Examining Parents' Personality within a Five Factor Model Predicting Negative and Positive Urgency in Their Adolescent Children

by

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ABSTRACT

Negative Urgency and Positive Urgency are important subfacets of a propensity to rash action. There is currently limited research on parental antecedents of Negative Urgency and Positive Urgency. The current study investigated whether parent personality and parenting behaviors predict adolescent Negative Urgency and Positive Urgency. Data were taken from a community sample with parent personality, positive parenting behaviors, and child Negative Urgency and Positive Urgency measured at separate time-points. Structural equation models were used to examine whether parent personality predicted adolescent Negative Urgency and Positive Urgency and whether positive parenting mediated this relationship. There was no evidence for a relationship between parent personality and children's Negative Urgency and Positive Urgency. In addition, there was no relationship between parenting behaviors and child Negative and Positive Urgency in cross-reporter models, but child-reported parenting predicted later adolescent-reported Negative and Positive Urgency. Greater positive parenting, as perceived by children, was related to less Negative and Positive Urgency when they were adolescents. More research is needed to understand whether the current results are due to reporter bias or whether child-perceived parenting behaviors influence the development of adolescent Negative and Positive Urgency.

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Impulsivity is generally defined as a propensity towards rash action, acting without foresight or consideration of possible consequences (Whiteside & Lynam, 2003). As a construct, impulsivity is important because of its relation to behaviors that are costly to individuals and society, such as substance abuse, criminal activity, and sexual risk-taking (Coskunpinar et al., 2013; Friedman, 1998; Sanchez et al., 2000). Furthermore, impulsivity is recognized as a transdiagnostic characteristic of many psychiatric disorders, including bipolar disorder, attention-deficit/hyperactivity disorder, eating disorders, antisocial personality disorder, borderline personality disorder, and substance use disorders (American Psychiatric Association, 2013). A better understanding of impulsivity could lead to a reduction in these problematic behaviors through improving intervention techniques or changing public policy efforts.

There is an extensive history of psychologists attempting to define and delineate the heterogeneous subfacets of impulsivity within their personality models (Cloninger, Svrakic, & Przybeck, 1993; Costa & McCrae, 1995; Eysenck & Eysenck, 1978; Tellegen, 1985; Zuckerman, Eysenck, & Eysenck, 1978). As a result, the subcomponents of impulsivity have been given many names, some of which include sensation seeking, disinhibition, non-planning, novelty seeking, lack of perseverance, behavioral undercontrol, response inhibition, and urgency (Buss & Plomin, 1975; Dick et al., 2010; Eysenck & Eysenck, 1978; McHugh & Balaratnasingam, 2018; Sher & Trull, 1994; Whiteside & Lynam, 2001; Zuckerman et al., 1978). In an effort to consolidate extant theories about impulsivity, Whiteside and Lynam (2001) factor-analyzed impulsivity

items that are well-accepted among researchers and presented a model with five distinct subfacets of impulsivity: Negative Urgency, Positive Urgency, Sensation Seeking, Lack of Perseverance, and Lack of Planning.

Previous research has documented the association of general personality domains between parents and offspring. However, there is no study to date that examines the parental personality antecedents of children's Negative and Positive Urgency. The current study fills this research gap. Utilizing a community sample of families that is enriched for a history of familial alcohol disorder, the current study investigates parent personality antecedents theorized to be related to their children's Negative and Positive Urgency. We also test whether relations between parent personality and offspring Urgency are mediated by parenting practices.

Previous Personality Theories of Impulsivity

There are many personality theories and measurements of impulsivity. Because the present study is focused on the Whiteside and Lynam (2001) model of impulsivity measured via the UPPS-P, the theories and measurements of impulsivity briefly reviewed below represent those that are captured within the UPPS-P measure. These measures are often cited in reviews of impulsivity studies using questionnaires (Cross et al., 2011; Vassileva & Conrod, 2019), arguing for their relevance to the impulsivity literature and appropriateness for use in creation of the UPPS-P, a comprehensive impulsivity measure.

One early theory of impulsivity is a result of Eysenck's research on general personality traits. Eysenck sought to better understand Extraversion as a dimension of personality, as this dimension, at the time, represented sociability according to American psychologists and impulsivity and weak morality according to European psychologists

(Eysenck & Eysenck, 1963). During this attempt to better understand Extraversion, Eysenck found that impulsivity existed as a separate factor from sociability or Extraversion. Eysenck published work with Marvin Zuckerman, who closely examined sensation seeking (Zuckerman et al., 1978). Initially, Zuckerman was interested in examining optimal levels of arousal, an idea originally stemming from Wilhelm Wundt's work on optimal levels of stimulation (Wundt, 1874) which postulated that there is a threshold for stimulation to be optimal or pleasurable. As a result, Zuckerman created a scale to measure sensation seeking as a trait, with the idea that individuals vary on their levels of seeking arousal from their environment. Zuckerman delineated four subtraits of sensation seeking: thrill and adventure seeking (a desire for extreme outdoor activities, for example, skydiving), disinhibition (preference for hedonistic activities such as substance use, gambling, or sex), experience seeking (desire for experience through the senses, including traveling, experiencing art and music), and boredom susceptibility (aversion for repetition and routine; Zuckerman et al., 1978). As a response to Zuckerman's sensation seeking work, Eysenck revised his impulsivity theory to include two distinct factors: impulsivity (doing and saying things without thinking or consideration of danger) and venturesomeness (representing thrill and adventure seeking and risk-taking; Eysenck & Eysenck, 1978; Eysenck, Pearson, Easting, & Allsopp, 1985).

In another influential model, Barratt initially proposed that impulsivity was related to "behavior oscillation," or natural incidents of intra-individual variability, whereas anxiety was understood as "level of drive" (Barratt, 1965; Hull, 1943; Spence, 1956). Thus, impulsivity was believed to be an orthogonal construct to anxiety and was derived based on this presumption. It was also purported that impulsivity and anxiety

were related to different underlying neural systems. Barratt's subsequent work followed the assumption that the measurement of personality traits, including impulsivity, would benefit from the inclusion of biological, behavioral, environmental and cognitive correlates (Barratt, 1993). The resulting impulsivity construct included three components: an impulsive motor trait (acting on the spur of the moment), an impulsive non-planning trait (poor cognitive self-control), and an attentional impulsivity trait (inability to focus on tasks).

Dickman (1990) proposed that there are two forms of impulsivity: functional and dysfunctional. Impulsivity involves acting without forethought; however, the separation between functional and dysfunctional impulsivity is determined by whether the behavior leads to optimal or non-optimal results. In particular, dysfunctional impulsivity focuses on negative consequences from being disorganized, ignoring facts when making decisions, and acting without deliberation, whereas functional impulsivity is viewed as adaptive due to increased activity, enthusiasm and adventurousness.

Impulsivity constructs have also been considered in research on temperament, which is considered to be the basic precursor to more developed personality traits. Buss and Plomin (1975) theorized that children's temperament traits must be heritable, stable in childhood, continue into adulthood, be valuable for adaptation, and be evident in our animal ancestors. Much like previous work on impulsivity, Buss and Plomin found in their research that impulsivity, originally believed to be a basic temperament trait, was not unitary but rather was composed of additional subcomponents: inhibitory control (e.g., not being able to wait), decision time (e.g., trouble making up mind), persistence (e.g., completing tasks), and sensation seeking (Buss & Plomin, 1984). Because Buss and

Plomin sought to identify the basic factors of temperament, impulsivity did not fit their outlined criteria due to its multifaceted nature. Subsequently, Buss and Plomin decided to drop impulsivity as the fourth temperament dimension because of its multi-trait characteristics and poor stability estimates, leaving their temperament model to include emotionality, activity, and sociability (Buss & Plomin, 1975; Zentner & Bates, 2008). Impulsivity maintained its multi-trait nature within this model, with components including a tendency to not deliberate on consequences, inability to focus on a task, proneness to boredom and needing novelty, and the inability to control behavior. Impulsivity was viewed as a separate dimension from temperament.

In contrast, impulsivity was considered to be a subfacet of temperament in Cloninger's temperament model (Cloninger et al., 1993). Cloninger viewed impulsivity as a subcomponent of his Novelty Seeking temperament dimension, which was one of four temperament dimensions. Novelty Seeking was believed to reflect a biological behavioral activation system which involves motivation to approach situations, including exploratory behaviors and impulsive decision making. In this model, impulsivity was conceptualized as a response to novel situations that is developed and apparent early in life and has evolutionary and biological origins.

The construct of impulsivity has also emerged in models of general adult personality systems. Tellegen (1985) placed impulsivity within his personality dimension Constraint, which captures the ability to be cautious, be risk-averse, and accept conventional societal beliefs. Specifically, his impulsivity (versus control) construct represents not being able to act rationally, plan one's actions, make careful decisions, and a desire for spontaneity (Tellegen & Waller, 2008).

The Five Factor Model (FFM) is one of the most widely used, comprehensive personality models because of evidence showing that the five factors appear consistently in other personality models as well as across different languages and cultures (Costa & McCrae, 1992). The NEO, the measure derived from the Five Factor Model, assesses 30 traits organized within five dimensions of personality: Neuroticism, Extraversion, Openness to Experience, Conscientiousness, and Agreeableness. Within this system, impulsivity appears to be represented by several dimensions of personality (Whiteside & Lynam, 2001). One subfacet that appears directly related to the construct of impulsivity is the Impulsiveness facet that is part of the Neuroticism dimension. The Impulsiveness facet captures those who are moody and irritable, and its relation to Neuroticism makes sense as this dimension encapsulates emotional instability. Additionally, the Self-discipline facet, part of the Conscientiousness domain, represents organization and thoroughness tendencies, with those who score low on this facet being more impulsive. The Deliberation facet, also within the Conscientiousness domain, reflects the non-planning tendencies of impulsive individuals. Lastly, the Excitement Seeking facet of the Extraversion domain resembles sensation seeking concepts of impulsivity. Together, the FFM holds subfacets across different personality domains that represent distinct aspects of impulsivity.

