to believe that the questionnaire data alone was worth examining.

### **Implications and Future Directions**

The findings of the current study illuminate a few important subjects that deserve recognition and further study, especially in families of children with developmental delays. In particular, the findings of the current study provide

considerable support for including fathers' responses in the data. Since the inclusion of fathers in family research is a rare occurrence, the findings of the current study should serve as a catalyst for future family researchers to seek additional data from fathers as well as mothers. In the current study, fathers rated their children's behavior problems significantly differently than mothers did. In addition, fathers rated their marital satisfaction similarly to mothers so much so that no significant difference was found between the two. Despite the similarity in parental ratings of marital satisfaction, fathers' marital satisfaction was not found to moderate the relation between child developmental delays and behavior problems in the same way mothers' marital satisfaction did. These findings show that the inclusion of fathers in the current study provided a unique perspective worthy of studying, which contradicts previous assumptions that a mother's perspective was sufficient to understand a family's perceptions of their family. Thus, it is important to continue including fathers in studies to gather both the unique and most accurate data.

Notably, parent gender, child developmental risk, marital satisfaction and internalizing behavior problems appear to interact in particularly meaningful ways. Specifically, future research should focus on children's internalizing behavior problems, despite the common misconception behavior problems are limited to those of the external nature (Anthony et al., 2005; Choi & Jackson, 2011; Edwards & Hans, 2015; Fanti & Henrich, 2010; Kochanska et al., 2013). Future research could explore the specific internalizing subscales (i.e., emotionally reactive, anxious/depressed, somatic complaints, withdrawn) in more detail (Wechsler, 2012). In addition, results

regarding the seemingly small impact of marital satisfaction on internalizing behavior problems in families of children with developmental delays, compared with findings that marital satisfaction was highly correlated with internalizing behavior problems for children with delays, implies that another mechanism may be at play when conceptualizing the development of behavior problems for these children. Perhaps other factors such as economic instability, parental stress, or lack of social support more significantly intervene in the relation between child developmental delay and behavior problems than parent marital satisfaction.

While not the focus of the study, one could conclude that mental health providers of families with typically developing children ought to focus treatment on developing higher marital satisfaction, as its impact on child internalizing behavior problems and total behavior problems was worth noting. Effective interventions for marital satisfaction have been well developed by respected leaders in the field such as Dr. John Gottman and Susan M. Johnson (Davoodvandi et al., 2018; Wiebe & Johnson, 2016). Interventions such as Dr. John Gottman's approach of aiming to strengthen the couple's attachment, increase their praise, guiding them to turn towards each other, and "solving the solvable problems" have been shown to improve marital satisfaction (Davoodvandi et al., 2018). In addition, Susan M. Johnson's attachment-based exploration of the unhealthy interactional patterns of couples has been shown to be useful in helping couples improve their interactions and ability to solve problems together (Wiebe & Johnson, 2016). Existing useful interventions such as these may be important for providers to employ in families of typically developing

children who have poor marital satisfaction. The findings of the current study also suggest that, in families who are experiencing poor marital satisfaction, it may be more beneficial for mental health professionals to focus on child internalizing behavior problems or total behavior problems as opposed to being preoccupied solely with the externalizing behaviors.

In addition, the findings of the current study provide an example of what can be achieved when the sample sizes of families with children who are typically developing and families of children with developmental delays are more equal. While previous research tended to gather significantly larger samples of families with children who are typically developing than the samples of families with children who are developmentally delayed (Boström et al., 2010; Wieland and Baker, 2010), current study results suggest that equal sample sizes leads to an important improvement in the ability to compare and contrast groups. Future research might consider increasing statistical power by ensuring that sample sizes are more equal across developmental risk groups.

