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Publication Date

2020

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UNIVERSITY OF CALIFORNIA, MERCED

Parent Responses to Adolescent Emotions in a Triadic Family Context:
Associations with Interparental Relationship Quality and Adolescent Depressive
and Anxiety Symptoms

A Thesis submitted in partial satisfaction of the requirements for the degree of
Master of Arts

in

Psychological Sciences

by

Shun Ting Yung

Committee in charge:

Professor Alexandra Main, Chair
Professor Eric Walle
Professor Matthew Zawadzki

2020

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2020

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Acknowledgments

I wish to thank Dr. Philip Cowan, Dr. Carolyn Cowan, Dr. Alexandra Main and the Family Development Lab at UC Merced for assisting in data coding and preparing this Thesis. I am also grateful to the families who participated in or contributed to the study.

Special thanks to my family, particularly my sister, for supporting and providing me with encouragement throughout this process. This accomplishment would not have been possible without you all and I appreciate every single one of you.

Abstract

Parent Responses to Adolescent Emotions in a Triadic Family Context: Associations with Interparental Relationship Quality and Adolescent Depressive and Anxiety Symptoms

by Shun Ting Yung for the partial satisfaction of the requirements for the degree
of Master of Arts in Psychological Sciences University of California, Merced
2020

Dr. Alexandra Main, Chair

Family systems theory posits that it is impossible to dissociate the quality of family relationships from children's and adolescents' social and emotional development. Previous research demonstrates that adolescents' psychological health is influenced by the way parents respond to their adolescents' emotions and by the quality of the interparental relationship. However, few studies have examined associations between parental responses to adolescent emotions and adolescent psychological health in a triadic family context. The present study examined how parents' responses to adolescents' emotions in a triadic family context are associated with adolescent depressive and anxiety symptoms and interparental relationship quality. Fifty-two families participated in the present study when the children were in 9th grade. Results showed that adolescents who expressed more negative emotion tended to have more depressive and anxiety symptoms. Consistent with hypotheses, mothers who were more likely to respond to adolescents' negative emotions with validation/interest reported higher couple communication quality. Also consistent with hypotheses, fathers who were more likely to respond to adolescents' positive and negative emotions negatively reported lower interparental relationship quality. In addition, fathers who were more likely to respond to adolescents' positive emotions with validation/interest reported better interparental relationship quality. The current study moves beyond the dyadic characterization of parental responsiveness to adolescents' emotions. Findings from this work have implications for developing informed interventions to focus on influences of the whole family picture rather than on a single parent's relationship with the adolescent.

Family systems theorists have long argued that the development of individuals cannot be dissociated from the development of the family as a whole (e.g., Cox & Paley, 1997). Instead of solely focusing on individuals, or dyadic relationships within the family, individuals should be studied within a larger family system context by considering mutual influences among family subsystems (Cox & Paley, 1997). One way researchers have taken a family systems perspective is by examining associations between interparental relationship quality (i.e., the quality of the relationship between parents), and child psychological health (Cowan, & Cowan, 2003). Interparental relationship quality has been shown to be closely associated with both children's and adolescents' social and emotional development directly through exposure to marital conflict (Cummings & Davis, 1994) or indirectly through parenting practices (Cowan, & Cowan, 2003). A specific example of the latter is the way parents respond to their children's emotions, which has a large impact on children's psychosocial adjustment (Gottman, Katz, & Hooven, 1996; Hooven et al., 1995). Gottman et al. (1993) found that if parents respond to children's negative emotions (e.g. fear, sadness and anxiety) with negative reactions (e.g. punishment), children are more likely to have negative socioemotional outcomes (Gottman, Katz, & Hooven, 1996). This is because children who receive negative responses tend to hide their emotion (Buck, 1984). However, studies that examined parental responses to children's emotions typically investigated emotion at the dyadic level, and do not take into account the role of multiple family members. Using an observational approach, the current study examined how parental responses to adolescents' emotions in an observed triadic family were associated with (a) interparental relationship quality (marital satisfaction and quality of communication), and (b) adolescents' psychological health (depressive and anxiety symptoms).

Family Systems Theories

The Family System Theory (Bowen, 1966) suggested that the family is one unit. This theory was first originated in a clinical context which helped to inform clinicians what factors affect child maltreatment (Hooper, 2007). The Family System theory had provided rich family processes information in the therapeutic context as well (Minuchin, 1974; Restifo & Bogels, 2009). According to this theory, it is important to view a family as an entire system to investigate individuals' interactions since family members are closely connected. In order to have a deeper understanding of the development of an individual, one cannot be understood by isolating from other family members (Bowen, 1966).

