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Parent Anxiety, Parental Psychological Control, and Adolescent Anxiety: Mediation and Bidirectional Relationships

Iesha R. Gibbons
Brigham Young University

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Roy Bean, Chair
Shayne Anderson
Alyssa Witting
Justin Dyer

School of Family Life

Brigham Young University

ABSTRACT

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Iesha R. Gibbons
School of Family Life, BYU
Doctor of Philosophy

Anxiety is the most common mental health diagnosis for adolescents. Among important etiological factors are parent anxiety and parenting behavior, which can increase anxiety in adolescents. Adolescent anxiety can also act as a source of stress for parents that then increases parent anxiety and negative parenting behaviors. Using the Family Stress Model, this study aims to examine the longitudinal and bidirectional relationship between parent and adolescent anxiety with parental psychological control acting as a mediator. Structural equation modeling was used to examine these relationships across five waves of data for 457 families. Adolescents (51.86% female, mean age 13.34 at wave one) and their parents (352 fathers and 457 mothers) participated in this study. While results did not fully support the hypotheses, interesting relationships among study variables indicated the importance of adolescent gender and development when studying the impact of parents and parenting on anxiety. Implications for research and clinical practice are discussed.

Keywords: adolescents, anxiety, parents, bidirectional, gender difference

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The most common mental health diagnosis among adolescents is anxiety, with 31.9% of youth meeting criteria for an anxiety disorder some time during their adolescent years (Merikangas et al., 2010; NIMH, 2017). Anxiety disorders and symptoms have been shown to lead to negative outcomes during adolescence and in later adult life. For instance, anxiety is related to later substance and alcohol use disorders (Essau et al., 2014; Dyer et al., 2019), lower social competence, feelings of loneliness, academic impairment, and lower rates of entrance into higher education (de Lijster et al., 2018). Adolescent anxiety has also been found to be related to several negative outcomes in adulthood including poor work adjustment, impaired family relationships, lower life satisfaction, poor coping skills, and chronic stress (Essau et al., 2014).

Given the varying and serious limitations imposed on individuals who experience anxiety during adolescence, it is important to understand contributing etiological factors. As a primary interpersonal contributor, it is particularly important to understand the role that familial factors have in the development of adolescent anxiety (Naughton et al., 2018). As a key example, parental mental health has been found to be a contributing factor to adolescent anxiety as children are at a greater risk for developing mental disorders when their parents struggle with severe or comorbid disorders that interfere with daily life (Leijdesdorff et al., 2017; Johnson et al., 2018). More specifically, children are at risk of developing anxiety when their parents have been diagnosed with an anxiety disorder (Leijdesdorff et al., 2017), and a variety of conceptualizations have been proposed to explain the apparent causal link. Among the explanations for this association between parental anxiety and child/adolescent anxiety are genetics (Higa-McMillan & Ebesutani, 2011; Zavos et al., 2013; Stocker et al., 2017),

neurobiology (Higa-McMillan & Ebesutani, 2011), attachment, temperament, and learning (Altman et al., 2009; Higa-McMillan & Ebesutani, 2011).

Drawing from a family process conceptualization, the Family Stress Model (Conger et al., 2002) suggests that poorer mental health on the part of the parents negatively impacts their parenting which, in turn, negatively impacts children's wellbeing. To further add to this conceptualization of the relationship between parent and adolescent anxiety, we propose bidirectionality between parents and adolescents can occur within the FSM framework and we aim to test this hypothesis in this study. There is evidence adolescents do have an impact on parents and parenting (Siqueland et al., 1996). These relationships are necessary to understand when researching and treating adolescents using a family systems perspective, since family members do not exist in isolation but do in fact impact the entire family (Tadros, 2020). This study, therefore, aims to examine this hypothesis by testing the longitudinal and bidirectional associations between parent anxiety and adolescent anxiety with parenting behavior (i.e., psychological control) as a mediator.

Literature Review

Theoretical Conceptualization

The Family Stress Model (FSM, Conger et al., 2002) theorizes when parents experience economic stress there is spillover onto child outcomes via parental psychological distress, caregiver conflict, and disrupted parenting practices. While the FSM focuses on economic hardship as a source of stress, it has been suggested that this model could also apply to other sources of stress that impact parents and the family (Masarik & Conger, 2017). One such source of stress for parents could be their own psychological distress, specifically anxiety. As parents experience anxiety they are more likely to engage in parenting behaviors that decrease warmth,

involvement, and encouragement (Rutherford, 2004). Children and adolescents are then at an increased risk to develop their own distressed outcomes, as suggested by the FSM, including anxiety. Anxiety in a child/adolescent may then illicit stress in the parent who responds by engaging in parenting behaviors aimed at decreasing their own distress while simultaneously gaining compliance from their child (Siqueland et al., 1996). Parents may then experience increased levels of anxiety themselves.

While the FSM does not suggest that child outcomes impact parenting behavior which could then also impact parental distress, there is evidence that children and adolescents do have an impact on parents in terms of which parent behaviors are used in response to specific child emotions and behaviors (Siqueland et al., 1996; Nelemans et al., 2020). Therefore, using the FSM as a guiding conceptualization, this study aims to examine how parent psychological distress impacts adolescent outcomes through parenting behavior and any bidirectionality that may exist in these relationships. More specifically, this study will examine how parent anxiety impacts adolescent anxiety through parental psychological control and how adolescent anxiety impacts parent anxiety through parental psychological control.

Parent Mental Health and Adolescent Mental Health

Parental mental health (maternal and paternal) is a risk factor for adolescent mental health issues (Rasing et al., 2015; Wickersham et al., 2020), such as obsessive-compulsive disorder (Berman et al., 2018), depression (Apsley & Padilla-Walker, 2020; Lee et al., 2020), suicidal ideation (Lee et al., 2020), ADHD and anxiety (Johnson et al., 2018). Although there is some contradictory evidence that suggests the relationship between parent anxiety and adolescent anxiety does not exist (e.g., Fjermestad et al., 2017), there is considerably more support for parental anxiety being significantly related to anxiety symptoms in children during

adolescence (Spence et al., 2002; Ranøyen et al., 2015) and later into adulthood (Gonçalves et al., 2016). Specifically, children who live with a parent who struggles with a mental illness have been found to have a 50% chance of developing one themselves (Leijdesdorff et al., 2017), and up to 79% of adolescents who have a mental health diagnosis themselves have been found to live with a parent who also has a mental illness (Naughton et al., 2018).

While other mental illnesses have been shown to place adolescents at a high risk for a variety of diagnoses, there is evidence that parental anxiety puts adolescents at a specific risk for developing anxiety. Leijdesdorff et al. (2017), in a review of the recent literature, concluded there is a direct link between parental and adolescent anxiety. The same direct link was not found for other mental illnesses. Instead, when parents have a mental illness (other than anxiety), children are at risk of developing a variety of mental illnesses, not necessarily the same diagnosis with which their parents struggle.

It is also important to note that parents do not necessarily have to receive a formal clinical diagnosis of anxiety for the relationship between parent and adolescent anxiety to exist. Rasing et al. (2015) examined the role that adolescent perception plays in the relationship between parent and adolescent mental health and found when adolescents perceive their parents as struggling with anxiety they report experiencing anxiety themselves. This finding suggests evidence of a relationship between parental anxiety and adolescent anxiety that warrants further investigation to increase understanding for the prevention and treatment of adolescent anxiety.

Parental Psychological Control as a Mediator

Although various mediators have been examined to explain the relationship between parental anxiety and adolescent anxiety (e.g., insecure attachment; Breinholst et al., 2015), parental psychological control was selected for study here because of: (a) the regularity of

findings regarding this association (e.g., parental psychological control acting as a mediator between parent anxiety and adolescent anxiety; Bynion et al., 2017; Xu et al., 2020; Apsley & Padilla-Walker, 2020); and (b) the clinical value of intervening with this type of negative parenting behavior to decrease negative outcomes for adolescents (Barber et al., 2002). Parental psychological control is a means of parental control whereby parents intrude psychologically and/or emotionally onto their children in an attempt to induce negative emotions in children (e.g. disappointment, shame, guilt) and control the child's thoughts, feelings, and behaviors (Barber, 1996; Mills et al., 2007; Fung & Lau, 2012). Sample behaviors include withholding love (due to disobedience or noncompliance), invalidating the child's emotions, attacking the child on a personal level, and increasing feelings of guilt and shame (Luebbe et al., 2014; Cui et al., 2014; Aunola et al., 2013).