Lastly, the current study controlled for developmental age of the children participating by selecting focal children between the ages of 3 and 5 years old. Previous research examined families when the focal child was 6 to 8 years old, or did not control for age, which may make a significant impact on what family effects are observed (Boström et al., 2010; Wieland & Baker, 2010). Children are typically diagnosed with developmental delays or intellectual disabilities between the ages of 3 to 5 years old (Boström et al., 2010; Wieland & Baker, 2010). Thus, parents of young

children may be still adapting to their child's diagnosis and may also struggle with a larger amount of child behavior problems due to young age (Boström et al., 2010).

When compared to a family of a young child, the family of the older child may have adapted to their child's diagnosis and may be experiencing fewer child behavior problems. In addition, studying young children helps identify early interventions for families of children with developmental delays. While researching families at every stage is beneficial, the contributions that can be made from studying young children may have a timelier impact on families of children with developmental delays.

Considering that the interaction between developmental delay and marital satisfaction did not occur in the way the current study had hypothesized, future research should continue to explore other family factors that may have more of an impact on families of children with developmental delays, such as parental perspectives on behavior problems, mindsets regarding their child's diagnosis, the siblings' behavior problems, and use of healthy coping strategies. In addition, findings indicate that marital satisfaction continues to be relevant to explore when considering behavioral problems. Yet, further research in this area is critical, as developmental risk, marital satisfaction, and child behavior problems did not interact in the expected way for families of children with developmental delays, and this population is in need of targeted interventions that will assist in supporting the health and wellbeing of the child as well as the entire family. Thus, future research must aim to identify any and all intervening family factors that may help in reducing behavior problems for families of children with delays.

## Conclusions

The findings of the current study provide nuance in research regarding child behavior problems, child developmental risk group (i.e. typically developing or developmentally delayed), and marital satisfaction. In particular, the current study found that marital satisfaction may not interact with developmental risk group and child behavior problems in the way that was expected. While the current study supported previous findings regarding children with developmental delays being at a higher risk for having behavior problems, it also found similar levels of behavior problems among developmental risk groups when marital satisfaction was low (Caplan et al., 2015; Ellingsen et al., 2014; Feldman et al., 2000; Kurtz-Nelson & McIntyre, 2017; Tervo, 2012). In addition, the current study was able to show that marital satisfaction does significantly moderate the relation between child developmental risk group and mothers' ratings of their child's internalizing and total behavior problems, such that when mothers' marital satisfaction was high, they rated their typically developing children as having fewer behavior problems than mothers of children with developmental delays. Marital satisfaction has a large impact on the behaviors of typically developing children as compared to children with developmental delays. Thus, it is salient to note the current study found a negative correlation between marital satisfaction and child behavior problems for families of children with developmental delays, but the correlation was even stronger for children who are typically developing. Interestingly, fathers' marital satisfaction was not found to significantly moderate the relation between developmental group and child

behavior problems. Yet fathers, as compared to mothers, rated their children as engaging in more internalizing behavior problems. Consequently, one could conclude that marital satisfaction's moderating role in the relation of developmental risk group and child behavior problems may be impacted by additional variables, as the current study obtained interesting findings for both families of children with developmental delays and for those with typically developing children.

Overall, this study added to the limited research on fathers' unique perspectives, as well as taking an uncommon approach by considering marital satisfaction as a moderator in the relation between developmental risk group and behavior problems. Future research should continue to include fathers, as they can provide a nuanced perspective that is often not the focus of family interaction studies. In addition, future research should consider the significance found for internalizing and total behaviors as well as the lack of findings regarding externalizing behaviors. Children with developmental delays deserve interventions that can help them and their families to live full and happy lives. Thus, research should continue to examine these variables, in combination with other variables that may be related, to address areas of concern and ascertain interventions for families of children with developmental delay.