A Family Systems Model was introduced in 2003 as the family systems theory was further developed. In this model, there are six interacting domains of family life associated with children's development: (1) the well-being of individual family members; (2) the relationship quality between parents and their parents; (3) the relationship quality between each parent and child; (4) the relationship quality between siblings; (5) the balance of life stress and social supports available to the family; and (6) the interparental relationship quality. This model suggested that all family members had both direct and indirect effects on each other (Cowan & Cowan, 2003).

Although family systems theories have been well-developed, most of the studies in this field continue to focus on the parent-child dyadic relationships (mother-father,

mother-child, and father-child dyads) among traditional families with two parents. However, only observing the parent-child dyadic relationships did not yield the same dynamics when the entire family is present (McHale & Fivaz-Depeursinge, 2010). Also, triadic-level assessment of family functioning (i.e., when both parents are present), contributed largely to children's psychological health (Deal, Hagan, Bass, Hetherington, & Clingempeel, 1999). Even though this may not be relevant to families with one parent or other family structures, it is important to look at the dynamic aspects within a triadic context. The present study examined the interactions among family members at the triadic level to begin to understand how parents' responses to their children's emotions were influenced by the presence of both parents.

Interparental Relationship Quality and Child/Adolescent Psychological Health

Interparental relationship quality has been shown to be closely associated with both children's and adolescents' social emotional development directly through exposure to marital conflict. Therapists have noted that there is a strong association between parent-child relationships and marital distress (Cummings & Davies, 1994). Also, one study showed that marital functioning in families was strongly related to children's depressive symptoms and their social and emotional development, including internalizing and externalizing problems (Cummings, Keller, & Davies, 2005). Thus, parent-child relationship problems are difficult to resolve unless the marital relationship has been improved when I assumed marital relationship is the cause. Moreover, poor interparental relationship quality (e.g., high levels of marital conflict) were found to be related to problematic functioning in children, such as distressed, angry, and, aggressive behaviors (Cummings & Davies, 1994). Furthermore, the level of interparental conflict was associated with emotional, behavioral and social problems in children (Cummings & Davies, 1994; Dunn & Davies, 2001). High levels of marital conflict had been shown to be related to low attachment quality, poorer affective quality of the parent-child relationship, and lower social competence among adolescents (Azam & Hanif, 2011). One study has also showed that in families in which parents are described as showing a high level of displeasure, coldness, anger, disagreement, and competition with each other, children tended to score highly in externalizing aggressive behaviors, internalizing behaviors, and have lower academic achievement during kindergarten and first grade (Cowan, & Cowan, 2003). Exposure to inter-adult anger was also positively associated with distressed, angry, and, aggressive behaviors in children (Cummings, 1987). Furthermore, one study showed that frequent marital conflicts during a child's development predicts adolescent depressive symptoms, which intensifies adolescent maladjustment (Cui, Donnellan, & Conger, 2007). Marital conflict can be a predictor for a wide range of psychological health problems in children, for example, externalizing behaviors includes noncompliance and aggressive behaviors (Jenkins & Smith, 1991), and internalizing behaviors (Holden & Ritchie, 1991).

In addition to direct associations with children's psychological health, interparental relationship quality can also act as a mediator of children's responses to their parents' divorce or remarriage (Hetherington, Arnett, & Hollier, 1988). Most children and many parents experience emotional distress, psychological, health and behavioral problems, and disruptions in family functioning during the first two years

following divorce (Hetherington, 1991). Collectively, these studies show that interparental relationship quality is important for both children's and adolescents' social emotional development.

Parenting Practices and Children's Psychological Health

Interparental relationship quality has also been shown to be important to children's and adolescents' social emotional adjustment indirectly through parenting practices. According to the Conger's Family Stress Model (FSM), interparental conflict and withdrawal were positively correlated with harsh and inconsistent parenting style. This results in child emotional and behaviors problems and impaired social competence (Conger, Conger, & Martin, 2010). Furthermore, a longitudinal study showed that families with a strong mother-child intergenerational alliance, in which the child has a stronger relationship with the mother than with father, are seen by teachers as being more aggressive, more withdrawn, and less academically competent (Johnson, 2010).

Moreover, in two-parent families, parenting effectiveness, including parental sensitivity and responsiveness, was improved when the couple reduces the number of conflicts in the presence of their child (Cowan, Cowan & Mehta, 2012). One study indicated that both destructive and constructive marital conflicts significantly predict the development of social skills indirectly through parenting practices. Specifically, destructive marital conflict was associated with children's cooperating skills, self-control, and assertion through negative parenting practices. For example, parents who talk less and use harsher verbal and physical disciplining practices children are likely to have children with lower social skills (Hosokawa & Katsura, 2017). All these studies have showed that there is a well-established link between interparental relationship quality, parenting practices, and children's/adolescents' social and emotional development.