Numerous studies have found a significant relationship between parental anxiety and parental psychologically controlling behaviors (e.g., Xu et al., 2020; Apsley & Padilla-Walker, 2020). Xu et al. (2020), for instance, examined the relationship between parent anxiety and psychological control with Chinese families, noting that parental anxiety was a significant predictor of parents' use of psychological control. Psychological control was also found to be a mediator between parent anxiety and adolescent anxiety. This study aims to replicate these findings with an American sample while also examining whether there is bidirectionality between parent anxiety, parental psychological control and adolescent anxiety. Apsley and Padilla-Walker (2020) similarly examined parental psychological control as a mediator of parent and adolescent mental health with a US based sample, finding support for a relationship between parent anxiety and psychological control. However, these findings also did not explore any

bidirectionality that may exist between these constructs across time, a gap in the literature that this study aims to fill.

The relationship between parent anxiety and psychological control may be explained by a parent's struggle with their own anxiety, where the anxiety is a product of general, unrelated factors or is directly tied to parental concerns about parent-adolescent relational changes, such as increased autonomy and individuation in the adolescent leading to increased conflict in the parent-child relationship (Branje, 2018). Soenens et al. (2006) suggested that parents who struggle with anxiety may also experience their child's increasing autonomy as a threat to the parent-child relationship. Hence, as FSM researchers and other scholars theorize (Apsley & Padilla-Walker, 2020; Soenens et al., 2006; Barber et al., 2002), parents may use psychological control to ease this anxiety and obtain compliance from their children.

In relation to the second part of this potential mediating relationship, there is strong evidence to indicate that parental psychological control is related to adolescent anxiety (Bögels & van Melick, 2004; Luebbe et al., 2014; Eun et al., 2018; Luebbe et al., 2018). For instance, Settipani et al. (2013) found that decreases in maternal psychological control led to decreases in adolescent anxiety. Inguglia et al. (2020) found similar results when examining the relationship between parental psychological control and adolescent anxiety. Their results indicate a positive relationship between parental psychological control and adolescent anxiety. Luebbe et al. (2014) examined the impact that adolescent perception of parental psychological control has on self-reported anxiety symptoms and found that, when adolescents perceive both mothers and fathers as using psychological control, they report more anxiety symptoms.

Another explanation for the relationship between parental psychological control and adolescent anxiety relates to the adolescent's dysregulation of negative emotions including

hopelessness (Luebbe et al., 2014). As adolescents experience psychological control by their parents, they lack opportunities to learn how to effectively regulate their own negative emotions, since psychological control involves overinvolvement and control by parents of their children's emotions. Without a proper ability to self-regulate negative emotions, adolescents are then more likely to experience anxiety as negative emotions create psychological discomfort that decreases emotion regulation skills (Luebbe et al., 2014). Adolescents have also been shown to experience feelings of hopelessness in response to parental psychological control, which in turn increases feelings of anxiety as hopelessness fosters fear, insecurity and worry (Schleider et al., 2014).

Parental psychological control has been shown to have a relationship with parent anxiety, with adolescent anxiety, and has been used as a mediator to explain these relationships. Further investigation into these relationships is warranted to understand, explain, and provide a source of intervention when treating adolescent anxiety. This study aims to further the research in this area by looking at any bidirectionality that may exist in these relationships.

Bidirectional Relationship

As with any set of closely aligned family-level associations, the relationships between parenting and child variables needs to be examined for the possibility of bi-directionality. In the context of families, bidirectionality refers to interactions between family members where both partners are impacted (i.e., parents are impacting children and children are impacting parents). Support for this concept can be drawn from family systems theory which suggests that family members exist within a system where each member impacts the functioning of the entire family (Tadros, 2020). Therefore, to understand families as researchers and treat families as clinicians' families need to be examined from a bidirectional view to determine the extent to which parents are impacting children as well as how children are impacting parents.

Transactional and reciprocal models of parent-child relationships suggest that, while parents clearly impact their children, children/adolescents may also influence the way parents interact with them (Patterson et al., 1992; Sameroff, 1975). Therefore, parent-child relationships can have a bidirectional component where a portion of parenting occurs in response to child behavior, especially as children become adolescents and take a more active part both in family dynamics and in their own development (Zvara et al., 2018). In the case of this study, the bidirectional nature of the relationship between parent anxiety, parent psychological control and adolescent anxiety will be explored because there is evidence that parents who have children with anxiety disorders are likely to use more psychological control (Siqueland et al., 1996).

For instance, there is evidence that a bidirectional relationship exists between adolescent and parent behavior, where parenting impacts adolescent behavior and adolescent behavior further stimulates or reinforces these same behaviors on the part of parents (Clayborne et al., 2020; Huey et al., 2020). For instance, when examining the relationship between parenting behavior and children's behavior (externalizing and internalizing behavior), evidence suggests that child behavior has a significant impact on the type of parenting behaviors that mothers and fathers choose to use in response (Lansford et al., 2018). Furthermore, internalizing problems have been shown to predict maternal un-involvement across time (Hein et al., 2018), demonstrating that the more internalizing behavior youth engage in, the less involved mothers become. Interestingly, Hein et al. (2018) in the same study, found that mother's involvement was also related to adolescent internalizing but only at one time point. This further suggests that adolescents have a strong impact on the parenting behaviors used by their parents, in that across time adolescents were found to impact parenting but only at one time point were parenting behaviors were found to impact adolescent behavior. When it comes to mental health,

bidirectional effects are apparent as well, with evidence indicating that adolescent psychopathology may be a stronger predictor of parenting behavior than parenting behavior is of adolescent mental health (Nelemans et al., 2020). Specifically, adolescent anxiety was shown to have a stronger effect on parenting behavior (i.e., criticism, Nelemans et al., 2020), than criticism had on adolescent anxiety. This further indicates that there are bidirectional effects between parent and adolescent behavior.

In terms of another specific parenting behavior that is often examined in relation to child outcomes, Siqueland et al. (1996) found that for children with anxiety, parents were more likely to use psychological control than parents whose children did not have anxiety. This suggests the possibility that child mental health may have an impact on the behaviors that parents decide to use when interacting with their children. Unfortunately, Siqueland et al. (1996) did not examine the direction of these relationships in terms of whether parental psychological control increased their child's anxiety or whether children's anxiety elicited parental psychological control as a means of managing their child's symptoms. Thus, the directionality of the link between psychological control and child anxiety is worth exploring.

Gender Differences

Present in any examination of parenting behaviors and their associations with adolescent well-being is a potential for gender differences – as a function of parent and/or child gender. This may be particularly so in the case of anxiety disorders and symptoms, given a clear gendered pattern in adolescent and adult rates, with girls experiencing higher rates of anxiety than do boys (Benedetto et al., 2018) and women experiencing higher rates compared to men (Kessler et al., 1993; McLean et al., 2011; Curran et al., 2020). Gender differences are also apparent in how parenting impacts adolescent anxiety with evidence indicating there are some same-gender

effects (mothers impacting daughters and fathers impacting sons). Specifically, there is evidence that psychological control when used by mothers has a strong impact on girls' anxiety (Eun et al., 2018) and psychological control by fathers has a strong impact on boys anxiety (Benedetto et al., 2018). However, when both parents are included in a study, maternal psychological control is shown to have a stronger impact on adolescent anxiety than does paternal psychological control for both boys and girls (Xu et al., 2020).

Parent mental health also differentially impacts adolescent anxiety with evidence suggesting that for girls, both maternal and paternal psychopathology impacts anxiety (Rasing et al., 2015). However, maternal anxiety has been shown to have a stronger relationship with adolescent anxiety than does paternal anxiety (Gonçalves et al., 2016; Bögels & van Melick, 2004). Additionally, prevalence rates of adolescent psychopathology are higher when mothers struggle with their own mental health issues than when fathers struggle with mental health (Johnson et al., 2018). Given the strong influence that mothers have on adolescent well-being and the same-gendered impact of psychological control, both adolescent gender and parent gender will be featured in this study.