Although there are many theories about what the construct impulsivity entails, there is considerable overlap and convergence of ideas. Many theories relate impulsivity to Extraversion, with consistent results indicating that there is a sensation seeking subtrait of impulsivity, or a tendency to seek novelty and excitement. Further, this tendency to seek novelty is theorized to come from a biological need for stimulation. The constructs

from this realm of thinking include Zuckerman's Sensation Seeking construct (which is also subsumed within Eysenck's Venturesomeness construct; Zuckerman et al., 1978), Buss and Plomin's version of sensation seeking (proneness to boredom; Buss & Plomin, 1975), Cloninger's impulsivity construct which was inlaid within Novelty Seeking as a temperament (Cloninger et al., 1993), Dickman's functional impulsivity (Dickman, 1990), and the FFM's excitement seeking subfacet of Extraversion (Costa & McCrae, 2008). Researchers also converged on the non-deliberative aspect of impulsivity, represented by Eysenck's impulsivity construct (doing things without forethought about consequences; Eysenck & Eysenck, 1978), Buss and Plomin's impulsive decision-making construct (poor ability to deliberate; Buss & Plomin, 1975), Dickman's dysfunctional impulsivity (Dickman, 1990), and the FFM's Deliberation facet (Costa & McCrae, 2008). Another consistent subfacet of impulsivity was ability to persist through difficult tasks. This trait was mentioned by Buss and Plomin (persistence; Buss & Plomin, 1975), Barratt (attentional impulsivity; Barratt, 1993), and Costa and McCrae's Self-discipline subfacet of Conscientiousness (Costa & McCrae, 2008).

Although ability to control one's actions could arguably be one definition of impulsivity, it is surprising that the aforementioned components of impulsivity described by researchers appears largely devoid of this definition. The only theories that touch upon self-control difficulties were Barratt's impulsive motor trait and Buss and Plomin's inhibitory control construct (Barratt, 1993; Buss & Plomin, 1975). Eysenck's impulsivity trait also captures difficulty controlling behavioral impulses (Eysenck & Eysenck, 1978).

Researchers have more consistently converged on the subfacets of impulsivity which represent sensation seeking, inability to plan ahead, and inability to persevere with

difficult tasks. However, there is less convergence on an inhibitory control dimension and emotionality. Unlike other researchers, Costa and McCrae's impulsivity subfacet was placed within the Neuroticism domain, representing emotional instability. It is reasonable to believe that individuals who are more sensitive to emotions could also be more likely to encounter impulse control problems.

UPPS-P Measure of Impulsivity

As described earlier, previous research has contended that impulsivity is comprised of several subfactors that are weakly correlated to each other rather than being a singular, distinct construct (Cloninger et al., 1993; Eysenck & Eysenck, 1978; Zuckerman et al., 1978). Whiteside and Lynam (2001) sought to create a new, comprehensive impulsivity measure by using the aforementioned theories and their corresponding impulsivity measures in an exploratory factor analysis. The results were intended to capture all impulsivity-like constructs that had been identified in the extant literature on impulsivity. Whiteside and Lynam (2001) found that the identified components of impulsivity related to different domains in the Five Factor Model (FFM). Thus, Whiteside and Lynam (2001) used the FFM of personality as a framework within which to understand the various subfacets of impulsivity.

Whiteside and Lynam (2001) included the FFM's Neuroticism, Extraversion, and Conscientiousness dimensions in their factor analyses due to previous research suggesting a relationship among these domains and the construct of impulsivity. Neuroticism, especially the Impulsiveness facet, was suggested to be related to the emotional instability aspect of impulsivity (e.g., moodiness, irritability, excitability). Conscientiousness, including the Self-discipline facet and the Deliberation facet, was

hypothesized to be related to the disorganization and inability to persevere in difficult tasks aspect of impulsivity as well as the poor planning aspect of impulsivity. Extraversion was included to capture the sensation seeking aspect of impulsivity outlined by previous impulsivity researchers.

Whiteside and Lynam (2001) also included additional theorized impulsivity items that were not previously represented by other impulsivity measures. The authors noted that these items were developed based on pilot work that indicated their importance and necessitated their inclusion in their analyses. These items captured inability to resist "strong cravings," which appear to represent primarily negative urges (e.g., "I only act rashly when I'm upset"; Whiteside & Lynam, 2001).

Their factor analyses yielded four underlying factors of impulsivity: Lack of Premeditation (the tendency to delay action in favor of careful thinking and planning), Urgency (the tendency to commit rash or regrettable actions as a result of intense negative affect), Sensation Seeking (the tendency to seek excitement or adventure), and Lack of Perseverance (the ability to maintain a task until completion). The FFM Neuroticism domain (primarily the Impulsiveness facet, which measures low self-control) loaded most strongly on the Urgency factor. For the FFM Conscientiousness domain, the Self-discipline facet loaded strongly onto the Lack of Perseverance factor, and the Deliberation facet loaded onto the Lack of Premeditation factor. Lastly, the FFM Extraversion domain (Excitement Seeking facet) loaded onto the Sensation Seeking factor.

Because Urgency captured rash actions as a result of negative affect (and therefore renamed Negative Urgency in subsequent articles), additional work was

completed to include the positive pole of resisting strong cravings. Cyders and colleagues (2007) developed a fifth impulsivity factor that represented a tendency to respond rashly when experiencing extreme, positive emotions, naming the construct Positive Urgency. The development of Positive Urgency came from empirical evidence that positive mood can lead to increased risk taking, such as drinking more on days of celebration, increased physical violence, injuries, and unwanted sexual intercourse (Cooper et al., 2000; Cyders et al., 2007; Del Boca et al., 2004; Yuen & Lee, 2003). Positive Urgency was subsequently included in a revised UPPS measure, the UPPS-P. Subsequent work found that Positive Urgency and Negative Urgency appear to be strongly correlated (Argyriou et al., 2020; Cyders & Smith, 2007; Stautz & Cooper, 2014), suggesting possible overlap in underlying mechanisms.

Subsequent research has examined the factor structure of the UPPS-P measure and has generally found consistent evidence of a five-factor structure. Cyders and colleagues (2007) found that the five-factor structure fit the data best when examined using an exploratory principal components analysis and a college sample. Similar results were obtained with a larger, community sample representative of the U.S. general population as well as a large, pre-adolescent cohort where a five-factor model fit the data best (Argyriou et al., 2020; Watts et al., 2020). However, one study found a higher-order structure comprised of an overarching Urgency factor, Sensation Seeking factor, and a Conscientiousness factor (Cyders & Smith, 2007). As confirmed by a priori hypothesis, Negative and Positive Urgency were lower-order factors to an Urgency factor, and Lack of Premeditation and Lack of Perseverance were lower-order factors to a Conscientiousness Factor with Sensation Seeking as a third factor. However, this study

utilized a relatively small sample (n=326). Previous studies also compared the five-factor structure to the hierarchical factor structure (see Argyriou et al., 2020 and Watts et al., 2020) and found that, although the five-factor model fit the data the best, the hierarchical structure also fit the data well. As a result, Watts and colleagues (2020) argued that there may be value in examining the higher-order structure due to being able to relate both broad and narrow impulsivity dimensions to variables of interest. Thus, a higher-order Urgency factor could be more useful than modeling Negative and Positive Urgency separately depending on how Urgency (or the separate factors) relates to the predictors of interest. One recent study which used item-based network analysis to examine the relationship between Negative and Positive Urgency items found that Positive and Negative Urgency was represented as a single coherent construct of Urgency (Billieux et al., 2021), suggesting that other methods of modeling constructs may be needed to understand whether positive and negative urgency are truly separate constructs.

Among the five factors of impulsivity, Lack of Premeditation, Lack of Perseverance, and Sensation Seeking have been historically represented in previous impulsivity theories whereas there is less theory and empirical work on Negative and Positive Urgency. However, studies that have examined relationships between Negative and Positive Urgency have found that these subfacets consistently identify those who have developed problems with substance use (Coskunpinar et al., 2013; Dvorak & Day, 2014; Fischer et al., 2007; Stautz & Cooper, 2014; Zapolski et al., 2009). Thus, it may be especially important to understand Negative and Positive Urgency traits, above other UPPS-P constructs.

To date, the UPPS-P represents the most comprehensive measurement of existing impulsivity constructs. The five constructs outlined by the UPPS-P were constructed using a comprehensive personality model (the FFM), representing different aspects of general personality characteristics. Whiteside and Lynam's (2001) work found that the subcomponents of impulsivity related to different domains of personality, further providing evidence that impulsivity is a heterogeneous construct. Moreover, previous research has established that the UPPS-P differentially predicts risk-taking and substance use behaviors (Cyders & Smith, 2008; Dick et al., 2010; Stautz & Cooper, 2014). Thus, it is important to understand the conditions in which these traits emerge.

Transmission of Impulsivity Across Generations

As described above, it is important to understand predictors of impulsivity, particularly predictors of negative and positive urgency. One potentially important predictor is parental personality, including parental impulsivity. There is a long-standing history of personality psychologists discussing whether traits can be inherited, which spurred decades of research examining similarities between parents and children. Although there are no known studies that have examined the relationship of UPPS-P facets between parents and offspring specifically, there is evidence of intergenerational transmission of impulsivity as measured by other impulsivity questionnaires and tasks. One such study found that parents' self-control (Dickman's Impulsivity Scale) was associated with child's self-control (Grasmick's self-control scale; Boutwell & Beaver, 2010). Another study found that parents' self-control was associated with child's inhibitory control (mother-child correlation = .30, father-child correlation = .22; Verhoeven, Junger, Van Aken, Deković, & Van Aken, 2007). Additionally, Brodsky et

al. (2008) found a significant path from parent impulsivity (measured by the Barratt's Impulsivity Scale [BIS]) to child impulsivity (either measured by the BIS or Iowa Conners Impulsivity scale, depending on age). In examining impulsive decision making (delay discounting), Peviani and colleagues (2019) found that delay discounting in parents was significantly related to impulsive decision making in their offspring (correlation between parent-child at time 1 = .29; correlation between parent delay discounting at time 1 and child delay discounting at time 2, approximately three years later, was .20). Ruof and colleagues (2020) found a significant path from mother's conscientiousness (assessed by the NEO) to child's effortful control (using the Early Adolescent Temperament Questionnaire, Capaldi & Rothbart, 1992), which mediated the relationship between mother's conscientiousness and child's later externalizing behavior.