Parent Responses to Children's and Adolescents' Emotions

Parental responsiveness has been shown to be important to children's and adolescents' social emotional development. Parental responsiveness is usually defined as warmly accepting of child's needs and interest, and being sensitive to child's signals (Ainsworth, Blehar, Waters, & Wall, 1978). One way in which parents have been found to have an influence on children and adolescents' psychological health is the way they respond to their emotions. A recent study indicated that adolescents who receive less parental support (i.e., validation) in response to their emotions were more likely to experience depressive symptoms (Lougheed, Hollenstein, Lichtwarck-Aschoff, & Granic, 2015). Moreover, a study found that during family problem-solving discussions, families who tend to exchange negative emotions are more likely to have adolescents experiencing higher levels of stress, and fail to manage and resolve conflicts (Robin, 1979). Furthermore, one study suggested that during a challenging task, the interaction between dyadic flexibility and positive affect contribute to adaptive child outcomes (Lunkenheimer, Olson, Hollenstein, Sameroff, & Winter, 2011).

The majority of studies on parental responses to children's/adolescents' emotions have solely focused on the parent-child dyadic interactions. Only a few studies have examined how interparental relationship quality relates to parents' responses to their adolescents' emotions during real-time interactions, and how such responses are associated with adolescents' psychological health e.g. depression. For example,

Hollenstein and colleagues (Hollenstein, Allen, & Sheeber, 2016) examined the triadic patterns of affect during parent-adolescent interactions in families by using state space grid analysis. Comparing families with and without a depressed adolescent, they explored the differences in the structure, content, and degree of affective matching among both parents and adolescent. Results showed that triads with depressed adolescents expressed a wider range of affect with less predictability of triadic affective sequences compared with triads those without depressed adolescents. Even though this study was conducted within a triadic family context, it did not examine the association between interparental relationship quality and how parents respond to adolescents' emotions. This is important since the quality of the interparental (i.e., marital) relationship are thought to largely contribute to both children's and adolescents' psychological health. Also, it did not examine how parents' responses to their adolescents' emotions is associated with depressive and anxiety symptoms in a typically developing sample of adolescents. In addition, one study examined if depressed adolescents have different patterns of affective interactions comparing with non-depressed adolescents (Bodner, Kuppens, Allen, Sheeber & Ceulemans, 2017).

Present Study

The goal of the current study was to examine how parents' responses to adolescents' emotions in a triadic family context are associated with adolescent depressive and anxiety symptoms and interparental relationship quality. Specifically, I examined (1) how each parent responded to their adolescent's emotions during an observed interaction task, (2) whether each parents' responses to adolescents' emotions were related to adolescents' risk for depression and anxiety, and (3) whether each parents' responses to adolescents' emotions were related to parents' interparental relationship quality. I hypothesized that parents who responded positively (e.g., with humor) to their adolescents' emotions would have adolescents with fewer depressive and anxiety symptoms, and better interparental relationship. Parents who responded negatively (e.g., with anger or contempt) to their adolescents' emotions, adolescents would have more depressive and anxiety symptoms, and worse interparental relationship. I also hypothesized that parents who respond more supportively (e.g., with validation) to adolescents' emotions, adolescents would have lower risk for depression and anxiety. Furthermore, I predicted that parents who respond more supportively (e.g., with validation) to adolescents' emotions, parents would have better interparental relationship quality.

Methods

Participants

Participants in the present study participated in the fifth wave of the Schoolchildren and their Families (SAF) study; a longitudinal investigation of the effects of individual, marital, and family functioning on children's psychological health across elementary and middle school (Cowan et al., 2005). Two-parent families from 28 cities and towns within a 40-mile radius from the University of California, Berkeley were recruited when the children were beginning kindergarten. Families were recruited into the study through public services radio announcements and flyers distributed to preschools and daycare centers in the San Francisco Bay Area. Parents were contacted by phone to determine their willingness to participate in this study. Fifty-two families participated in the final wave, which took place when adolescents were in 9th grade. The ethnic distribution of participating families was 84% Caucasian, 6.9% Asian American, 6.6% African American and 2.5% Latino. The average age of mothers was 36.18 years ($SD = 5.75$), and the average age of fathers was 37.07 years ($SD = 5.75$). Total family income ranged from \$22,000 to \$240,000 with a median of \$73,000.

Procedure

Both mothers and fathers and a target adolescent participated in a laboratory visit at the University of California, Berkeley that consisted of several questionnaires and videotaped interactions. The present study focused on one of the observed interactions – the Family Circle Task – in which family members worked together to draw a picture of how close each family was to one another and discussed the drawing. In this task, mothers, fathers, and adolescents were instructed to select which image best represented their family – these were labeled cohesive, separate, triangulated, or detouring (see Figure 1). Larger circles represented the parents and the smaller circle represented the target adolescent. Spaces between circles indicated the distance between family members (Kerig, 1995). The present study focused on portion of the task in which family members were asked to discuss which circle graphic reflected their own family system the best and to explain discuss each other's viewpoints as a family.