Current Study

The aim of this study is to examine the bidirectional relationship between parent anxiety and adolescent anxiety with parental psychological control acting as a mediator. While the relationship between parent mental health, parental psychological control and adolescent anxiety has been examined in the literature recently (e.g., Apsley & Padilla-Walker, 2020), very few studies have examined bidirectional relationships between these constructs over time, which is a gap in the literature this study was designed to fill. It is hypothesized that there will be a positive relationship between parent anxiety and adolescent anxiety, with parental psychological control

acting as a mediator between these constructs (see Figure 1). Additionally, it is hypothesized that a bidirectional relationship will exist, such that adolescent anxiety will be significantly related to parent anxiety through parental psychological control. Gender differences were also examined as evidence indicates differences do exist based on rates of anxiety, with females reporting higher rates of anxiety than do males. As such, it is proposed that gender differences will exist and will therefore be examined with a separate model for mothers and fathers where adolescent gender differences can be further explored.

Method

Participants

The data for this study was taken from the Flourishing Families Project, a longitudinal study of inner-family life. For the design of this study, the data were analyzed by wave, beginning with wave 3 (or Time 1), when the average age of adolescents was 13.34 (*SD* = 1.05), and continuing until wave 7 (or Time 5). The timespan between waves was approximately one year. Both two-parent (320) and single parent (137) families were included resulting in 457 families with 218 (47.39%) male adolescents and 239 (51.86%) female adolescents. The average age of parents at Time 1 was 45 years (*SD* = 9.09) for fathers and 47 years (*SD* = 9.21) for mothers. In terms of ethnicity, 64.78% of families identified as European American; 11.52% identified as African American; and 19.78% identified as other or multiethnic. Regarding family income, 46.09% of the families made less than $59,000 per year, 34.13% made between $60,000 and $99,000 a year, 10.43% made between $100,000 and $139,000, with the remaining 6.30% making more than $140,000. When it comes to parent education, 61.29% of mothers and 79.13% of fathers reported have at least a bachelor's degree.

Procedure

Participants in this study were recruited in a large city in the Pacific northwest using a purchased national telephone survey database (Polk Directories-InfoUSA). Families living in targeted census tracts that mirrored the socio-economic and racial diversity of the area were identified as potential participants. All families with a child between the ages of 10 and 14 were able to participate in the study. Eligible families were contacted using a multi-stage recruitment protocol. Families were contacted directly, first by a letter of introduction. Home visits and phone calls were then made to confirm if the families were willing to participate. Interviewers then made an appointment to come to the family's home to administer questionnaires and tape a family interaction task. Participants were then contacted yearly to participate in assessments.

To ensure diversity in the sample, families were recruited into the study through family referral processes. At the conclusion of their in-home interview, families were invited to identify two additional families in the recruitment area that matched study eligibility. This type of limited-referral approach permitted us to identify eligible families in the targeted area that were not represented in the Polk Directory and helped to increase the participation of families of color. The Polk Directory national database was generated using telephone, magazine, and internet subscription reports; therefore, families of color (especially those of lower socio-economic status) did not appear in the purchased database to the degree desired and needed. This referral strategy increased the social, economic, and ethnic diversity of the sample.

Of the 692 families contacted, 423 (61%) agreed to participate; however, only 372 were determined to have a child within the target age range. An additional 128 eligible families were identified through family referrals, resulting in a total of 500 families (335 two parent families;

165 single parent families). Only families who were still participating at wave 3 were included in this study, resulting in 457 families.

Measures

Demographic Variables

Time 1 values for adolescent age, family income, and ethnicity (European American 1, all other 0) were used as controls.

Parental Anxiety

Parental anxiety was assessed using an eight-item self-report measure, based on the Burns Anxiety Inventory (Burns, 1989). Participants responded to how often they experienced specific thoughts or feelings in the last week using a 4-point Likert scale ranging from 0 (not at all) to 3 (a lot). Sample items include "Feeling that things around you are strange, unreal, or foggy," and "Feeling detached from all or part of your body." Cronbach's alpha reliability coefficients for the current sample ranged from .77 to .84 for mothers and .75 to .84 for fathers, consistent with reliabilities found previously (.78 for mothers and .76 for fathers; Apsley & Padilla-Walker, 2020).

Parental Psychological Control

Parental psychological control was assessed using eight items, from the Psychological Control Scale-Youth Self Report (Barber, 1996). Adolescents evaluated both parents (if applicable) using a scale ranging from 1 (never) to 5 (very often). Sample items include "My parent will avoid looking at me when I have disappointed her/him". Cronbach's alphas for the current sample ranged from .85 to .91 for mothers and .86 to .90 for fathers, while reliabilities were previously found to range from .80 to .83 for both mothers and fathers (Barber, 1996).

Adolescent Anxiety

Adolescents reported their anxiety using the six-item generalized anxiety disorder subscale from the Spence Child Anxiety Inventory (Spence, 1998). Participants responded to items such as "I worry a lot about things" using a 4-point Likert scale ranging from 0 (never) to 3 (always), with higher scores reflecting greater levels of anxiety. Cronbach's alpha for the current sample ranged from .81 to .86, slightly lower than the reliability (.92) noted by Spence (1998).

Analysis Plan

A cross-lagged autoregressive full longitudinal mediation model was used in Mplus to examine the data, which was assessed yearly, and answer the proposed study questions. This type of model allowed for the examination of both direct and bidirectional effects between variables while controlling for stability of each variable over time (Kline, 2016). Bootstrapping was used with 95% confidence intervals (CIs). Full Information Maximum Likelihood (FIML) was used to handle missing data. Measurement invariance was tested for each variable both across time and by adolescent gender to determine which constraints were necessary to improve overall model fit. Factor scores obtained from the measurement invariance model were then generated for each variable and used as observed variables to aid in model simplicity, estimation, and power (Kline, 2016). The proposed model is presented in Figure 1, and all models were fit separately for mothers and for fathers, using observed variables, given the smaller sample size. Otherwise, there were concerns that the complexity of the model (in terms of multiple waves and multiple parameters to be estimated) and the potential for collinearity (e.g., maternal and paternal psychological control) would impede the model's ability to fit the data. Additionally, group comparisons (based on adolescent gender) were conducted for each model (maternal and paternal models) by using adolescent gender as a grouping variable in Mplus.

Results

Descriptive Statistics and Correlations

Means, standard deviations, and correlations between all variables are presented in Tables 1-5. As can be seen in the tables, there were interesting changes in relationships across time. For instance, there were no consistent patterns for the control variables age, income, and race for either boys or girls. For both boys and girls, however, adolescent anxiety was found to have a positive relationship with parent variables across time. For boys, anxiety was positively correlated with both father anxiety and mother psychological control at all time points indicating that the more anxious boys are the more psychological control mothers use and the more anxious their fathers feel throughout adolescence. For girls, there was a similar pattern with anxiety being positively correlated with both maternal and paternal psychological control across time. This indicates the more anxious daughters are, the more parents use psychological control. For both boys and girls, father anxiety was positively correlated with mother anxiety across all time points such that the more anxiety fathers experience the more anxiety mothers also experience. Additionally, father psychological control and mother psychological control were positively correlated across time demonstrating the more psychological control father's use the more psychological control mothers tend to use and vice versa.

SEM Analysis Findings

Maternal Model

In accordance with Little (2013), the maternal model (boys/girls combined) had adequate model fit (X^2 (N=457) = 620.29, p <.001; CFI = .91; RMSEA = .08), and all autoregressive paths were found to be significant (at the p < .001 level) as seen in Figure 2. There were two other paths that were found to be significant including the path from mother anxiety at Time 4 to

adolescent anxiety at Time 5 (β=.07 p<.01 CI [.01, .09]) and mother psychological control at Time 1 to mother anxiety at Time 2 (β=.12 p <.01 CI [.06,.26]). Although not presented in the figure, in terms of control variables, mother anxiety (Time 1) was found to be predicted by family income (β=.04 p<.001 CI [-.14,-.04]) and maternal psychological control (Time 1) was predicted by race (β=-.14 p <.01 CI [-.20,-.04]).