However, some studies did not find a relationship between parent and child impulsivity. Henschel and colleagues (2014) looked at parents' self-control and child's self-control assessed through behavioral tasks (i.e., delay of gratification task and a snack delay task) and found that maternal self-control was unrelated to child self-control (*r*s of -0.01 and 0.0). Paternal self-control was found to be related to child's self-control, but the relationship was in the opposite direction for the delay of gratification task (-.18) and in the anticipated direction for their snack delay task (0.12). The authors noted that they had to drop data for the delay of gratification task due to younger children being unable to complete the task, which may have contributed to unanticipated results. Another study also used a behavioral impulsivity task and found no correlation between parents' impulsivity scores and offspring impulsivity scores (Epstein et al., 2008). These inconsistent results between parent and child impulsivity could be explained by the

differing operationalizations of impulsivity. The studies with inconsistent findings use behavioral tasks, which have been previously been suggested to not be pure measures of impulsivity constructs (Mazza et al., 2020).

Personality psychologists have long believed that personality traits have a biological root (Gray, 1970). Behavioral genetics research has shown heritability estimates for impulsivity as being substantial, ranging from .33 to .59 (Coccaro et al., 1993; Hur & Bouchard, 1997; Niv et al., 2012; Seroczynski et al., 1999). A meta-analysis which examined a myriad of impulsivity measures found that heritability of impulsivity was .50, indicating that half of the variance of impulsivity could be attributed to genetic influences (Bezdjian et al., 2011). Moreover, a large genome wide association study using a sample from 23andMe, a commercial genetics company, found specific genetic variants and SNPs associated with impulsivity traits Negative Urgency and Sensation Seeking (Sanchez-Roige et al., 2019). The results provide further evidence to suggest that impulsivity has genetic underpinnings and can be genetically separated into its distinctive subcomponents.

Despite the evidence for genetic influences, environmental influences appear of equal importance within the behavioral genetics research, with half the variance being explained by shared and non-shared environmental influences (Bezdjian et al., 2011). Furthermore, molecular genetics research explains only small amounts of variance in impulsivity. Much like many other psychological phenomena, the variations of impulsivity observed in individuals are likely due to a combination of genetic and environmental factors. Researchers have pointed to increasing efforts to examine gene-environment interactions and epigenetics as possible avenues to increase understanding

and prediction of impulsivity traits (Congdon & Canli, 2008). Moreover, researchers have noted that heritability estimates are likely a result of accumulated gene-environment interactions across development, suggesting that heritability estimates likely overestimate the genetic component (Beauchaine et al., 2017; Rutter, 2014). In fact, researchers investigating generational transmission of impulsivity and self-regulation have remarked on environmental mechanisms that could be aiding in transmitting impulsive traits, such as parenting behaviors. Impulsivity-like traits can lead to specific behaviors, including parenting styles, that then continue to perpetuate impulsive traits in offspring (Bridgett et al., 2015).

The Relation Between Parental Personality Within a Five Factor Model and Child Urgency

There is good reason to use the FFM as a personality framework for examining general parental personality in relation to child Urgency traits. Costa and McCrae (1992) based their FFM model on the belief that there exists consistent and enduring characteristics of individuals. Furthermore, these characteristics would be encoded in everyday language as every culture should have evolved words to express traits that are important for social interaction. Based on this theory, Costa and McCrae delineated their five factor model which include traits representing emotional, interpersonal, experiential, attitudinal, and motivational styles. Their model was also validated with several other prominent personality models at the time, and the authors found that the same personality dimensions were consistently found. Moreover, the FFM creators examined their personality domains with measures that assessed interpersonal functioning and individual needs. Their results showed that their major five factors also corresponded to important

factors in these interpersonal functioning assessments. The extensive research done with the FFM argue for the FFM's comprehensiveness in representing important aspects of individual differences and interpersonal characteristics. Moreover, the FFM has been examined across different languages and cultures, with results suggesting that the five factor model is well-represented across human language and different geographical locations (Costa & McCrae, 1992; McCrae, 2002).

Because the UPPS-P was developed with the FFM as a framework for understanding impulsivity subcomponents, there already exists some evidence of a relationship between Negative and Positive Urgency and the scores on the NEO personality assessment within individuals. Even though the UPPS-P was originally created using only three of the FFM dimensions that were theorized to be most related to the construct of impulsivity (Neuroticism, Extraversion, Conscientiousness), subsequent analyses related the FFM to the specific UPPS-P facets found differential relationships. Specifically, Cyders and Smith (2008) found that Negative Urgency was most strongly related to the Neuroticism, Conscientiousness, and Agreeableness domains and was unrelated to Extraversion. Positive Urgency also related most strongly with Neuroticism, Conscientiousness, and Agreeableness, but these relationships were less strong than those found for Negative Urgency. Although the UPPS-P was constructed to reflect the impulsivity aspects represented in the Neuroticism, Extraversion, and Conscientiousness dimensions within the FFM, these follow-up studies found additional relationships between Negative and Positive Urgency and Agreeableness. These findings suggest that utilizing the full Five Factor Model can uncover salient relationships among general personality dimensions and impulsivity subfacets.

Because Positive Urgency was added in subsequent revisions of the UPPS, there is little research examining Positive Urgency in relation to general personality models relative to research on Negative Urgency. One study using two college samples found that Positive Urgency was correlated with Eysenck's Psychoticism (*r*s=.38 and .33), Neuroticism (*r*s=.33 and .27), and Extraversion (*r*s=.20 and .13; Stautz, Dinc, & Cooper, 2017).

In short, although there is existing research in the area of intergenerational transmission of impulsivity, there is less research on the precursors to and development of Urgency facets. Existing evidence relating general personality dimensions to Negative and Positive Urgency traits looks at associations within-individuals rather than across generations. No study to date has examined the relation of parents' general personality dimensions to children's Urgency traits. Without this information, we are limited in our current understanding of possible precursors or key aspects in the development of Urgency traits.

The Relation Between Parent Personality and Parenting Behaviors

Parents' personality characteristics inevitably impact how they interact with others, including their children. Previous theories have postulated how this could occur. For example, Belsky's (1984) Determinants of Parenting Process Model delineates three determinants of child functioning: parent psychological functioning, characteristics of the child, and sources of situational stress and support. Within this model, parental personality is described as being influenced by sociocontextual factors, such as parental employment, interpersonal relationships, and marital relationship. In turn, parental personality is related to how parents parent their children.

Indeed, there is ample evidence that parent personality is associated with parenting practices. Studies have found that greater parent openness was related to more parental support and less negative control (Karreman et al., 2008; Losoya et al., 1997). Similarly, Bornstein et al. (2011) found that openness was most related to positive parenting. Studies have found higher levels of maternal neuroticism to be related to lower levels of parental warmth, involvement, sensitivity and higher levels of negative discipline, criticism, intrusiveness, and irritability (Clark et al., 2000; Kashdan et al., 2004; Kochanska et al., 1997, 2003; Losoya et al., 1997; Metsäpelto & Pulkkinen, 2003). However, some studies have not found a relationship between parental neuroticism and parenting practices (Coplan et al., 2009; Ginsburg et al., 2005; Smith et al., 2007; Turner et al., 2003). Researchers have suggested that this inconsistency could be explained by the theory that some parents with elevated neuroticism could value emotional sensitivity, thereby making these parents more sensitive to the emotional needs of their children, leading to null results in some studies (Bornstein et al., 2011). There have also been conflicting findings with regard to parent extraversion. In some studies, greater extraversion was related to greater levels of sensitivity, affection, and stimulation towards a child (Belsky et al., 1995; Belsky & Barends, 2002; Mangelsdorf et al., 1990). Other studies have found negative relations between parenting and extraversion, such that extraversion was related to more maternal power assertion or maternal control (Clark et al., 2000; Kochanska et al., 2007; Smith, 2010). Bornstein et al (2011) has tried to explain these differing results, suggesting that extraversion has two facets that may exert opposite effects on parenting: social vitality may promote parental sensitivity, whereas social dominance could reduce positive parenting through a desire to engage in

competing activities unrelated to parenting. Agreeableness has been found to relate to higher levels of cognitive stimulation, responsiveness, sensitivity, warmth, and supportive parenting (Clark et al., 2000; Kochanska et al., 1997; Smith et al., 2007). Lastly, conscientiousness has been linked to supportive, responsive, and sensitive parenting (Clark et al., 2000; Kochanska et al., 2004; Losoya et al., 1997; Smith et al., 2007; Verhoeven et al., 2007). However, these studies which examine parent personality and parenting look at parenting for children who are less than 10 years old, with only one study examining parenting among 16 year old children (De Haan et al., 2009), suggesting that there is less empirical evidence for relations between parent personality and parenting in later adolescence.

In thinking about the relation between parent personality and parenting practices, it is important to note that many of these studies examined maternal personality because mothers are often the primary caregivers (Barnard & Solchany, 2002; Bornstein et al., 2011; Parke, 2002). Thus, there are few studies that investigate relations between paternal personality and fathers' parenting and child impulsivity. One study investigating paternal personality and parenting practices found that fathers' neuroticism was related to overprotective parenting but no other relationships between personality and parenting were found (Prinzie et al., 2012). Another study found that paternal extraversion was related to lower levels of over-reactivity and higher levels of warmth, with sense of parenting competence being an important mediating mechanism (De Haan et al., 2009).