Measures

Interparental relationship quality. Interparental relationship quality was assessed with two self-report scales completed by mothers and fathers.

Short Marital Adjustment test. The Short Marital Adjustment test (Locke & Wallace, 1959) was used to measure marital satisfaction. This test consists of 15 items with eight different subscales. All subscales were collapsed as the Short Marital Adjustment test has high internal consistency. This test also discriminates between couples with marital problems and without marital problems (O'Leary & Tur-kewitz, 1978). The Short Marital Adjustment test is also highly correlate with parent reports (Jouriles, Pfiffner, & O'Leary, 1988). Mothers and fathers completed the questionnaire separately. Sample items included, "State the approximate extent of agreement or disagreement between you and your mate on handling family finances", and "State the approximate extent of agreement or disagreement between you and your mate on sex relations." Responses were based on a Likert scale from 0 (always disagree) to 5 (always agree). The Alpha reliability of mother is 0.751 and father is 0.769.

Couple Communication Questionnaire. The Couple Communication Questionnaire (CCQ; Cowan & Cowan, 1982) was used to measure the quality of couple communication across various areas of marital life. The questionnaire consists of 9 items. Participants were asked to rate the number of conflicts or disagreements between them on a variety of issues (e.g., division of workload in the family, amount of time spent together as a couple, raising children, management of family money etc.) using a Likert type scale from 1 (*a lot*) to 7 (*none*). The Alpha reliability of mother is 0.836 and father is 0.755.

Adolescent Depressive Symptoms. The Children's Depression Inventory (CDI; Kovacs, 1985) was used to assess the presence and severity of depressive symptoms in adolescents. This scale consists of 27 items capturing several different aspects of depressive symptoms, including hedonic capacity, depressed mood, and mood swings. All item scores were combined into a total depression score (range = 0 to 54), with higher scores indicating higher levels of depressive symptoms. The Alpha reliability of adolescent is 0.625.

Adolescent Anxiety Symptoms. The Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) was used to measure adolescents' psychological distress and psychopathology symptoms. The BSI consists of nine symptoms sub-scales in total: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Each item was rated on a 5-point scale ranging from 1 (not at all) to 5 (extremely). Sample items include, "During the past 7 days, how much were you distressed by nervousness or shakiness inside?", "During the past 7 days, how much were you feeling tense or keyed up?" The Alpha reliability of adolescent is 0.766.

Adolescents' and Parents' Emotions

To examine adolescents' emotions and parental responses to adolescent emotions, research assistants observationally coded adolescents', mothers', and fathers' emotions during the discussion portion of the Family Circle Task. Observers coded each individual's physical features, facial expression, voice, and verbal content by using the Specific Affect Coding System (SPAFF; Coan & Gottman, 2007). The SPAFF is comprised of 16 codes in total. SPAFF codes were collapsed into the following categories: negativity (e.g., contempt, criticism), positivity (e.g., affection, humor) and validation/interest (see Main, Paxton, & Dale, 2016). Because adolescent

validation/interest was very infrequent (Mean frequency = 5.69), only included positive and negative adolescent emotions were included in the analyses.

Codes were assigned second-by-second using the software Mangold INTERACT Version 16. In order to establish interrater reliability, the lead author trained two undergraduate research assistants to code mothers, fathers and adolescents' emotions. To minimize coder drift, weekly meetings were held for coders to discuss and check their codes. According to Coan and Gottman (2007), the required minimum agreement of SPAFF codes is 0.75. Cohen's kappa was used to calculate interrater reliability. The average kappa across all codes for mothers (0.91), fathers (0.86) and adolescents (0.93) was 0.90 (range = 0.70 to 1).

Analytic Strategy

Due to variations in discussion lengths, proportional duration of mother, father, and adolescent emotions were derived by dividing the duration of each emotion code by the total duration of the discussion. To determine how each parent responded to adolescents' emotions, I first identified all instances in which adolescents expressed an emotion and calculated the duration of each parental emotion in the subsequent 30 seconds. To determine whether each parents' responses to adolescents' emotions were related to adolescents' risk for depression and anxiety, I looked at the correlations between parents' responses and adolescents' mental health. In order to see whether each parents' responses to adolescents' emotions were related to parents' interparental relationship quality, I looked at the correlations between parents' responses and parents' relationship quality.

Results

Differences between Mothers and Fathers in Emotions and Interparental Relationship

Descriptive statistics for interparental relationship quality (marital satisfaction and couple communication), adolescent depressive and anxiety symptoms, and mothers', fathers' and adolescents' proportional duration of emotions during the Family Circle Task are presented in Table 1. Compared with positive and negation emotions, both mothers ($M = .11$) and fathers ($M = .07$) expressed the longest proportional duration of validation/ interest. T-tests revealed that mothers displayed more positive, negative, and validation/interest compared with fathers (Table 1). Fathers also reported better couple communication compared with mothers ($p = .66$), though there were no differences between mothers and fathers for marital satisfaction ($p > .00$).