In the subsequent analysis of group differences (based on youth gender), the model was found to fit well (X^2 (N=457) = 777.56 p<.001, CFI = .90, RMSEA = .08; Little, 2013) and, as with the combined model, all autoregressive paths were found to be significant for both boys and girls (see Figure 3). For boys, significant paths included the relationship between adolescent anxiety at Time 4 and maternal psychological control at Time 5 (β= .11 p <.05 CI [.03,.27]). The path from mother anxiety (Time 4) to adolescent anxiety (Time 5) was also significant (β=.09 p <.01 CI [.03,.15]). Mother psychological control at Time 3 predicted adolescent anxiety at Time 4 (β=.16 p <.05 CI [.03,.20]). In terms of controls, family income was a significant predictor of mother anxiety (β-.21 p <.01 CI [-.19,-.05). For girls, mother anxiety at Time 2 predicted mother psychological control at Time 3 (β=.09 p <.05 CI [.02,.24]). Mother anxiety at Time 2 predicted girls' anxiety at Time 3 (β=.08 p <.05 CI [-.001,.11]). Mother psychological control at Time 1 predicted mother anxiety at Time 2 (β=.19 p <.001 CI [.11,.35]). Race and age were found to be significant predictors of mother psychological control at Time 1 (β=-.12 p <.05 CI [-.30,-.03]; β=.14 p <.05 CI [.02,.11])

Paternal Model

In examining paternal variables (with boys and girls combined), adequate model fit was demonstrated (X^2 (N=352) = 750.98 p<.001, CFI = .87, RMSEA = .09; Little, 2013) and, as with the maternal model, all autoregressive paths were significant (see Figure 4). Other paths that

were significant included the path from father psychological control at Time 4 to father anxiety at Time 5 (β=.09 p <.05 CI), father anxiety at Time 4 to adolescent anxiety at Time 5 (β=.11 p <.01 CI), adolescent anxiety at Time 3 to father psychological control at Time 4 (β= -.07 p<.05).

When examining group differences (by adolescent gender), the model did not fit well (X^2 (N=352) = 877.91 p<.001; CFI = .86, RMSEA = .09; Little, 2013) though again, all autoregressive paths were found to be significant (see Figure 5). For boys, father psychological control at Time 4 was a significant predictor of father anxiety at Time 5 (β= .12, p<.05). Father anxiety at Time 4 was found to significantly predict boy's anxiety at Time 5 (β= .17 p < .001, CI [.06,.20]). Father anxiety at Time 3 was significantly related to boys anxiety at Time 4 (β= -.11 p<.05, CI [-.24,-.01]). For girls, there was only one significant path other than the autoregressive paths, and this was the relationship between adolescent anxiety (Time 3) and father anxiety at Time 4 (β=.15 p <.01, CI [.08, .46]).

Discussion

The aim of the current study was to explore the longitudinal and, possibly bidirectional, relationship between parental anxiety and adolescent anxiety, while also considering the role of parental psychological control as a mediator. Maternal/paternal variables were examined using separate models and adolescent gender was used as a grouping variable to examine any gender differences within the parent models. As the results indicate, many hypotheses were not fully supported including: (a) parent mental health having a bidirectional relationship with adolescent mental health (in terms of anxiety symptoms), and (b) parental psychological control mediating the relationship between parental and adolescent anxiety. In the case of the hypothesis of bidirectionality, these nonsignificant findings run contrary to those noted in previous studies (e.g., Bornstein et al., 2013). One possible explanation for these discrepant findings is in the type

of research participants surveyed – herein the sample consisted of healthy, upper middle-class American families, where previous studies surveyed more distressed populations including international or low-income families (Lansford et al., 2018; Xu et al., 2020; Huey et al., 2020). As with many healthy community-based research populations, anxiety levels were found to be lower with a relatively restricted range in scores across the sample, meaning that there would be decreased variability and decreased ability to predict significant relationships. Also, it is reasonable that the results of this study may have been different for a clinical sample where levels of anxiety would have been higher, allowing for greater variance in values (for predictor/outcome variables).

When looking at the mediator, parental psychological control was not found to significantly mediate the relationship between parent and adolescent anxiety in this study. This same result was found for another U.S.-based sample, where Apsley and Padilla-Walker (2020) conducted a similar longitudinal study of parent and adolescent anxiety with psychological control acting as a mediator. Their results indicated that, as was found here, parent psychological control did not serve as a significant mediator of parent and adolescent anxiety. It is possible that, in this sample of middle-and-above income families, psychological control may not act as a significant mediator between parent and adolescent anxiety because these parents have other coping strategies for managing their anxiety and are, therefore, less likely to resort to using psychologically controlling behaviors. While parenting is stressful and likely increases parental anxiety for all parents, mothers/fathers (with more educational and financial resources) may be better able to turn their stress and frustration away from their child, relying on other ways to manage their negative emotions. In doing so, they are more able to focus on their child's physical and emotional safety rather than trying to control their child's behavior (in order to decrease their

stress/anxiety) through behaviors such as withdrawing love or increasing guilt. Furthermore, there is evidence that anxious parents (especially mothers) respond to their children with overprotection or punishment (Teetsel et al., 2014) indicating that some parents do not turn to psychological control to manage their children. Instead, there may be other contributing factors that explain why parents use psychological control, which will need to be explored further in future research.

Maternal Model

While the main hypotheses were not supported, there were several relationships among the study variables that were significant. For the maternal model, adolescent age and gender variables can be interpreted as influencing the patterns of findings in that significant relationships among study variables were found during the early-to-middle adolescent times for girls and during the middle-to-late adolescent times for boys.

For girls, puberty offers a possible explanation as to why significant relationships were only found during early-to-middle adolescence. It is possible that adolescents prefer a closer relationship with their same gender parent as they begin to navigate the many changes of puberty. As such, mothers may have more influence on their daughters (in contrast to mothers and sons) during early adolescence. As girls age however, the relationship with their mothers may become more conflictual (Steinberg & Silk, 2002) and mothers may have less influence. In one such sequence for girls, maternal psychological control (Time 1) was found to predict mother anxiety at Time 2, which was then found to be significantly related (positively) to both girls' anxiety and maternal psychological control at Time 3. The relationships between these variables can be partially explained using the Family Stress Model (Conger et al., 2002) where parental distress, in this case maternal anxiety, is associated with an increase in negative

parenting practices (i.e., maternal psychological control). In other words, mothers' anxiety levels were related to an increase in psychologically controlling behaviors directed at daughters (or at least related to daughters' perceptions of this dynamic). This is in line with research that indicates mother anxiety is significantly correlated with psychological control regardless of their child's anxiety (Bögels & Melick, 2004). Thus, mothers are influenced more by their own mental health than by their adolescent's mental health. Mothers' anxiety was also found to directly influence daughters' anxiety across two time points. This finding has been shown previously in the literature with evidence indicating there can be an intergenerational transmission of anxiety from parents to children (Xu et al., 2020), especially in the case of mothers and daughters (Landman-Peeters et al., 2008). In fact, when a mother struggles with her mental health daughters are almost five times as likely to experience the same mental illness as their mother (Gonçalves et al., 2016). Therefore, when seeking treatment for anxiety, it is important for everyone in the family to be seen in therapy as there is a clear generational connection for mental illness.

For boys, the lack of significant findings until middle-to-late adolescence may also be explained by puberty. As boys age, they may prefer greater levels of emotional distance/separation from their mothers during early adolescence as they begin to form their masculine identity (Vandersteen, 2014). As boys get older and begin preparing for adulthood and launching, they may draw closer to their mothers such that they are more "in tune" emotionally. There is evidence indicating that young men are more likely than young women to hold onto parents (or be reluctant to let go) as they begin their adult lives (Kloep & Hendry, 2010) supporting the influence mothers have during late adolescence. One significant path that was found during this time for boys was from maternal psychological control at Time 3 to adolescent

anxiety (Time 4) which was found to increase maternal psychological control at the final wave. The FSM provides at least a partial explanation for these results where, boys perceived their mothers as using psychological control (a negative parenting practice), which increased their anxiety.