Given that there is evidence for parental personality influencing parenting practices, an important question in regards to child Negative and Positive Urgency is whether parenting practices are related to child Urgency traits.

The Relation Between Parenting and Child Urgency

Theories of self-regulation and the development of self-control help to explain the process in which parenting behaviors would lead to impulsivity in children. Baumrind's (1971, 1975) work found that parents who were authoritative (used moderate levels of control, more rewards than punishment, were nurturing) tended to have children who displayed more self-control. Children of authoritarian parents (extremely restrictive and controlling) were more likely to display aggression and defiant behaviors. Children of permissive parents (few demands and few limit-setting) tended to show low self-control abilities.

In early childhood, children rely on their parents for much of their learning about what is appropriate behavior through social cues by their caregiver. In particular, parental limit setting teaches children about social demands and standards to follow. The way in which these strategies are provided help children develop their self-regulation processes (Crockenberg & Litman, 1990; Kochanska, 1994). Parents who do not respond to children's goals, emotional distress, or difficult behaviors in a sensitive and responsive manner will likely limit the child's ability to regulate their emotions and behaviors.

Studies have examined parenting effects on offspring impulsivity although no studies have specifically examined Negative or Positive Urgency. Greater child impulsivity has been related to parenting strictness, parental rejection, and inconsistent discipline (Houck & Lecuyer-Maus, 2004; Mauro & Harris, 2000; Silverman & Ragusa, 1990). Effortful control, a self-regulation construct that is often highly correlated with impulsivity (Eisenberg et al., 2003; Rothbart et al., 2001), has been found to be predicted by maternal sensitivity, warmth, acceptance, and responsiveness, and non-punitive

discipline (Colman et al., 2006; Karreman et al., 2008; King et al., 2013; Lengua et al., 2007; Olson et al., 1990). Additionally, previous studies have found that parental control and parental discipline can increase difficult temperament in children (Bezirganian & Cohen, 1992; Scaramella et al., 2008). Most studies investigated parenting with children who are 12 years old or younger, and only one study looked at adolescents and young adults. Bezirganian & Cohen (1992) examined temperament change in adolescents up to age 20. There is more empirical evidence relating parenting practices to young children's impulsivity, effortful control, and self-regulation. Less is known about parenting and offspring impulsivity in later adolescence. Researchers have underscored the importance of parenting practices in understanding development of children's self-regulation (Eisenberg et al., 1998; Kopp, 1982), but there is currently limited extant research on parenting behaviors and child Urgency traits.

Limitations of Previous Research

One limitation of previous research on the intergenerational transmission of impulsivity is the widely varying conceptualizations and measurements of impulsivity, making comparison of findings across studies difficult. Additional limitations include a reliance on single-reporter data (usually parent report; Boutwell & Beaver, 2010; Brodsky et al., 2008). Studies also were largely cross-sectional in nature, making it difficult to discern directionality, namely whether there is generational transmission of impulsivity (parent to child) or if impulsive children can make their parents more impulsive. There was only one study that utilized separate reporters to limit reporter bias, and also used a longitudinal design, as well as a relatively older sample (Ruof et al., 2020).

At this point, given the differing definitions and facets of impulsivity, researchers have suggested doing away with the name "impulsivity" entirely (Dick et al., 2010; Strickland & Johnson, 2020). These authors also contend that the UPPS-P represents the best measurement of the controversial construct to date. With the advent of the UPPS-P measure, researchers are now able to better understand how different aspects of impulsivity relate to different problems. In particular, extant work suggests that Negative and Positive Urgency is crucially important in identifying individuals who engage in problematic risk-taking and substance use. Accordingly, the current study examines links between parent personality and offspring Urgency and tests whether parenting mediates these links.

The Current Study

Previous research has documented the transmission of general personality domains from parents to offspring, but there is no study that examines the relations between parent personality and adolescent children's Negative and Positive Urgency. The current study fills this research gap by utilizing a high-risk community sample (in which approximately half of the original families had a history of familial alcohol use disorder). The study tests whether and which parent personality domains (based on the Five Factor Model using the NEO measure) prospectively predict adolescent Urgency traits and whether positive parenting mediates the relationship between parental NEO traits and child Urgency traits.

Aims

The present study had 3 aims.

Aim 1: The first aim of the present study was to test the factor structure of Urgency. We tested four models: a) a two-factor model with Negative and Positive Urgency as separate factors; b) a higher-order factor of Urgency with Negative and Positive Urgency as lower-order factors (higher-order model); c) a one-factor model with Negative and Positive Urgency items as indicators, and d) a bifactor model with a general Urgency factor and the two specific Negative and Positive Urgency factors (see Figure 1).

Aim 2: The second aim tested the parent personality antecedents of child Negative (NU) and Positive Urgency (PU; see Figure 2).

Aim 3: The third aim investigated whether parenting practices explain the link between parental personality and child impulsivity facets. First, we tested the relationship between Parent NEO and parenting practices. Then, we tested the relationship between parenting practices and child Negative and Positive Urgency. Based on these tests, we can determine whether parenting practices mediate parent personality and child impulsivity (see Figure 3).

Hypotheses

Factor structure hypothesis: Previous studies that have examined the factor structure of the UPPS-P have found that the five factor structure with correlated factors fits the data using community samples (Argyriou et al., 2020; Watts et al., 2020). However, Watts and colleagues (2020) found that a hierarchical factor model with Negative Urgency and Positive Urgency loading onto an Urgency factor fit the data equally well as the five factor structure. Moreover, Cyders and Smith (2007) also found that the hierarchical factor model fit their data well. These studies compared different

structures to determine the best model. Given that previous research has found evidence for both separate factors (Negative Urgency and Positive Urgency) and a second order factor structure (Urgency latent factor with Negative and Positive Urgency as lower order factors), we hypothesize that both models will fit the data in the present sample well.

Aim 2 Hypotheses: Parent personality traits (Neuroticism, Conscientiousness, and Agreeableness from the NEO) will predict child Negative and Positive Urgency traits. Specifically, parents with higher Neuroticism and lower Conscientiousness and Agreeableness will have children with higher scores on Negative and Positive Urgency. Although no studies have examined relations between parent personality and child Urgency, this hypothesis is based on previous studies that have shown that that NEO domains of Neuroticism, Conscientiousness, and Agreeableness were most related to Negative and Positive Urgency within the same individuals (Cyders & Smith, 2008).

Aim 3 Hypothesis 1: Higher levels of parent Neuroticism and lower levels of parent Conscientiousness and Agreeableness will predict lower levels of positive parenting (i.e., parenting that is more inconsistent and less supportive and involved).

Aim 3 Hypothesis 2: Low levels of positive parenting (i.e., parenting that is consistent, supportive and involved) will predict higher Negative and Positive Urgency traits in children.

Aim 3 Hypothesis 3: The relations between parent personality and child Urgency will be partially mediated by positive parenting.

Method

The Adult and Family Development Project (AFDP)

The current sample was drawn from a larger three-generational longitudinal study on familial alcohol use disorder (Chassin, Barrera, Bech, & Kossak-Fuller, 1992). Parents (G1s) and children (G2s) were recruited for the study in 1988. More than half of the adolescents (n = 246, 54%) recruited had at least one biological parent with an alcohol disorder. 208 families were selected to be demographically matched controls and did not have a parent with alcohol use disorder. Data for the G1s and G2s were collected at three annual waves (including baseline) and three follow-up assessments separated by five years for a total of six waves. Full biological siblings of original G2s were added at wave 4 if they were within the same age range as the original G2s (18-25). Remaining siblings of G2s were added at wave 5 if they were parents. Beginning at wave 5, the children of G2s (G3s) and their "other" biological parent were assessed. G3s completed additional follow-up assessments: wave 7 occurred 18 months after wave 6, and wave 8 occurred approximately three years after wave 6.

Recruitment

Families with parents with AUD were recruited via court records, community telephone screenings, and health maintenance organization (HMO) questionnaires. Parents were diagnosed with a substance use disorder using DSM-III criteria from structured diagnostic interviews (DIS-III; (Robins et al., 1981). Control families (without parental AUD) were recruited via telephone surveys. Control families were selected to match the same neighborhoods, child age, family composition, ethnicity, and SES as the

families with AUD. Additional information regarding recruitment for the original study can be reviewed in Chassin et al. (1992).

Procedure

The first five waves of G1 and G2 data were collected via face-to-face interviews by trained interviewers. Participants were also sent a questionnaire packet via mail at waves 4 and 5. At waves 5 and 6, G3 children who were in-state were interviewed with their G2 parents in their homes or at Arizona State University. Out-of-state children and their parents were interviewed through mailed surveys or via telephone. Wave 7 was collected over the telephone, and all waves post wave 7 were administered online. Written informed consent and assent was obtained from all participants at every interview. Arizona State University Institutional Review Board approved all protocols used in the study.

Sample Retention

Out of the original 454 adolescent G2s, 449 (99%) were re-interviewed at wave 2, and 444 (98%) were re-interviewed at wave 3. With the addition of G2 siblings at waves 4 and 5, 734 G2s (90%) were interviewed at wave 4, and 802 G2s (89%) were interviewed at wave 5. We collected data from 477 G3s at wave 5. At wave 6, with the addition of new G3s to the study, 609 G3s were assessed including 83% (n=394) of the G3s from wave 5. 578 were assessed at wave 7 (84%), and 612 were assessed at wave 8 (88%).