Correlations between Mothers', Fathers' and Adolescents' Emotions and Adolescents' Psychological Health

Correlations between mothers, fathers and adolescents' emotions are presented in Table 2. The proportional duration of mothers' displays of negative emotions was positively correlated with fathers' negative emotions ($p = .04$), but not adolescents' negative emotions ($p = .38$). Additionally, the proportional duration of mothers' displays of positive emotions were positively correlated with fathers' ($p = .00$) and adolescents' ($p = .01$) positive emotions.

Results showed that adolescents who expressed more negative emotion had higher levels of depressive ($p = .02$) and anxiety symptoms ($p = .00$) (see Table 3). No other adolescent emotions were correlated with adolescent psychological health. Inconsistent with our hypotheses, mothers who tended to respond to adolescents' positive emotions with positive emotion had adolescents who reported more depressive symptoms ($p = .04$). When fathers respond to adolescents' positive positively, there is no significant relationship with adolescent psychological health.

Correlations between Adolescents', Mothers', and Fathers' Emotions and Interparental Relationship Quality

Consistent with hypotheses, mothers who were more likely to respond to adolescents' negative emotions with validation/interest reported better couple

communication quality (both father reported ($p = .04$) and mother reported ($p = .01$)), though this finding was not present for fathers.

Also consistent with hypotheses, fathers who were more likely to respond to adolescents' negative emotions with negative emotion reported lower interparental relationship quality, both for marital satisfaction (father reported ($p = .01$) and mother reported ($p = .01$)) and couple communication (father reported ($p = .01$)). Inconsistent with our hypotheses, when fathers respond to adolescents' negative emotions negatively, mothers reported better couple communication ($p = .05$).

Consistent with hypotheses, fathers who were more likely to respond to adolescents' positive emotions with negative emotion reported lower interparental relationship quality, both for marital satisfaction (father reported ($p = .00$) and mother reported ($p = .00$)) and couple communication (father reported ($p = .01$)). Interestingly, inconsistent with hypotheses, mothers whose partners were more likely to respond to adolescents' positive emotions with negative emotion reported higher couple communication ($p = .03$).

Fathers who were more likely to respond to adolescents' positive emotions with validation/interest reported better interparental relationship quality, both for marital satisfaction ($p = .01$) and couple communication ($p = .00$). However, mother reported higher marital satisfaction ($p = .00$) but lower couple communication ($p = .00$).

Discussion

The present study examined family relationships beyond the dyadic level by taking both parents into account during a family observation task. Specifically, this study examined associations between parental responses to adolescent emotions, interparental relationship quality, and adolescents' psychological health (depressive and anxiety symptoms). In general, I found that the way how parents respond to adolescents' emotions is related to parents' interparental relationship quality and adolescents' mental health.

Differences between Mothers and Fathers in Emotions and Interparental Relationship

Results showed that there was a statistically significant difference in positive, negative and interest/ validation emotion between mothers and fathers. Mothers expressed longer proportional durations of all emotions. There was also a statistically significant difference in interparental relationship quality (specifically, couple communication), between mothers and fathers, with fathers reporting better couple communication and higher marital satisfaction. This finding is partially consistent with some of the previous studies. A meta-analysis literature found a similar trend that wives tend to be less satisfied with their marital relationships than their husbands. However, this difference in marital satisfaction was significant only because clinical samples were included in the analysis (Jackson, Miller, Oka, & Henry, 2014).

Correlations between Mothers', Fathers' and Adolescents' Emotions and Adolescents' Psychological Health

Results showed that when mothers expressed more negative emotion, fathers expressed more negative emotion as well. However, adolescents' level of negative emotion was not associated with either parents' level of negative emotion. Furthermore, if mothers expressed more positive emotion, both fathers and adolescents expressed more positive emotion. This result is consistent with previous research that if parents and adolescents transmit negative affect to one another, the dyadic conversation could reach a higher intensity of negative affect (Hollenstein & Lewis, 2006). Also, this is consistent with another study which showed that if one individual was expressing positive emotion, he could lead the other person to further the intensity of positive emotion and vice versa (Gable, Reis, Impett, & Asher, 2004).

Consistent with previous literature, results showed that adolescents who expressed more negative emotion tended to have a higher level of depressive and anxiety symptoms. This finding suggests that experiencing negative emotions might contribute to adolescents' vulnerability to both depression and anxiety. For example, one study found that negative affect was broadly associated with psychiatric disorders, including depression and anxiety (Watson, Clark & Carey, 1988). Moreover, according to the emotion-based theories of psychopathology, depression is usually depicted as increased negative affect and decreased positive affect (Clark & Watson, 1991; Depue & Iacono, 1989). Also, Keenan's study found that disinhibited expression of negative emotion is associated with depression and impairment (Keenan, Hipwell, Hinze & Babinski, 2009). Depression is also associated with the failure to sustain positive affects and interrupt negative affects (Davidson & Irwin, 1999).