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## APPENDICES

## APPENDIX A

## FAMILY INFORMATION FORM

**Family Information Form**

(To be completed by the primary caregiver)

**Note:** In this survey, “focal child” means your preschool-aged child who is the focus of the research study.

**Regarding Mother (Parent 1, Primary Caregiver)**

1. Gender (circle one):
  - a. Female
  - b. Male
  - c. Other: \_\_\_\_\_
  
2. Caregiver status (circle one): Primary Caregiver      Other: \_\_\_\_\_
  
3. Relation to child (circle one):
  - a. Biological parent
  - b. Step-parent
  - c. Adoptive parent
  - d. Foster parent
  - e. Other: \_\_\_\_\_
  
4. Age (in years): \_\_\_\_\_
  
5. Date of Birth (MM/DD/YYYY): \_\_\_\_\_
  
6. Race/ethnicity (circle one):
  - a. Hispanic/Latino, any race
  - b. African-American
  - c. Asian
  - d. Native American/Pacific Islander
  - e. White (non-Hispanic)
  - f. Other: \_\_\_\_\_
  
7. Marital status (circle one):
  - a. Married to biological father
  - b. Separated/Divorced from biological father
  - c. Widowed by biological father

- d. Cohabiting (living together) with biological father but never married
8. Married or in a long-term relationship with a partner other than the biological father:  
(circle one)
- Yes
  - No

9. Length of time lived in the home with the focal child (in years): \_\_\_\_\_

Regarding Mother (Parent 1, Primary Caregiver), continued

10. Years of education (total years): \_\_\_\_\_

Note: High School = 12 years; College = 16 years; Masters  $\pm$  18 years, Ph. D  $\pm$  20

years

11. Highest degree earned (circle one):
- None
  - HS Diploma/GED
  - AA/Vocational Degree
  - Bachelor's degree (BA, BS)
  - Graduate degree (Master's, Doctoral, MD, JD)

12. Employment Status (circle one):

Note: "Employed" includes self-employment as well as employment outside the home

- Employed full-time (approx. 40 hrs/week)
- Employed part-time (approx. 20 hrs/week)
- Stay-at-home caregiver
- Unemployed

13. General health (circle one):

- Excellent
- Good
- Fair
- Poor

14. Psychiatric diagnosis (circle one):

Note: please answer "yes" if a doctor or mental health professional has diagnosed Parent 1 with a current psychiatric disorder (depression, anxiety, bipolar disorder, schizophrenia, etc.)

- Yes      Please specify: \_\_\_\_\_
- No

**Regarding Father (Parent 2, Secondary Caregiver)**

15. Gender (circle one):

- a. Female
- b. Male
- c. Other: \_\_\_\_\_

16. Relation to child (circle one):

- a. Biological parent
- b. Step-parent
- c. Adoptive parent
- d. Foster parent
- e. Other: \_\_\_\_\_

17. Age (in years): \_\_\_\_\_

**Regarding Father (Parent 2, Secondary Caregiver), continued**

18. Date of Birth (MM/DD/YYYY): \_\_\_\_\_

19. Race/ethnicity (circle one):

- a. Hispanic/Latino, any race
- b. African-American
- c. Asian
- d. Native American/Pacific Islander
- e. White (non-Hispanic)
- f. Other: \_\_\_\_\_

20. Marital status (circle one):

- a. Married to biological mother
- b. Separated/Divorced from biological mother
- c. Widowed by biological mother
- d. Cohabiting (living together) with biological mother but never  
married

21. Married or in a long-term relationship with a partner other than the biological  
mother:

(circle one)

- a. Yes
- b. No

22. Length of time lived in the home with the focal child (in years): \_\_\_\_\_

23. Years of education (total years): \_\_\_\_\_

Note: High School = 12 years; College = 16 years; Masters  $\pm$  18 years, Ph.D  $\pm$  20

years

24. Highest degree earned (circle one):

- a. None
- b. HS Diploma/GED
- c. AA/Vocational Degree
- d. Bachelor's degree (BA, BS)
- e. Graduate degree (Master's, Doctoral, MD, JD)

25. Employment Status (circle one)

Note: "Employed" includes self-employment as well as employment outside the home

- a. Employed full-time (approx. 40 hrs/week)
- b. Employed part-time (approx. 20 hrs/week)
- c. Stay-at-home caregiver
- d. Unemployed

Regarding Father (Parent 2, Secondary Caregiver), continued

26. General health (circle one):

- a. Excellent
- b. Good
- c. Fair
- d. Poor

27. Psychiatric diagnosis (circle one):

Note: please answer "yes" if a doctor or mental health professional has diagnosed Parent 2 with a current psychiatric disorder (depression, anxiety, bipolar disorder, schizophrenia, etc.)