Sample Bias

We conducted preliminary analyses to examine whether those who were lost differed from those who have data. We compared G2s who completed NEO surveys at

waves 4 and 5 to G2s who did not complete NEO surveys at waves 4 or 5. About 86% of G2s successfully completed the NEO questionnaire at wave 4 (633/734). These G2s did not differ in age (t (732) = -.93, p = .35), ethnicity ($\chi 2$ (1, 691) = 1.09, p = .30), or history of substance use disorder ($\chi 2$ (1, 734) = 3.62, p = .06) compared to G2s who did not have NEO data. However, G2s who did not have NEO data were more likely to be male compared to G2s with NEO data at wave 4. At wave 5, 88% of G2s had completed NEO questionnaires (704/802). These G2s did not differ in age (t (800) = -.19, p = .85), ethnicity ($\chi 2$ (1, 798) = .99, p = .32), gender ($\chi 2$ (1, 802) = 2.15, p = .14), or history of substance use disorder ($\chi 2$ (1, 797) = .49, p = .49) compared to G2s who did not have NEO data at wave 5.

We compared G3s who had available data on Negative and Positive Urgency at wave 8 (n=608) to G3s who did not have data on Negative and Positive Urgency and were assessed at other timepoints (n=250). G3s with Urgency data did not differ from G3s without Urgency data in ethnicity (χ^2 (1, 808) = 2.24, p = .14). However, G3s without Urgency data were more likely to be male (χ^2 (1, 858) = 3.99, p = .046), were younger when assessed at wave 6 (t (766) = -13.6, p < .001, *M*age of G3s with data = 12.36, *M*age of G3s without data = 9.5), and were more likely to have both parents without a lifetime substance use disorder diagnosis at wave 6 (χ^2 (1, 754) = 5.18, p = .023).

Participants in the current analyses

Data for the present study were drawn from four AFDP waves (wave 4, 5, 6, and 8). Further inclusion criteria for the current sample include G2s who were parents who lived with G3s at least part time, G2s with NEO data at wave 4 or 5, and G3 age at wave

8 restricted to 13 through 18 in order to capture Urgency during adolescence. Due to the study recruitment methods, G3s were sometimes siblings and had the same parent and parent personality data. With these inclusion criteria, the present sample included 237 nuclear families with 315 G3 adolescents.

Because this project utilized both parent NEO and child Urgency data, there was significant loss of data when looking at G2s who were (1) parents, (2) consented to have their children participate in the study, and (3) had their children complete a web survey at wave 8. G2s who were not included (n = 644) were more likely to be younger at wave 5 ($t(800) = 8.78$, $p < .001$, *M*age of G2s not included = 26.5), male ($\chi^2(1, 776) = 32.29$, $p < .001$), were more likely to be non-Hispanic Caucasian ($\chi^2(1, 771) = 5.76$, $p = .016$), and have a lifetime substance use disorder diagnosis by wave 5 ($\chi^2(1, 776) = 8.08$, $p = .004$).

Measures

Descriptive statistics for all variables are provided in Table 1, which include summary scores of key variables. Correlations among all variables are provided in Table 2.

Demographic Information

Adolescents (G3s) and parents (G2s) self-reported their gender, age, and race/ethnicity. Gender was coded such that 1 indicated female and 2 indicated male. Race/ethnicity is coded such that 0 represents non-Hispanic Caucasian and 1 represents Hispanic, African American, Asian, Native American, and other ethnicities.

On average, G3s were 15 years old (SD = 1.7) at wave 8 when they reported their Urgency traits and 12 years old (SD = 1.3) at wave 6 when they reported their parents'

parenting behaviors. The G3 sample includes slightly more males (51%) than females and non-Hispanic Caucasian individuals (64%) than individuals of other race/ethnicities. The other race/ethnicities G3 sample included approximately 26% Hispanic G3s, 2% African American, 1% American Indian, less than 1% Asian/Pacific Islander, and 10% of individuals who reported "other."

G2s were approximately 26 years old (SD = 4.3) when they reported their NEO traits. G2s were more (66%) female and 67% non-Hispanic Caucasian. The other race/ethnicities G2 sample included approximately 25% Hispanic G2s, 3% African American, <1% American Indian, and 4% of G2s who reported "other" (See Table 1 for additional descriptives).

Parent Substance Use Disorder (SUD)

Parents reported their lifetime alcohol abuse and dependence (AUD) symptoms and lifetime drug abuse and dependence (DUD) symptoms by DSM-III-R criteria using the Diagnostic Interview Schedule III-R (DIS; Robins et al., 1981) at wave 4. For wave 5, the DIS along with additional symptom questions were included to match DSM-IV criteria for substance use abuse and dependence. Parents were given a code of 0 if they never had a SUD diagnosis and a code of 1 if they ever had a diagnosis of either AUD or DUD. Fifty-three percent of G2s had been diagnosed with a SUD at some point in their life.

Custodial Parent Status

Parents were asked to report whether they were living with their child (G3) full time or part time at wave 6 through a single item ("Are you currently living with [name of child]?"). This question was used to ensure that G2s interacted with G3s at least part

time in order to accurately measure the impact of parenting behaviors on Urgency traits. Parents who lived with their children full time were coded 1 whereas parents who lived with their children part time were coded 2. Most G2s and G3s lived together full time (87%).

Parent NEO

Because we had limited NEO data for both parents, we decided to capture parent personality of the parent who originally participated in the study (G2s) rather than from their spouses/partners. Personality data were taken from waves 4 and 5 using the NEO Five Factor Inventory (NEO; Costa & McCrae, 1992). The 60-item NEO assessed five factors of adult personality: Neuroticism, Extraversion, Openness to experience, Agreeableness, and Conscientiousness. Responses ranged from "Strongly disagree" (1) to "Strongly agree" (5), with high scores reflecting a high level of that dimension. The NEO was used to represent a comprehensive personality measurement as it is widely used, has strong psychometric properties, and was validated across cultures and samples (Costa & McCrae, 1992). If the parent responded to the inventory at both waves, individual items were averaged across both waves. Otherwise, a single timepoint was used to assess parent personality. Items representing each personality domain were averaged for a summary score (Tables 1 and 2). Coefficient alpha for the personality domains ranged from 0.71 to 0.87, indicating acceptable reliability. Overall, mean scores of parent personality domains were moderate and were not highly skewed nor kurtotic (Table 1). Latent variables for the five domains were created by using the twelve items representing each personality domain as indicators. Coefficient H, a reliability estimate for factor scores, was estimated to be 0.883 for Neuroticism, 0.833 for Extraversion, 0.835 for Openness, 0.794 for

Agreeableness, and 0.873 for Conscientiousness (McNeish, 2018), indicating acceptable reliability.

Negative Urgency and Positive Urgency

G3s reported on their Negative Urgency and Positive Urgency traits at wave 8 using the UPPS-R-C, an adapted version of the UPPS-P measure (Zapolski et al., 2010). The UPPS-R-C assessed fewer items than the UPPS-P and has simplified language compared to the full UPPS-P. The Negative Urgency subscale assessed rash action during a negative mood state and included eight items. The Positive Urgency subscale assessed rash action during a positive mood state and included eight items (items are listed on Table 1 in the Appendix). Both traits were measured on a scale from "Disagree strongly" (1) to "Agree strongly" (4) with high scores reflecting a high level of Negative or Positive Urgency. Items within each subscale were averaged for a summary score for our descriptive statistics shown in Tables 1 and 2. G3s reported moderate levels of Negative and Positive Urgency with good variability. Summary scores showed acceptable skewness and kurtosis. Coefficient alpha was 0.86 for Negative Urgency and 0.93 for Positive Urgency, indicating acceptable reliability. Latent variables for the two constructs were created by using the sixteen items as indicators in SEM analyses. Coefficient H, a reliability estimate for factor scores, was estimated to be 0.887 for Negative Urgency and 0.938 for Positive Urgency (McNeish, 2018), indicating acceptable reliability. The intracluster correlation coefficient was 0.023 for Negative Urgency and 0.003 for Positive Urgency, which indicate minimal clustering of these traits within families.

Positive Parenting

At wave 6, when G3s were 12 years old, G3s reported on *Parental Support, Parenting Consistency, and Parental Monitoring* for the parent who provided NEO data. G2s also reported on their own parenting. Seven items were taken from the Network of Relations Inventory to measure parental support (e.g., "How much can you count on [parent name] to be there when you need them, no matter what"; Furman & Buhrmester, 1985). Response values ranged from "Little to none" (1) to "The most possible" (5). Parenting Consistency items were represented by ten items taken from the Children's Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965). An example item is "[Parent] sometimes allowed me to do things s/he said were wrong." Responses ranged from "Strongly disagree" (1) to "Strongly agree" (5). Parental Monitoring was assessed using five items adapted from a scale developed by Lamborn et al. (1991). Responses ranged from "Didn't know at all" (1) to "Knew all the time" (5). An example item is "How much did [parent] know where you were most afternoons after school?" A previous study using the AFDP G3 sample showed that items from these three parenting scales were highly correlated and demonstrated that the three scales can be used to create a positive parenting latent factor (Hill et al., 2018). Summary scores were created for each parenting scale by averaging scores across items (Tables 1 and 2). Coefficient alpha was 0.87 for Parental Support, 0.87 for Parenting Consistency, and 0.82 for Parental Monitoring for G3 report, indicating acceptable reliability. G3s reported moderate levels of Parental Support but tended to report higher levels of Parental Consistency and Parental Monitoring. Moreover, the Parental Monitoring summary score appeared slightly negatively skewed and positively kurtotic. Coefficient alpha was 0.83 for

Parental Support, 0.89 for Parenting Consistency, and 0.89 for Parental Monitoring for G2 report, indicating acceptable reliability. The G2 report of Positive Parenting had similar descriptive statistics. G2s reported moderate to high levels of Parental Support, Parental Consistency, and Parental Monitoring with the highest levels for Parental Monitoring. Moreover, Parental Monitoring as reported by G2s was negatively skewed and positively kurtotic.