These findings of a significant relationship are also supported in the literature where evidence indicates that adolescent perception of parental psychological control increases adolescent anxiety (Luebbe et al., 2014). These increased feelings of anxiety in boys may then skew their perceptions of their mothers' use of psychologically controlling behaviors due to their own internal working models (Siqueland et al., 1996). Mothers may also increase their use of psychologically controlling behaviors to help them manage their son's anxiety. Siqueland et al. (1996) suggested such a relationship when they found parents who had children with anxiety were more likely to use psychological control.

Paternal Model

For the paternal model, as with the maternal model, the proposed hypotheses of mediation and bidirectionality were not supported. Interestingly, adolescent development may also be a crucial factor in the case of the fathers' model because significant relationships among study variables were found for both boys and girls during middle-to-late adolescence. Similar findings were found for van Eijck et al. (2012), where fathers had a significant influence on their children during middle-to-late adolescence but not during early adolescence as father-adolescent attachment was found to be negatively related to adolescent anxiety symptoms. As youth age, the need for autonomy and independence increases (Bögels & Phares, 2008) and research indicates that fathers serve an important role for older adolescents during this stage (Bögels & Phares, 2008). Specifically, father closeness and involvement strongly impact adolescent well-being,

self-esteem, and emotional health by promoting competence and providing protection from emotional distress as adolescents age and begin adulthood (Bögels & Melick, 2004; Bögels & Phares, 2008).

Looking more closely at significant results for boys, paternal anxiety (at Time 3) was found to be negatively related to adolescent anxiety at Time 4, suggesting that father anxiety leads to decreases in anxiety for boys. This is contrary to results that would indicate when parents experience anxiety their children are also likely to experience anxiety (Leijdesdorff et al., 2017). For girls, adolescent anxiety increased father anxiety after one year during middle adolescence. Through the lens of the FSM, adolescent anxiety could act as a source of stress for parents that then increases parent distress, in this case anxiety. In other words, fathers may feel anxious that their children are anxious.

Clinical Implications

Though the results of this study are preliminary, require replication and are based on a limited sample of White, middle-to-high income families, there are some clinical recommendations for the treatment of families with anxiety. First, when treating an adolescent who struggles with anxiety, the entire family, especially the parents, are necessary to include in sessions (Chamberlin, 2005). Parents are crucial to adolescent development and have been shown to contribute to mental health concerns, especially when parents also struggle with mental illness (Rasing et al., 2015; Wickersham et al., 2020). Thus, parents need to be invited to participate in therapy as systemic treatments for adolescent anxiety have been shown to be effective (Carr, 2014). In sessions, clinicians can assess parents for anxiety, provide psychoeducation about how anxiety impacts both parents and adolescents, teach management strategies, and provide an opportunity for parents to model the use of appropriate coping

strategies (Creswell & Cartwright-Hatton, 2007). However, the age and gender of the adolescent provides some guidance as to which parent may be impacting anxiety at which age (i.e., early adolescent girls are more influenced by mothers than fathers). For that reason, it is important for clinicians to understand and assess family relationships for the clients they treat and invite necessary family members who will be most helpful to the adolescent.

Cognitive behavior therapy (CBT) is widely used to treat adolescent anxiety (Silverman et al., 2008; Higa-McMillan & Ebesutani, 2011) and has been shown to be effective in reducing anxiety for adolescents (Gaesser & Karan, 2017). During CBT, clients are taught: (a) how to recognize their thoughts and emotions, (b) ways to challenge those thoughts to reduce anxiety, and (c) specific behaviors that will continue to reduce feelings of anxiety. Clinicians using CBT make use of thought records, cognitive distortions, and meditation to help clients be aware of their anxiety and use healthy tools to reduce it. While often used as an individual model, CBT can be used with families as the same interventions can be applied to the entire system (Creswell & Cartwright-Hatton, 2007).

A systemic model to use with adolescents and their families when treating anxiety is structural family therapy (SFT, Minuchin, 1974). SFT has been used to treat families where both children and parents struggle with mental health concerns (Weaver et al., 2013). When using SFT clinicians conceptualize how the family's structure is reinforcing dysfunctional interaction patterns that prevent the family from adapting and changing as necessary (Tadros, 2020). Clinicians then work to restructure the family by teaching both parents and adolescents in session: (a) how to create and maintain healthy boundaries, (b) how to perform the tasks necessary for their role as parent or child, and (c) alternative ways of interacting with one another. Reframing and focusing on present interactions are skills SFT clinicians make use of as

they aid families in implementing the changes they learn in session to change interactions and decrease anxiety.

The second implication of these findings for clinicians is, when seeing parents, especially mothers, with their adolescent, it is important to assess for any use of psychological control as these behaviors may increase feelings of anxiety in both the parent and the adolescent. If there is evidence that parents are using psychologically controlling behaviors, parent training may be needed to teach parents ways of engaging their adolescent without increasing anxiety. Any parent training program that involves active learning approaches such as teaching communication skills and ways to positively interact with adolescents while requiring time in and out of session for practice (CDC, 2009) can be used simultaneously with CBT or any other therapy model.

Limitations and Directions for Future Research

There were several limitations to this study that should be noted. First, as the study's participants are mostly healthy, White, and middle-to-upper middle-class families, the findings may not generalize to the wider population. It would be beneficial to examine these relationships with a more diverse and/or even clinical sample where anxiety is the presenting issue in order to test whether these relationships between variables can be replicated. Another key limitation is the difference in sample size between mothers and fathers due to family structure. There were more mothers than fathers included in the sample, as mothers are more likely to be single/custodial parents than are fathers. While single versus two parent families were not examined directly, it would be beneficial for future studies to examine how family structure differences might contribute to these results.

A third limitation in the methodology of this study lies in the nature of the assessment for both anxiety and parent psychological control. The measures for parent and adolescent anxiety were self-report which limits the accuracy and interpretation of outcomes as self-report data contains inherent bias. The measure for parental psychological control was limited to adolescent report of parental behavior solely. While this allows for an assessment of adolescents' experiences of any controlling behaviors, a more accurate representation of parenting behavior may be evident in observed behaviors and/or parental reports of their own behaviors. Future studies examining parental psychological control may want to include both parent and adolescent report of parenting behavior to obtain an accurate and reliable depiction of what takes place at home.

One major limitation of this study is how mothers and fathers were examined with two separate models. Mothers and fathers were analyzed separately for model parsimony as the type of analyses used, the structure of the models and the sample size made the inclusion of both sets of variables (maternal and paternal) in the same model overly complex. While analyzing results in this way was necessary, we were not able to draw conclusions on how parent gender contributed to the results as we could not directly compare mothers to fathers in the same model.

Future studies would benefit from continuing to examine any potential mediators between parent anxiety and adolescent anxiety across time to aid in the treatment of adolescent anxiety. Fathers are also necessary to include in research as the results indicate they have a unique impact on adolescent mental health and overall development. Bidirectionality between parenting and adolescent outcomes is also warranted for future research as some paths in the present study indicated adolescents do in fact impact parenting and parent outcomes.

Conclusion

The aim of this study was to explore the directionality of the relationship between parent anxiety and adolescent anxiety, with parent psychological control as a mediator. Study hypotheses were not supported by the results highlighting that adolescent anxiety may not directly impact parenting behavior or parent anxiety. Instead, results showed that mothers and fathers impact adolescent mental health differently and age is an important factor to consider when studying adolescent anxiety. Future studies should continue to examine the impact adolescents have on parents as well as ways parent anxiety impacts adolescent anxiety to aid in the treatment of adolescent anxiety.

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Table 1

Means, Standard Deviations and Correlations at Time 1.