Unexpectedly, when mothers tended to respond to adolescents' positive emotions positively, their adolescents tended to have more depressive symptoms. One possible explanation may be adolescents did not perceive their mothers' responses as positive. It is interesting that I only found adolescents with more depressive symptoms when mothers respond to adolescents' positive emotions positively but not for validation/ interest. This is consistent with Gottman et al. (1996) that parental validation of their child's feelings communicates to the child that their emotions are acceptable.

Correlations between Mothers' and Fathers' Responses to Adolescents' Emotions and Interparental Relationship Quality

Mothers who were more likely to respond to adolescents' negative emotions with validation/interest reported higher couple communication; however, fathers reported lower couple communication. According to Hall and Cook, validating a child's emotions can help child to feel and express their emotions, which in turn developing a sense of security, feeling more confident and feeling more connected with their families (Hall & Cook, 2011). It is possible that when mothers respond to adolescents' negative emotions with validation/ interest, fathers may think mothers as not focusing on father themselves. In turn, mothers reported a higher couple communication while fathers reported lower couple communication. One of the plausible reasons may be parents are having different points of views in marital satisfaction. Studies found that there was a consistent spouse difference in marital complains. For example, married women complain about their husbands being too withdrawn, while married men complain about their wives engage too much into conflicts (Locke, 1951).

Fathers who were more likely to respond to adolescents' negative emotions negatively reported lower marital satisfaction and poorer couple communication. However, mothers reported better couple communication. This suggests that parents may have different points of views about their marital relationship. Our results are consistent with previous studies showing that there is a "spillover effect" of negative emotions. In other words, negative emotion expressed in the interparental relationship can transfer to the parent-child relationship (Katz & Gottman, 1996; Merrifield & Gamble, 2013). This transference can be bi-directional as fathers who responded to adolescents more negatively might also express more negative emotions to mothers, which in turn resulted in lower interparental relationship quality.

On the other hand, fathers who were more likely to respond to adolescents' positive emotions with negative emotion reported worse interparental relationship quality across both marital satisfaction and couple communication. Moreover, mothers reported lower marital satisfaction if fathers were more likely to respond to adolescents' positive emotions with negative emotion. A study showed that if fathers often express negative emotions and mixed affect, it is negatively correlated with adolescents' father-child relationship quality and satisfaction (Flannery, Montemayor & Eberly, 1994). It is possible that if fathers express more negative emotions to adolescents, they tend to express more negative emotions towards mothers as well. In turn, they report a lower interparental relationship quality. However, mothers also reported high couple communication which shows that parents may have divisive opinions about their communication aspect.

Additionally, fathers who were more likely to respond to adolescents' positive emotions with validation/interest reported better interparental relationship quality, both for marital satisfaction and couple communication. If fathers were more likely to respond to adolescents' positive emotions with validation/interest, mothers reported higher marital satisfaction as well. Consistent with previous studies, interparental relationship is closely associated with interpersonal interactions' emotional (Roisman et al., 2007). Children tend to do better on cognitive competence (Shannon, Tamis-LeMonda, London, & Cabrera, 2002) and psychological health (Coley & Medeiros, 2007) if fathers are more involved in the parent-child relationship. It is possible that fathers involve more in the interparental relationship if they are greatly involved in the parent-child relationship. Inconsistent with hypotheses, mothers reported lower couple communication which shows that parents may have different thoughts about their communication aspect again.

These findings underscored the importance of going beyond dyadic parent-adolescent relationship processes and examining dynamic emotions in triadic family context. Fathers and mothers might have different perspectives about their interparental relationship quality, it is important to examine both of their views.

Limitations and Future Directions

There are some limitations in the present study that need to be mentioned. First, our study examined the family triadic relationship between mothers, fathers and adolescents with separate dyadic interactions. It would be informative for future research to examine the triadic dynamics as one interrelated whole.

Second, only 52 families participated at the final point in this study. In order to have a higher power, a larger sample size is needed. Have a bigger sample size can allow us to examine how cultural factors may play a role in how parents respond to adolescents' emotions. It is not surprising that culture and emotion are closely related (Markus & Kitayama, 1991). For example, in order to maintain group harmony, Asian Americans tend to value emotional suppression more than veridical emotional expression (Gross & John, 1998; Tsai et al., 2002). Parents with different cultural backgrounds might affect the way how they respond to adolescents' emotions. Future research should look into how cultural factors influence parental responses to their adolescents' emotions and the implications of such responses for adolescent psychological health.

Third, this current study has only focused on the final time point which is a cross-sectional design. Owing to the fact that all variables were measured at the same time, I cannot draw any conclusions about the casual relationship of interparental relationship quality, parental responsiveness and adolescents' psychological health. It would be informative if future research is conducted with a longitudinal design to examine the causal relationship between these variables.