Latent factors of positive parenting as reported by child and parent were created by using the average scores of Parental Support, Parental Consistency, and Parental Monitoring as three indicators. The Positive Parenting factor as reported by G2 and G3 both had significant loadings. The Positive Parenting factor as reported by the G3 had loadings that ranged from .50 to .90 and was most represented by the Parental Monitoring subscale (.90, see Figure 4). The Positive Parenting factor as reported by G2 had loadings that ranged from .48 to .76 and was most represented by the Parental Support subscale (.76, see Figure 5). Coefficient H, a reliability estimate for factor scores, was estimated to be 0.837 for Positive Parenting as reported by child and was 0.673 for Positive Parenting as reported by parent (McNeish, 2018), indicating acceptable reliability.

Temperament: Dysregulated Irritability

In testing the effect of parenting on adolescent Urgency, it is important to consider the possibility that parenting could be influenced by child characteristics, particularly by earlier precursors of adolescent Urgency, occurring in childhood. Thus, we created a measure that could capture childhood levels of Urgency-related traits that might influence parenting. To do this, we used scales from the Early Adolescent Temperament Questionnaire (EATQ-R) reported by parents when the children were an

average age of 12 years old. G2s reported on their child's effortful control abilities and frustration using the Early Adolescent Temperament Questionnaire (EATQ-R; Capaldi & Rothbart, 1992) at wave 6. Five items represented Activation Control. Five items represented Attention Control. Five items represented Inhibitory Control. Seven items represented the Frustration scale. Response values ranged from "Untrue" (1) to "True" (5). Higher scores indicated greater effortful control abilities or greater frustration. Coefficient alpha was 0.87 for Activation Control, 0.79 for Attention Control, 0.68 for Inhibitory Control, and 0.77 for Frustration, indicating acceptable to good reliability. A previous study using the AFDP G3 sample found that Activation Control, Attention Control, and Inhibitory Control subscales hung together in an effortful control latent variable (Waddell et al., 2021). This same study found that the shared variance between the effortful control latent variable and an anger reactivity latent variable prospectively predicted Negative Urgency in young childhood (Waddell et al., 2021). Thus, we created a Dysregulated Irritability latent factor that represented the shared variance between Effortful Control (Activation Control, Attention, and Inhibitory Control) and Frustration and used it as a covariate in testing the relation between Positive Parenting and adolescent Urgency.

The Dysregulated Irritability latent variable had significant loadings in the anticipated directions. The Effortful Control loadings ranged from .75-.81. The Effortful Control latent variable loaded onto the Dysregulated Irritability latent variable at -.61. Frustration loaded onto the Dysregulated Irritability latent variable separately at .61. Thus, the greater scores on Dysregulated Irritability latent variable represents greater

frustration and less effortful control. Higher scores indicate higher levels of Dysregulated Irritability (see Figure 6).

Methods

Analyses were conducted in Mplus version 8.5 (Muthén & Muthen, 2017). Structural equation models utilized maximum likelihood with robust standard errors. Models were estimated to account for missing data by using full information maximum likelihood. This estimation method provides unbiased estimates when data are missing completely at random (MCAR) or missing at random (MAR; Schafer & Graham, 2002). To examine missingness, Little's MCAR test was used to determine whether data are MCAR. Auxiliary variables used to help meet MAR assumptions include examining parent lifetime substance use disorder and family income to compare those with and without data. Due to the nested nature of the present sample, we used the TYPE=COMPLEX function in Mplus to account for non-independent data.

Preliminary analyses included identifying potential outliers by locating observations above or below 2.24 standard deviations from the mean (Aguinis et al., 2013; Martin & Roberts, 2010). Model diagnostics were performed to identify outliers and/or influential cases according to Cook's D and the loglikelihood distance influence measure (Cohen, Cohen, West, & Aiken, 2003; Cook, 1977).

Results

Aim 1 Results

For the first aim, confirmatory factor analyses were conducted to determine the best factor structure of Negative and Positive Urgency. We compared a two-factor model, a one-factor model, a higher-order factor model, and a bifactor model (see Figure 1 for

representations of different models). Model fit information was examined using the Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA). Acceptable model fit was indicated by a CFI value of .90 or greater, a TLI value of .95 or greater, a SRMR value of less than .08 and/or a RMSEA value of .06 or less (Hu & Bentler, 1999).

In anticipation of an under-identification problem with the higher-order factor model including two indicators, we planned two solutions. One solution was to constrain the loadings to be 1, which results in a parameter estimate of the latent factor variance (representing the covariance between the two indicators) and estimates of residual variances. A second solution was to fix the latent factor variance to 1 and constrain the loadings to be equal (Steiger, 2002). We applied both these solutions and compared fit indices to determine the best fitting factor structure.

Fit indices for the separate confirmatory factor analyses are in Table 3 and latent variable loadings are shown in Appendix Tables 2-5. For the one-factor model, Negative Urgency items fit less well onto the general Urgency latent variable (standardized loadings were <.64) compared to items measuring Positive Urgency (standardized loadings ranged from .63-.81). The one-factor model did not represent the covariance structure of the data well and showed poor fit across the indices (RMSEA, CFI, TLI, and SRMR).

The two-factor model showed good CFI and SRMR fit. Positive Urgency items had loadings that fit well onto a Positive Urgency latent variable (.63-.85). Negative Urgency items fit less well onto a Negative Urgency latent variable (.48-.81). The correlation between the Negative Urgency and Positive Urgency latent variables was .66.

For the higher-order model, we estimated two models to handle the under-identification problem of fitting a two-indicator higher-order factor. First, we fit a model where we constrained Negative Urgency and Positive Urgency loadings to a higher-order Urgency latent variable to be 1. This model resulted in Negative Urgency item loadings between .48-.81, and Positive Urgency item loadings between .63-.85. The higher-order Urgency latent variable had a variance of .146. Second, we fitted a model where we constrained the Negative and Positive Urgency loadings to be equal and fixed the Urgency variance to 1. This model resulted in the same item loadings as the first model where we constrained loadings to be 1. The Negative Urgency and Positive Urgency loadings to Urgency were .383 for both latent variables. These higher-order models had identical fit indices. The fit indices were also identical to the two-factor model.

The bifactor model showed the best fit. However, there was variation in how the individual items fit. Negative Urgency item loadings ranged from .28-.66. Positive Urgency item loadings ranged from -.05-.62 (most items ranged from -.05 to .36, with the final item loading being .62). The individual item loadings for Urgency ranged from .37-.86, with Negative Urgency item loadings being consistently lower compared to Positive Urgency item loadings. Positive Urgency item loadings had more items that were non-significant ($p>0.05$). We examined the individual items that loaded less strongly in this model to determine if there was a pattern in the way the questions were worded or a theme. There did not seem to be a pattern based on the questions.

Modification indices were examined to understand whether additional estimates could improve model fit. The suggestions included introducing correlated residuals and adding additional paths from indicators to latent variables. However, the modification

indices were not consistent with what we anticipated based on prior research on the factor structure of Negative and Positive Urgency. We were cautious not to model these suggestions as they may reflect idiosyncratic characteristics of the data. Previous research using simulated data found that modification indices often do not replicate true population data (MacCallum et al., 1992). Modification indices suggested for each of the above models were included in Tables 6-9 in the Appendix.

Although the bifactor model fit the data best when examining CFI, SRMR, and TLI cut-offs provided by Hu & Bentler (1999), the bifactor model also produced a data structure that was difficult to interpret. It has been previously documented that bifactor models, and more complex data structures in general, tend to produce better fit indices compared to more parsimonious models (Bonifay & Cai, 2017; Preacher, 2006; Reise et al., 2016). Given the knowledge that complex models often yield better fitting indices as well as the results from the bifactor model showing generally poor loadings across items, we decided that the two-factor model results and the higher-order factor model results followed our theoretical expectations of what the latent variables of Negative Urgency and Positive Urgency would best be represented by.

Because the two-factor model was more parsimonious than the higher-order model, we considered using the two-factor model for subsequent analyses. However, the large correlation between the two factors creates challenges in interpretation. By using the two-factor model as an outcome, we would be predicting the residual variance of each latent variable after accounting for their shared correlation. Nevertheless, we examined the two-factor model as an outcome and found that the results were identical to the results predicting Negative Urgency and Positive Urgency in separate models. Because we found

no difference in results, we completed the rest of the analyses with separate models for Negative Urgency and Positive Urgency.

We completed supplementary analyses to examine fit (in separate models) for a Negative Urgency factor and a Positive Urgency factor. We are aware that comparing fit indices across separate models can lead to problematic assumptions regarding best-fitting models due to scaling differences, but we were compelled to illustrate how model fit indices can vary across models. Fit indices and loadings are presented in Appendix Tables 10-12. The Negative Urgency factor model had acceptable fit comparable to the number and type of acceptable fit indices for the bifactor model, and the Positive Urgency factor model had acceptable fit comparable to the number and type of acceptable fit indices for the two-factor model and the higher-order model. Given that the results did not differ when modeling the correlated two-factor outcome and separate Negative Urgency and Positive Urgency outcomes, we examined positive urgency and negative urgency in separate models for all remaining aims.

Aim 2 Results

We estimated paths from the five parent NEO dimensions to Negative Urgency, controlling for covariates (G2 and G3 age, G2 and G3 gender, G3 ethnicity, and parents' lifetime SUD status). A separate model was estimated with paths from parent NEO dimensions and covariates to Positive Urgency (separate models for each Urgency factor). All endogenous variables were allowed to correlate.