	1	2	3	4	5	6	7	8
1. Income	**1.00**	.32***	-.07	-.09	-.15*	-.05	-.14*	-.00
2. Race	.22***	**1.00**	-.04	-.04	-.09	-.12	-.16*	-.16*
3. Adolescent Age	-.05	-.04	**1.00**	-.03	.06	.01	-.03	.15*
4. Adolescent Anxiety	-.04	.01	.13*	**1.00**	.17*	.28***	.04	.32***
5. Father Anxiety	-.09	.10	.10	.09	**1.00**	.16*	.20**	.07
6. Father PC	.02	-.05	-.00	.19**	.08	**1.00**	.06	.61***
7. Mother Anxiety	-.19**	-.07	.11	.06	.24**	.03	**1.00**	-.01
8. Mother PC	.00	-.11	.05	.41***	.11	.56***	.19**	**1.00**
9.Means (*SD*)	1.75*(.88)*	*.67(.47)*	13.32*(1.05)*	.89(*.59*)	.40(*.34*)	1.75(*.67*)	.48(*.42*)	1.85(*.71*)

Note: PC=Psychological Control, correlations presented above the diagonal are for boys and below are for girls.

* p < .05; ** p < .01; *** p< .001

Table 2

Means, Standard Deviations and Correlations at Time 2.

	1	2	3	4	5	6	7	8
1. Income	**1.00**	.32***	-.07	-.03	-.14	-.08	-.12	-.06
2. Race	.22***	**1.00**	-.04	-.08	-.01	-.17**	-.06	-.18**
3. Adolescent Age	.02	-.00	**1.00**	.04	.05	.02	-.01	.13
4. Adolescent Anxiety	-.03	.01	.08	**1.00**	.25**	.19**	.15*	.22***
5. Father Anxiety	-.12	.09	.15	.12	**1.00**	.17*	.16*	.08
6. Father PC	-.02	-.03	.00	.14*	.12	**1.00**	.07	.63***
7. Mother Anxiety	-.18**	-.09	.08	.07	.23**	.02	**1.00**	.13*
8. Mother PC	-.06	-.17**	.08	.23***	.05	.63***	.16*	**1.00**
9.Means (*SD*)	1.75*(.88)*	.67*(.47)*	14.29*(1.05)*	.89(*.57*)	.44(*.35*)	1.83(*.71*)	.51(*.41*)	1.94(*.74*)

Note: PC=Psychological Control, correlations presented above the diagonal are for boys and below are for girls.

* p < .05; ** p < .01; *** p< .001

Table 3

Means, Standard Deviations and Correlations at Time 3.

	1	2	3	4	5	6	7	8
1. Income	**1.00**	.32***	-.06	-.01	-.12	-.04	-.18**	-.02
2. Race	.22***	**1.00**	-.06	-.03	.02	-.05	-.16*	-.15*
3. Adolescent Age	.02	-.01	**1.00**	-.01	-.06	-.04	-.06	.05
4. Adolescent Anxiety	-.00	.06	.03	**1.00**	.14	.17**	.14*	.26***
5. Father Anxiety	-.08	.04	.17*	.16*	**1.00**	.06	.22**	.12
6. Father PC	.01	.05	.01	.22***	.21**	**1.00**	.09	.48***
7. Mother Anxiety	-.13*	-.15*	.09	.14*	.19*	.05	**1.00**	.16*
8. Mother PC	-.05	-.15*	.05	.26***	.14	.55***	.14*	**1.00**
9.Means (*SD*)	1.75*(.88)*	.67*(.47)*	15.29*(1.06)*	.96(*.58*)	.45(*.42*)	1.81(*.69*)	.50(*.44*)	1.99(*.78*)

Note: PC=Psychological Control, correlations presented above the diagonal are for boys and below are for girls.

* p < .05; ** p < .01; *** p< .001

Table 4

Means, Standard Deviations and Correlations at Time 4.

	1	2	3	4	5	6	7	8
1. Income	**1.00**	.32***	-.14*	.02	-.18*	-.03	-.18**	.02
2. Race	.22***	**1.00**	-.10	.02	-.09	.00	-.02	-.11
3. Adolescent Age	-.00	-.00	**1.00**	-.03	.05	-.06	.00	.05
4. Adolescent Anxiety	.07	-.06	.04	**1.00**	.25**	.21***	.06	.16*
5. Father Anxiety	-.09	.08	.07	.06	**1.00**	.16*	.19*	.14
6. Father PC	.09	-.01	-.01	.16*	.13	**1.00**	.00	.50***
7. Mother Anxiety	-.11	-.09	.16*	.09	.26***	.04	**1.00**	.09
8. Mother PC	.03	-.16**	.04	.26***	.04	.53***	.08	**1.00**
9.Means (*SD*)	1.75*(.88)*	*.67(.47)*	16*(1.05)*	1.13(*.66*)	.42(*.43*)	1.86(*.78*)	.49(*.49*)	2.09(*.83*)

Note: PC=Psychological Control, correlations presented above the diagonal are for boys and below are for girls.

* p < .05; ** p < .01; *** p< .001

Table 5

Means, Standard Deviations and Correlations at Time 5.

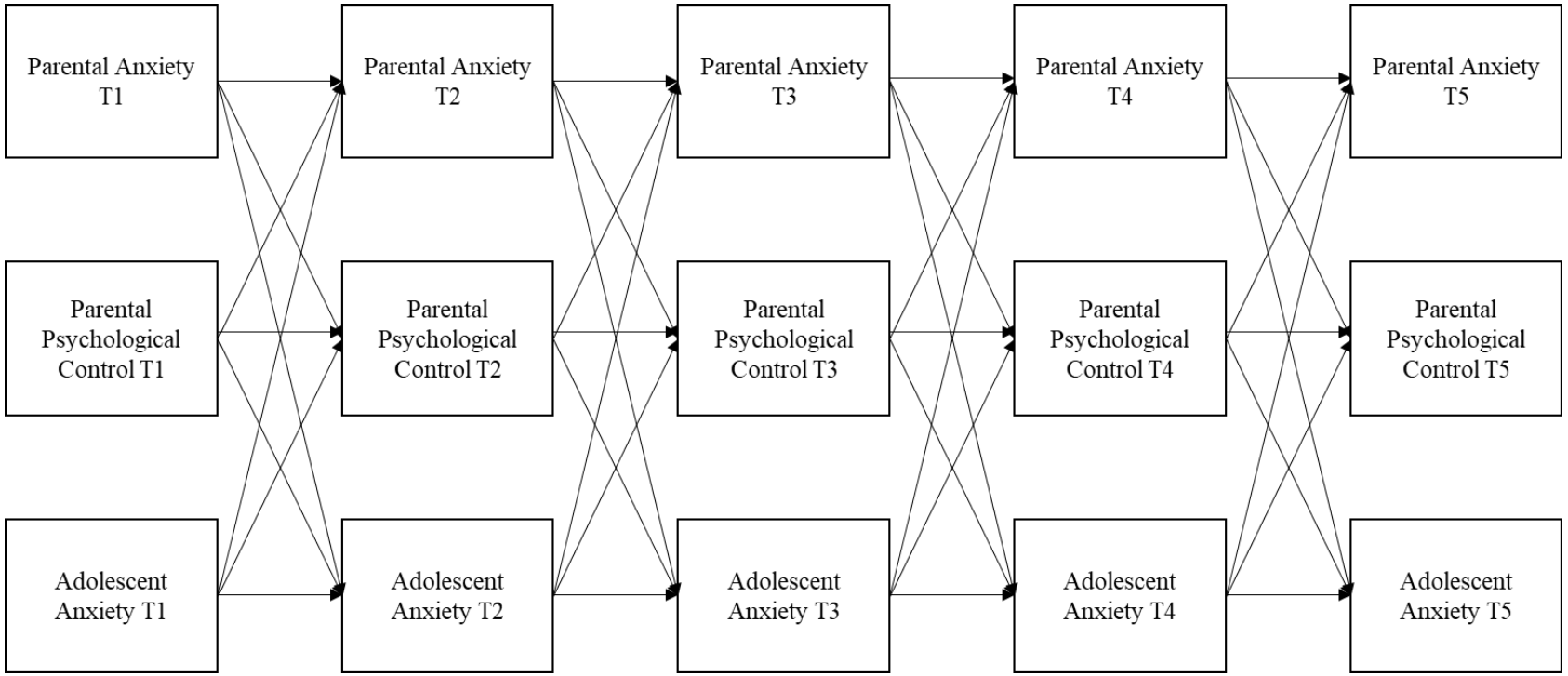
	1	2	3	4	5	6	7	8
1. Income	**1.00**	.32***	-.12	-.03	-.19*	-.03	-.12	-.04
2. Race	.22***	**1.00**	-.07	-.05	-.17*	-.12	-.09	-.15*
3. Adolescent Age	-.00	-.02	**1.00**	-.01	-.04	.03	-.07	-.01
4. Adolescent Anxiety	-.00	-.07	-.06	**1.00**	.19*	.06	.14*	.14*
5. Father Anxiety	-.01	.01	-.01	.27***	**1.00**	.23**	.25**	.19*
6. Father PC	.21***	-.00	-.13*	.17**	.24**	**1.00**	.02	.48***
7. Mother Anxiety	-.17**	-.03	.13	.14*	.41***	.01	**1.00**	.19**
8. Mother PC	.05	-.17**	-.08	.29***	.09	.42***	.03	**1.00**
9.Means (*SD*)	1.75*(.88)*	*.67(.47)*	17 *(1.06)*	1.18(*.66*)	.40(*.42*)	1.85(*.81*)	.49(*.48*)	2.06(*.85*)