Finally, this study explored how parent dyads response to adolescents' emotion. Future study should examine how parents are jointly responding to their adolescent's emotions during the interaction. It would be informative if I examine how these dynamics are associated with interparental relationship quality and adolescent depressive and anxiety symptoms.

Conclusion and Implications

This study adds to our understanding of how interparental relationship quality, parental responses and adolescents' psychological health are closely related. Even though there is a close link between interparental relationship quality and adolescents' psychological health, not many studies have examined how interparental relationship quality relates to parents' responses to their adolescents' emotions during real-time interactions, and how such responses are associated with adolescent psychological health, including risk in depression and anxiety. The only study to our knowledge that examined this was Hollenstein's study (Hollenstein, Allen, & Sheeber, 2016). However, they compared families with and without a depressed adolescent and explored the differences in the structure, content, and degree of affective matching among both parents and adolescents. Instead of focusing on depressed and non-depressed adolescents, the current study targeted to general population. Our study examined how interparental relationship quality is related to parents' responses to their adolescents' emotions during real-time interactions. The observational methodology sheds light on everyday parental responses that contribute to adolescents' risk in depression and anxiety.

Due to the fact that most of the researches on parent-adolescent relationship solely focused on one single parent. When the entire family is present, family dynamics may be different from only observing the parent-child dyadic relationships (McHale & Fivaz-Depeursinge, 2010). This current study can be used to develop inform intervention of the importance of examining the entire family system which includes both parents and adolescent in to account. Specifically, it is important for researchers to conduct observational research which video tape both parents' and adolescents' behaviors and views, in order to capture the entire family dynamics.

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Table 1

Descriptive statistics of mothers', fathers' and adolescents' emotions, interparental relationship quality, and psychological health and t-test comparing mothers and fathers

Variable	Mothers (<i>M/SD</i>)	Fathers (<i>M/SD</i>)	Adolescents (<i>M/SD</i>)	<i>t</i> (df)
Variable				
Positive	.07 (0.06)	.04 (0.04)	0.11 (0.07)	2.88 (100)**
Negative	.02 (0.04)	.01 (0.03)	0.07 (0.06)	.2.06 (100)*
Validation/ interest	.11 (0.07)	.07 (0.06)	0.02 (0.03)	3.00 (100)**
Interparental relationship quality				
Marital satisfaction	107.64 (25.18)	109.91 (25.20)		-.45 (95)
Couple communication	23.40 (8.74)	30.79 (8.25)		4.30 (96)**
Psychological health				
Anxiety symptoms			4.38 (4.00)	
Depressive symptoms			5.56 (4.85)	

Notes: M = Mean, SD = Standard Deviation. Values of emotions are proportional durations.

**p < .05, **p < .01*

Table 2
Correlations between mothers', fathers' and adolescents' emotions

	1 Negative (M)	2 Positive (M)	3 Validation /Interest (M)	4 Negative (F)	5 Positive (F)	6 Validation /Interest (F)	7 Negative (A)	8 Positive (A)
1	-							
2	.04	-						
3	-.05	-.09	-					
4	.29*	.17	.03	-				
5	-.01	.58**	-.04	.26	-			
6	-.10	.08	.14	-.05	-.15	-		
7	.37	.12	.03	.02	-.00	-.06	-	
8	-.04	.37**	.02	.09	.38**	-.22	.00	-

Notes: * $p < .05$, ** $p < .01$. M = Mother, F = Father, A = Adolescent.

Table 3

Correlations between parental responses to adolescent negative and positive emotions, interparental relationship quality, and adolescent depressive and anxiety symptoms

Variable	Marital Satisfaction (F)	Marital Satisfaction (M)	Couple Communication (F)	Couple Communication (M)	Anxiety symptoms (A)	Depressive symptoms (A)
Neg (A)	-.20	-.17	-.01	.10	.43**	.35*
Pos (A)	-.18	-.04	.01	-.03	.16	.12
Parental responses to adolescent negative emotions						
Neg (M)	.25	-.23	-.24	.18	-.12	-.12
Neg (F)	-.46*	-.50**	-.48**	.37*	-.09	-.23
Pos (M)	.05	.16	.05	-.18	.16	.17
Pos (F)	-.24	-.07	-.13	.10	.11	.17
Val/int(M)	-.16	-.27	-.38*	.47*	.10	.27
Val/int (F)	.14	.23	.15	-.32	.09	-.05
Parental responses to adolescent positive emotions						
Neg (M)	.09	.09	.03	.04	-.04	.24
Neg (F)	-.48**	-.50**	-.39*	.34*	-.15	-.04
Pos (M)	-.03	.03	-.02	-.19	.14	.32*
Pos (F)	-.04	-.01	.01	-.01	.03	.10
Val/int(M)	.10	-.09	.11	-.01	-.08	-.06
Val/int (F)	.42**	.43**	.38*	-.47*	-.08	-.04

Notes: * $p < .05$, ** $p < .01$. M = Mother, F = Father, A = Adolescent. Neg = negative, Pos = positive, Val/int = validation/interest. Parent responses are proportional durations of each emotion in the 30 seconds following occurrences of adolescent emotions.