Parent NEO dimensions did not predict offspring Negative Urgency or Positive Urgency (see Figures 7 and 8 for estimates). Parent lifetime SUD status predicted offspring Negative Urgency. Parents with a lifetime history of substance use disorder had

children with higher Negative Urgency compared to parents who had no lifetime history of substance use disorder ($p = 0.032$). Similarly, parent lifetime SUD status predicted offspring Positive Urgency. Parents with a lifetime history of substance use disorder had children who reported higher Positive Urgency compared to parents without a lifetime history of substance use disorder ($p = .002$). Other covariates did not significantly predict Negative Urgency or Positive Urgency.

Aim 3 Results

To estimate a possible mediated path from parent NEO dimensions to offspring Negative and Positive Urgency through Positive Parenting (reported by child and parent), we modeled path A (parent NEO to Positive Parenting) and path B (Positive Parenting to Negative Urgency and Positive Urgency) separately (see Figures 9-14).

For path A (parent NEO to the Positive Parenting factor as reported by child), none of the Parent NEO dimensions predicted Positive Parenting. The only covariate that was related to Positive Parenting was custodial status. Children who lived part time with their parent reported lower positive parenting than did children who lived full time with their parent ($p = .00$). Unstandardized model estimates are presented in Figure 9.

When examining path A using the Positive Parenting factor as reported by the parent, a different story emerged. Parents who reported greater Extraversion and Conscientiousness also reported greater positive parenting ($p = .045$ and $p = 0.007$) after accounting for covariates and the correlation among NEO facets. The covariates were not significantly related to parent report of Positive Parenting. Unstandardized model estimates are presented in Figure 10.

We examined path B and C' using Positive Parenting as reported by the child to Negative Urgency (Figure 11). Positive Parenting significantly predicted Negative Urgency. Greater positive parenting as reported by children predicted less Negative Urgency. Higher levels of Dysregulated Irritability were significantly associated with less Positive Parenting.

When examining path B using Positive Parenting as reported by the parent predicting Negative Urgency, we found that Positive Parenting did not significantly predict child Negative Urgency ($p = 0.065$), but the estimate was in the anticipated direction (Figure 12). Greater Positive Parenting as reported by parent appears to be related to less Negative Urgency in children. Higher levels of Dysregulated Irritability were significantly associated with less Positive Parenting.

We also ran separate models for Positive Urgency. For path B with Positive Parenting as reported by the child as a predictor of Positive Urgency, Positive Parenting significantly predicted Positive Urgency. Greater Positive Parenting as reported by children predicted less Positive Urgency ($p = 0.005$) and higher levels of Dysregulated Irritability were significantly associated with less Positive Parenting (Figure 13).

For path B with Positive Parenting as reported by the parent predicting Positive Urgency, Positive Parenting did not predict Positive Urgency (Figure 14). Higher levels of Dysregulated Irritability were significantly associated with less Positive Parenting, consistent with the prior models.

Because parent NEO facets were not significantly related to child Negative Urgency or Positive Urgency (shown in Figures 7 and 8), and because significant A paths and B paths were (with the exception of a marginal significant path from Positive

Parenting to Negative Urgency) only found within-reporter, we did not test whether Positive Parenting mediated this relationship.

Discussion

The present study sought to understand whether adolescents' Negative Urgency and Positive Urgency, subfacets of impulsivity, were related to their parents' general personality traits and whether this relationship could be explained by parenting practices. We utilized a longitudinal study to capture Negative and Positive Urgency during adolescence, parenting during childhood, and parent personality when their children were in young childhood. Our study is the first to test these questions.

For our first aim, we compared different factor models to determine the best factor structure for Negative and Positive Urgency in our sample. Prior research has found that a higher-order factor model (Urgency comprised of Negative Urgency and Positive Urgency latent factors) and a correlated five factor model with Negative Urgency and Positive Urgency as separate latent factors yield acceptable fit (Argyriou et al., 2020; Cyders & Smith, 2007; Watts et al., 2020). We hypothesized that we would select these same models as best fitting when comparing a one-factor, two-factor, higher-order factor, and bifactor models. However, based on our fit indices criteria, we found that the bifactor model fit the data best. This was due to using a particularly strict criteria of >.95 for the Tucker Lewis Index. A comparison of our fit indices across models with previous studies revealed that our two-factor, higher-order factor, and bifactor models all fell within the acceptable fit range that other studies used (TLI >.90). One study found that the bifactor model fit was worse than the higher-order factor model (Watts et al., 2020), whereas another study found that the bifactor model fit as well as the two-factor

and higher-order factor models (Argyriou et al., 2020). One consistent finding across these latent variable models was that the one-factor Urgency model (comprised of all Negative Urgency and Positive Urgency items) yielded poor fit. It is important to note that these prior studies examined the full five-factor model of impulsivity, whereas the present study investigated the structure of only Negative Urgency and Positive Urgency. Nevertheless, our results largely replicated the results of previous studies, suggesting that Negative Urgency and Positive Urgency can be represented by two highly correlated factors of Negative Urgency and Positive Urgency or a higher-order model where a latent variable of Urgency is indicated by the separate latent variables of Negative Urgency and Positive Urgency. It is also noteworthy that our results modeling the two-factor model as an outcome were identical to the results modeling Negative Urgency and Positive Urgency separately. Our results reiterate previous findings showing that Urgency does not exist as a singular impulsivity facet and that Negative Urgency and Positive Urgency are strongly correlated but separate impulsivity subfacets.

Our second aim tested whether a general parent personality framework could predict child Negative and Positive Urgency. There is limited prior research on this question. Some research has looked at impulsivity across generations, but these studies have used incomplete conceptualizations of impulsivity which have led to some mixed results (Boutwell & Beaver, 2010; Brodsky et al., 2008; Epstein et al., 2008; Henschel et al., 2014; Peviani et al., 2019). More specifically, studies utilizing behavioral tasks of impulsivity did not find significant relations between parents' impulsivity and offspring impulsivity or self-control (Epstein et al., 2008; Henschel et al., 2014). Studies that have examined Negative and Positive Urgency have only investigated correlations among

general personality dimensions within the same individuals (Cyders & Smith, 2008; Stautz et al., 2017). One additional study, which used the same sample as the current study, examined parents' personality via the FFM and found that maternal conscientiousness was significantly related to child's effortful control (Ruof et al., 2020). However, the study did not look at urgency traits.

Only one other study has examined parental general personality dimensions, as measured by the FFM as predictors of child impulsivity, using a temperament questionnaire assessing inhibitory control in toddlerhood (Verhoeven et al., 2007). The authors found that child inhibitory control was related to paternal agreeableness and openness but not maternal personality. However, Verhoeven et al.'s (2007) study utilized mother's report of child's inhibitory control. Given the current study findings showing significant prediction of urgency only from child report, it is possible that the difference between Verhoeven et al.'s (2007) findings and the current findings reflects their use of parent-reported inhibitory control. Alternatively, differences in findings could reflect different ages of offspring (toddlers versus adolescents) or differences in outcome variables (effortful control versus urgency). Finally, given Verhoeven et al.'s (2007) findings about father's personality, the lack of relations between parent personality and adolescent urgency in the current study might be due to the fact that the current sample overrepresented mothers' personality. Sixty-three percent of participants reporting on their personality were mothers, so we may have had less ability to detect relations between fathers' personality and child's Negative and Positive Urgency. Ideally both mother's and father's personality would be tested.

The lack of a relation between parental personality and child urgency traits in adolescence suggests that broad personality dimensions may not be good predictors of specific impulsivity facets across generations. Previous research that has investigated broad personality traits across generations has found small parent-child correlations between .10 and .15 (Loehlin, 2009), suggesting that large samples are necessary to find these relations. In the current study, the largest correlations between parent personality and child Negative and Positive Urgency were in the .10 to .15 range, providing additional evidence for small effect sizes for relations between parent and child personality traits. However, many estimates were close to 0. Thus, the current study found no evidence that general parent personality was related to child negative and positive urgency, whereas previous research suggests that relations between child and parent characteristics are small in magnitude.

Our findings may have been affected by the lack of parallel measurement across generations. We did not assess parent Negative Urgency and Positive Urgency directly. Moreover, Negative Urgency and Positive Urgency were related to specific subfacets within the FFM in previous research. Because we used the shortened NEO measure to represent the FFM, there was good coverage of the five factors but we may not have had enough items to represent the relevant subfacets necessary to predict child Negative and Positive Urgency.

Our last question was whether parenting could explain the link between parent personality and child Negative and Positive Urgency. Analyses revealed that parenting behaviors only predicted urgency when children reported on both parenting behaviors and urgency traits, but not in cross-reporter models in which parent-reports of parenting

were predictors. This suggests that the significant effects of parenting on urgency might reflect reporter bias. One problem with the parenting measure is that the children were heterogeneous in age (average age at this timepoint was 12, with a range of 9 to 16 years). Given the large age range, parenting behaviors can look very different for a 9 year-old versus a 16 year-old and the age heterogeneity at the time of measurement of parenting may create imprecision of measurement that weakens its long-term predictive power.

Another interpretation of the current pattern of findings is that it is the child's perceived experience of parenting that influences their urgency. Interestingly, the construct of positive parenting may mean different things to parents and children as seen in the factor loadings. The positive parenting latent factor as reported by children was heavily represented by the parental monitoring subscale, suggesting that children who perceive high levels of parental monitoring had less difficulties with controlling their actions after extreme negative and positive emotions. On the other hand, the positive parenting latent factor as reported by parents was most represented by the parental support subscale, indicating that parents who reported greater conscientiousness and extraversion are more likely to also report being supportive parents. However, these supportive parents do not seem to deter problematic emotion-based rash action. These differences in the meaning of the positive parenting construct may suggest that it is the control aspects of parenting (represented in child report of parenting) that are more important for the development of urgency than are the support aspects of parenting (represented in parent report of parenting).

Interestingly, childhood dysregulated irritability was related to less positive parenting behaviors as reported both by parents and children. It may be that dysregulated children evoke poor parenting but that parenting effects on urgency after a 4-year period are no longer detectable. Perhaps the lag of measurement between parenting and adolescent urgency was too long to capture parenting effects.