- a. Yes     Please specify: \_\_\_\_\_
- b. No

Regarding focal child (the preschooler who is the focus of the research study)

28. Child's gender (circle one):

- a. Female
- b. Male
- c. Other: \_\_\_\_\_

29. Child's age (in years): \_\_\_\_\_

30. Child's date of Birth (MM/DD/YYYY): \_\_\_\_\_

31. Child's race/ethnicity (circle one):

- a. Hispanic/Latino, any race
- b. African-American
- c. Asian
- d. Native American/Pacific Islander
- e. White (non-Hispanic)
- f. Other: \_\_\_\_\_

32. Was the child exposed to toxins during the mother's pregnancy?

Note: this includes (but is not limited to) alcohol, illegal drugs, cigarette smoke, etc.

- a. Yes Please specify: \_\_\_\_\_
- b. No

33. Were there complications during the child's birth?

- a. Yes Please specify: \_\_\_\_\_
- b. No

Regarding focal child (the preschooler who is the focus of the research study), continued

34. Did the child meet developmental milestones on time (sitting, crawling, walking, talking)

- a. Yes
- b. No Please specify: \_\_\_\_\_

35. Does the child currently receive special services at home or outside the home?

- a. Yes  
Please length of time services have been/were provided, and type of service provided:  
\_\_\_\_\_
- b. No

36. Child's psychiatric or developmental diagnosis (circle one):

Note: please answer "yes" if a doctor or mental health professional has diagnosed the focal child with a current psychiatric or developmental disorder (autism, intellectual disability, Down's Syndrome, depression, anxiety, ADHD, etc.)

- a. Yes Please specify:  
\_\_\_\_\_
- b. No

37. Child's general health (circle one):

- a. Excellent
- b. Good
- c. Fair

d. Poor

38. What is the child's school placement? (circle one)

- a. Elementary School
- b. Preschool (not Headstart)
- c. Headstart or Early Headstart
- d. Daycare or home childcare
- e. None

**Additional Questions**

39. Estimated yearly family income (before taxes and other expenses):

\$ \_\_\_\_\_

40. Number of biological, adopted or step-siblings living in the home:

\_\_\_\_\_

Note: do not include the focal child, and do not include foster children

41. Psychiatric or developmental diagnosis in one or more siblings (circle one):

Note: please answer "yes" if a doctor or mental health professional has diagnosed one or more siblings [NOT the focal child] with a current psychiatric or developmental disorder (autism, intellectual disability, Down's Syndrome, depression, anxiety, ADHD, etc.)

a. Yes Please specify sibling birth order (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, etc.) and diagnosis:

b. No \_\_\_\_\_

APPENDIX B  
QUALITY OF MARRIAGE INDEX

ID#: \_\_\_\_\_

**QMI**

	<i>I do not agree at all</i>			<i>I strongly agree</i>		<i>PERFECT!</i>	
	1	2	3	4	5	6	7
We have a good marriage/relationship	1	2	3	4	5	6	7
My relationship with my partner is very stable.	1	2	3	4	5	6	7
Our marriage/relationship is strong.	1	2	3	4	5	6	7
My relationship with my partner makes me happy.	1	2	3	4	5	6	7
I really feel like part of a team with my partner	1	2	3	4	5	6	7

Circle the point that best describes the degree of happiness in your marriage/relationship.  
The middle point ('happy') represents the degree of happiness most get from marriage/relationships.

Very Unhappy		Happy						Totally Perfect	
1	2	3	4	5	6	7	8	9	10