Note: PC=Psychological Control, correlations presented above the diagonal are for boys and below are for girls.

** p < .05; ** p < .01; *** p< .001*

Figure 1

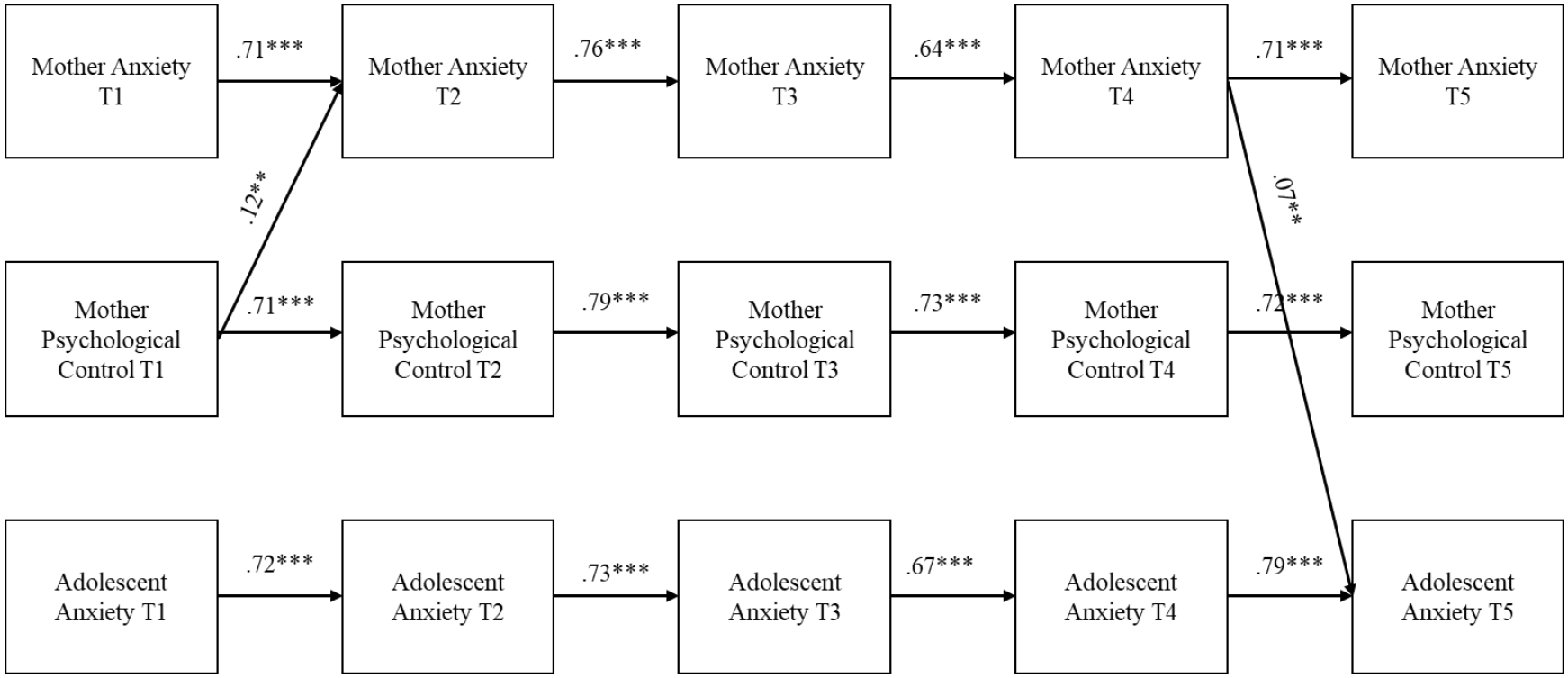
Proposed SEM Model.



Note: Mothers and Father will be examined in separate models.

Figure 2

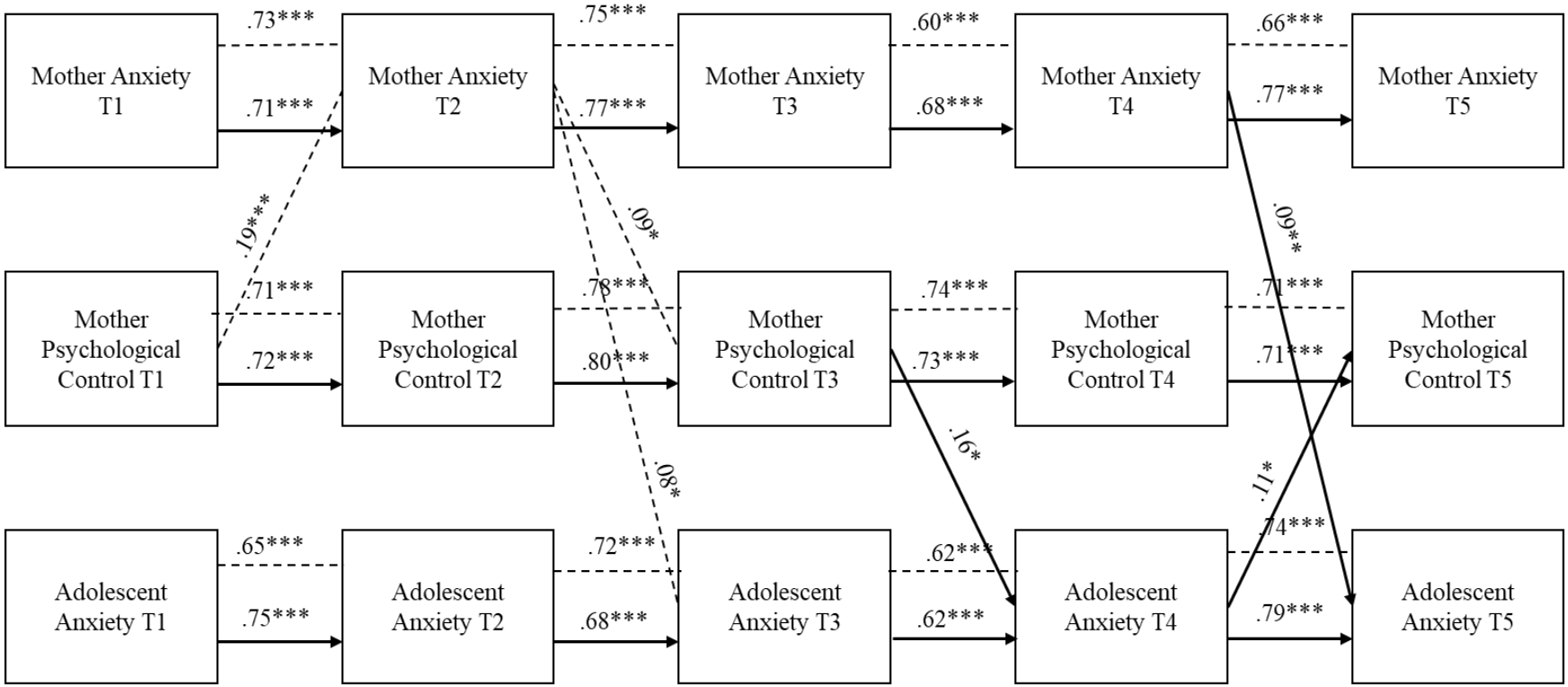
Mother Model with Male and Female Adolescents Combined.