Figure 1. Family circle task

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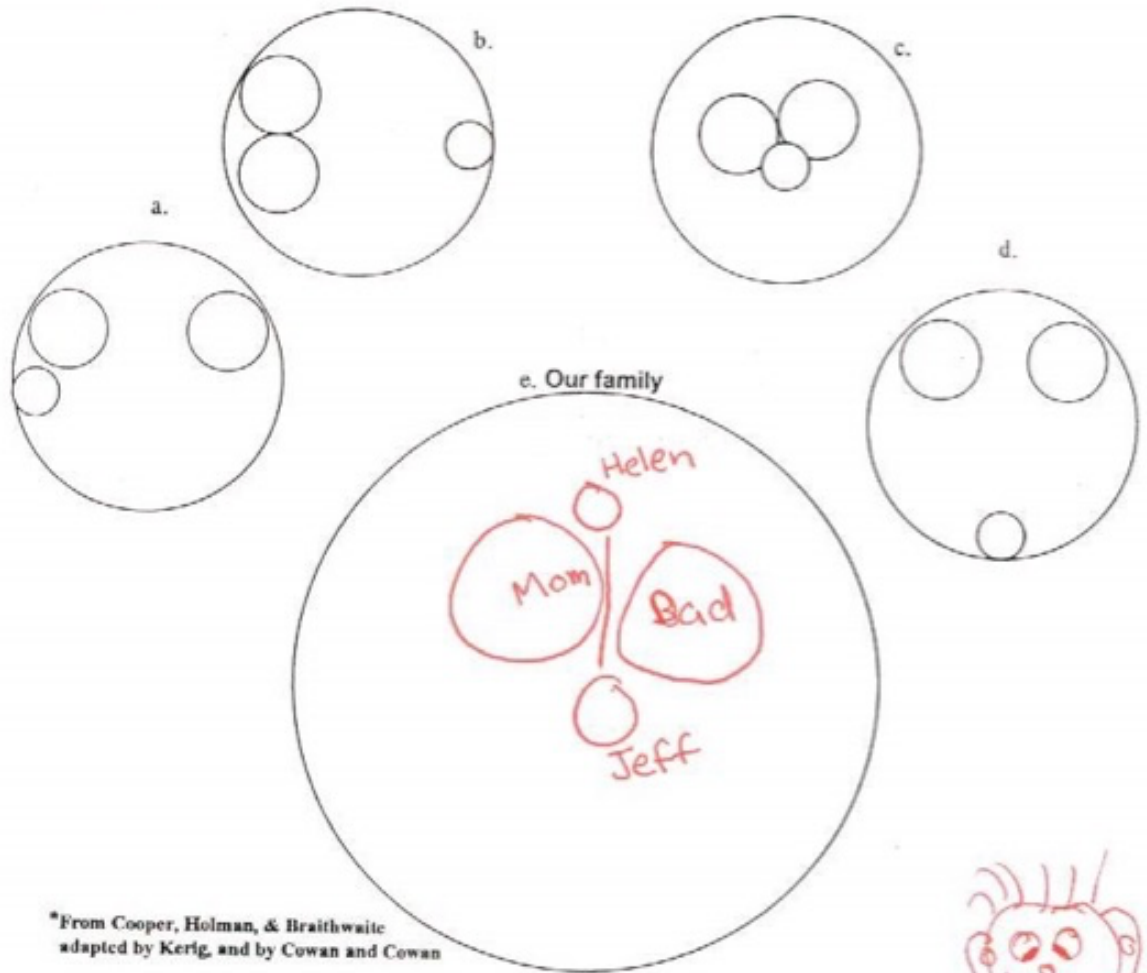
FAMILY CIRCLES* PO4 Fam

Each diagram below (a-d) represents different families. In any family, there may be some family members who are especially close to one another while other family members are more distant or separate from each other. The circles represent the people and the space between the circles represents the closeness or distance of the relationships between them. The large circles are the adults and the smaller circles are the children.

Please look at examples a-d which describe some possible arrangements for a three-person family and indicate which one most closely resembles your family. Please choose a,b,c, or d c

Then, as a family, agree on and draw a picture in circle e that you think is most like your family with all the members adding circles for the number of people in your family. Please write each person's name inside or beside the circle representing him or her.

Examples:



*From Cooper, Holman, & Braithwaite adapted by Kertig, and by Cowan and Cowan