Note: Significance values are: * p < .05; ** p < .01; *** p< .001.

Figure 3

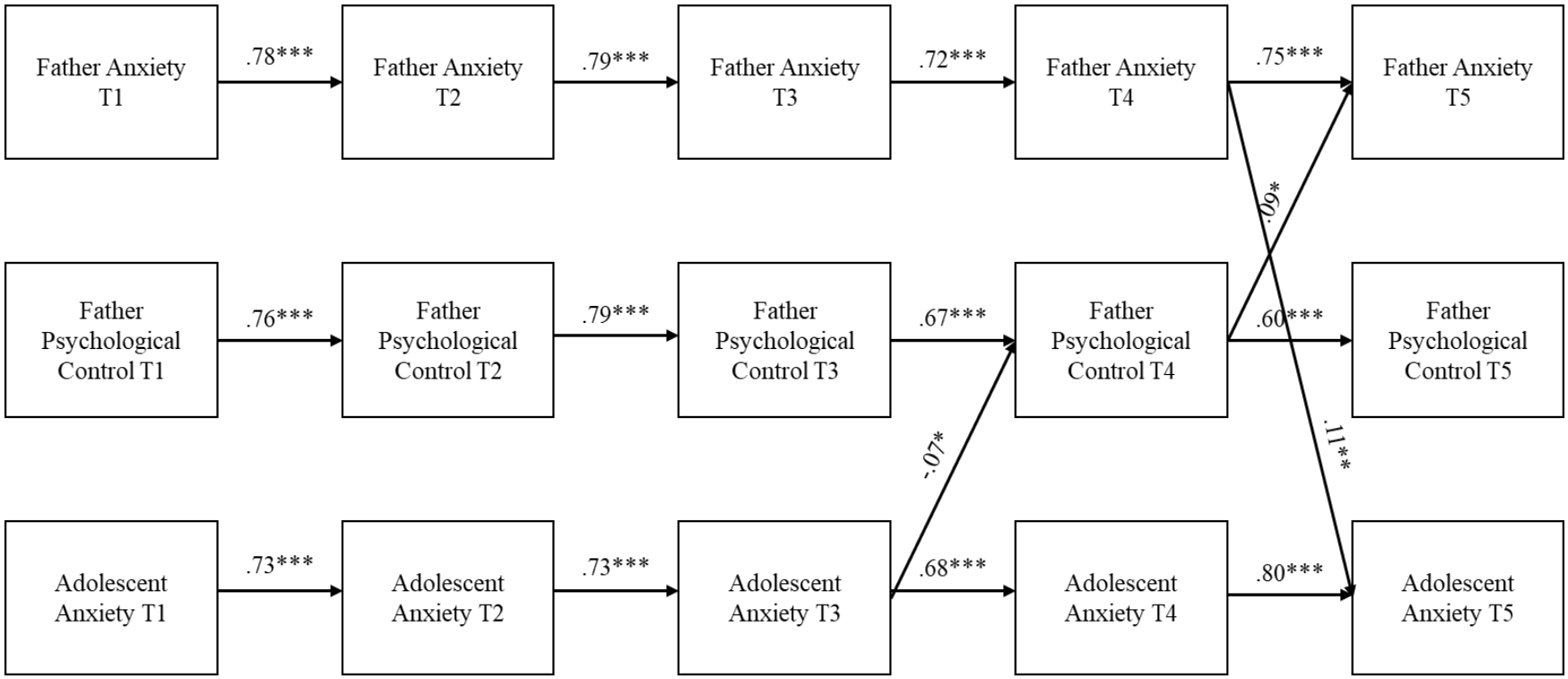
Mother Model with Boys and Girls Separated.



Note: Significance values are: * p < .05; ** p < .01; *** p< .001. Results for boys are indicated by the bolded lines and girls are indicated by the dashed lines.

Figure 4

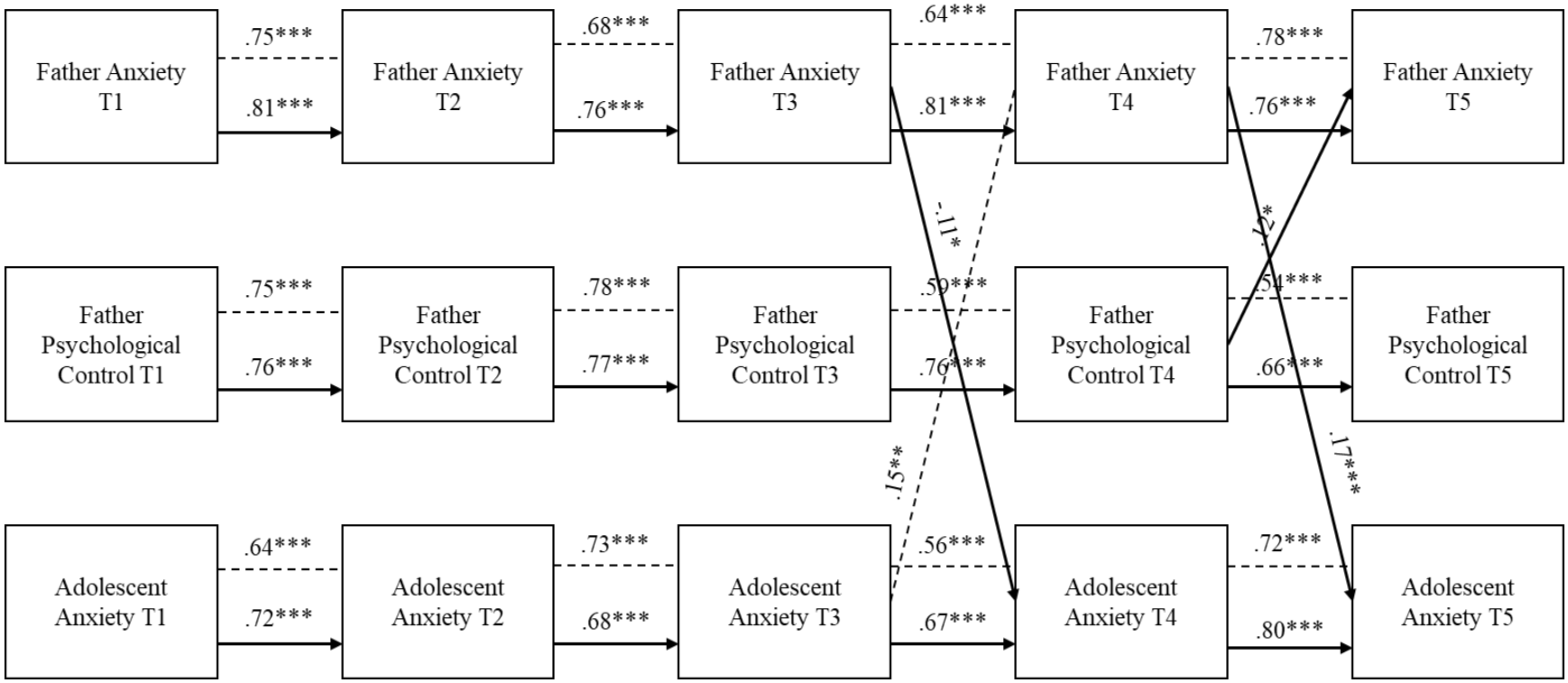
Father Model with Adolescents Combined.



Note: Significance values are: * p < .05; ** p < .01; *** p< .001.

Figure 5

Father Model with Boys and Girls Separated.



Note: Significance values are: * p < .05; ** p < .01; *** p< .001. Results for boys are indicated by the bolded lines and girls are indicated by the dashed lines.