These results raise the possibility that family based interventions, particularly those focused on parental monitoring, could impact children's response to strong emotions. Parental monitoring has been shown to reduce child risk behavior (Stanton et al., 2000). Parental monitoring often includes active supervision of the child's behaviors as well as active communication regarding acceptable and unacceptable behaviors. Children who are actively monitored likely experience more opportunity to learn how to respond to extreme emotions and be corrected if they respond in inappropriate ways. With repeated learning, these children are likely reinforced for good behavior by their parents, and thus, show less problematic urgency traits over time. However, based on our results, it is only when children perceive that their parents engage in more monitoring that they are better able to regulate their emotions and behaviors.

Strengths and Limitations

Strengths of the present study include the longitudinal study design and the community-based sample. The longitudinal design allowed us to examine parental personality traits and parenting behaviors prior to children's urgency traits. Previous studies examining relations between parent impulsivity and child impulsivity often measure impulsivity at the same timepoint, limiting conclusions about directionality. The community-based sample allows for greater generalizability to a general population,

although the present study originally over selected for families with histories of alcohol use disorder. Our study also benefits from having multiple reporters for key variables. We utilized self-report for both parent personality and child impulsivity traits, and parenting was reported by both child and parent.

However, there are also limitations that are important to note. One limitation is that we had only one parent to represent parental personality and parenting. Ideally personality and parenting would be assessed for both parents. Moreover, parent personality was assessed during adulthood, when their children were very young. This time period may be less associated with impulsive traits as parents are focused on the responsibilities related to family life and having a young child. Measuring parent impulsivity prior to parenthood, during adolescence when impulsivity tends to peak, may identify stronger intergenerational relations. This would be particularly useful because parent and child personality characteristics would be assessed at the same stage of development.

Future Directions

The results of the present study point to several future research directions. A future study could attempt to disentangle whether relations between positive parenting and adolescent urgency traits are truly due to reporter bias or whether this relationship is related specifically to child perception of parenting behaviors, with an emphasis on parental monitoring. Researchers could seek to examine how the child's understanding of positive parenting develops and whether this can be influenced or bolstered by interventions to mitigate problematic urgency traits in later years. Because there is relatively less research on Negative and Positive Urgency, it will be important for

subsequent research to further elucidate which aspects of parent-reported and child-reported parenting behaviors impact development of urgency during important developmental periods. It will also be important to understand what types of children respond to positive parenting behaviors, and whether these parenting styles help improve all children's emotion-based rash action or whether these relations only occur in samples of children with particular characteristics.

Dysregulated irritability was found to be negatively related to positive parenting practices in the current study. However, this cross-sectional correlation could reflect a much more complex transactional process between parents and children across time. A child presenting with high levels of dysregulated irritability, a temperament dimension that represents high levels of frustration and poor ability to maintain attention and control impulses, could evoke poor parenting behaviors. These parents may have to monitor their child more frequently due to the child's impulsive and emotional disposition, necessitating parental intervention to mitigate emotional outbursts or dangerous behaviors. Over time, parents may become taxed by their child's problematic behaviors, resulting in poorer parenting practices over time. In turn, supportive parenting may diminish and punitive parenting may develop, leading to greater urgency traits in children over time. In order to test this hypothesis, future studies could measure proxies of urgency at earlier ages alongside measures of parenting behaviors at multiple timepoints. A cross-lagged panel model could elucidate the directionality between child temperament and parenting practices. Such studies could shed light on how child temperamental proclivities can be exacerbated or buffered by parenting practices.

Conclusion

The current study tested whether adolescent Negative and Positive Urgency, subcomponents of impulsivity, were predicted by parent personality traits and whether these relations could be explained by parenting practices. The findings revealed no relation between parent personality traits and urgency traits in adolescent offspring. However, the results are limited by the use of a single parent report of personality. The current study did find a negative relation between positive parenting and adolescent urgency traits, but only in models using child report of parenting. The results highlight the importance of understanding reporter effects in measures of parenting behaviors. Future research directions include efforts to understand differences between parent and child-reported parenting and the implications of those differences for the development of adolescent urgency.

Table 1

Descriptive Statistics for Study Variables

Continuous	Mean	SD	Min.	Max.	Skewness	Kurtosis	N
G3 Age at Wave 6 (positive parenting timepoint)	12.34	1.34	9.26	16.52	.722	-.388	315
G3 Age at Wave 8 (UPPS-P timepoint)	15.71	1.67	13.01	18.97	.257	-1.093	315
G2 Age at Wave 4/5 (NEO)	25.91	4.36	18.25	39.61	.977	.973	195
Parent NEO: Neuroticism (Wave 4/5, parent report)	2.72	.64	1.08	4.67	.437	.088	195
Parent NEO: Extraversion (Wave 4/5, parent report)	3.46	.50	2.13	4.92	-.040	-.029	195
Parent NEO: Conscientiousness (Wave 4/5, parent report)	3.74	.47	2.58	4.83	-.154	-.286	195
Parent NEO: Agreeableness (Wave 4/5, parent report)	3.64	.45	1.92	4.63	-.600	.804	195
Parent NEO: Openness to Experience (Wave 4/5, parent report)	3.16	.45	1.58	4.08	-.232	-.045	195
G3 Negative Urgency (Wave 8, child report)	2.29	.65	1	4	.160	-.341	315
G3 Positive Urgency (Wave 8, child report)	2.12	.68	1	4	.300	-.130	315
Parental Support (Wave 6, child report)	3.88	.83	1	5	-.767	.270	269
Parental Consistency (Wave 6, child report)	4.06	.64	1.5	5	-.491	.336	269
Parental Monitoring (Wave 6, child report)	4.40	.68	1.20	5	-1.780	3.660	269
Parental Support (Wave 6, parent report)	4.23	.59	2.29	5	-.748	-.006	315
Parental Consistency (Wave 6, parent report)	3.98	.64	1	5	-.690	1.209	315
Parental Monitoring (Wave 6, parent report)	4.55	.48	1	5	-2.021	9.250	315
Activation Control (Wave 6, parent report)	3.00	-.95	1	5	.010	-.728	315
Attention (Wave 6, parent report)	3.38	.57	1.33	4.67	-.577	.466	315
Inhibitory Control (Wave 6, parent report)	3.42	.70	1.20	5	-.400	.049	315
Frustration (Wave 6, parent report)	3.28	.67	1	5	-.113	.185	315
Dichotomous							N
G3 Gender	51.4% male 48.6% female						315
G3 Ethnicity	64.1% Non-Hispanic Caucasian 35.9% Other						315
G2 Gender at NEO timepoint	36.7% male 63.3% female						237
G2 Ethnicity	66.8% Non-Hispanic Caucasian 33.2% Other						237
Parent lifetime SUD by NEO timepoint	48.9% No lifetime alcohol or drug diagnosis 51.1% Alcohol or drug use disorder diagnosis						237
Custodial parent status	87.3% live with G3 full time 12.7% live with G3 part time						315

Note. UPPS-P= Five factor impulsivity scale (Zapolski et al., 2010). NEO=NEO Five Factor Inventory. G2=Second generation participants. G3=Third generation participants. SUD=Substance Use Disorder.

Table 2

Zero-Order Correlations for Covariates, Parent NEO, Positive Parenting, and Child Negative Urgency and Positive Urgency (N=315)

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1.	G3 age at Wave 8 (UPPS-P)	-																	
2.	G3 Gender (1=female 2=male)	-0.07	-																
3.	G3 Ethnicity (0=Non-hisp Cauc. 1=All else)	0.04	0.13*	-															
4.	G2 Age at NEO	0.19**	-0.02	-0.13*	-														
5.	G2 Gender (1=female 2=male)	-0.03	0.00	0.01	0.08	-													
6.	G2 Ethnicity (0=Non-hisp Cauc. 1=All else)	0.12*	0.14*	0.82**	-0.04	0.03	-												
7.	Parent lifetime SUD (1=AUD and/or DUD dx)	0.10	-0.11	0.09	-0.13*	0.01	0.05	-											
8.	G2 Neuroticism (parent report)	-0.03	-0.02	-0.11	-0.04	-0.17**	-0.09	0.14*	-										
9.	G2 Extraversion (parent report)	0.02	-0.03	0.08	-0.19**	-0.01	0.02	-0.04	-0.39**	-									
10.	G2 Conscientiousness (parent report)	0.01	-0.00	0.06	0.07	-0.05	0.08	-0.02	-0.36**	0.24**	-								
11.	G2 Agreeableness (parent report)	0.08	-0.04	-0.18**	0.16**	-0.22**	-0.13*	-0.34**	-0.32**	0.14	0.28**	-							
12.	G2 Openness to Experience (parent report)	-0.05	-0.06	-0.13*	-0.12	-0.09	-0.14*	0.10	0.06	0.22**	0.01	-0.02	-						
13.	G3 Negative Urgency (child report)	0.01	-0.04	-0.01	-0.03	-0.08	-0.03	0.17**	0.00	-0.05	-0.06	-0.08	0.06	-					
14.	G3 Positive Urgency (child report)	-0.04	0.03	-0.00	-0.03	0.03	-0.01	0.16**	-0.02	-0.04	-0.07	-0.07	-0.00	.63**	-				
15.	Parent Support (child report)	-0.06	-0.06	-0.09	0.08	-0.09	-0.03	-0.06	-0.03	0.02	0.14*	0.08	-0.04	-0.21**	-0.14**	-			
16.	Parent Consistency (child report)	-0.16**	-0.05	-0.06	0.07	0.07	-0.09	-0.18**	-0.08	0.11	0.11	0.12	-0.13	-0.21**	-0.17**	0.43**	-		
17.	Parent Monitoring (child report)	-0.10	-0.04	-0.02	0.02	-0.22**	-0.07	-0.06**	0.11	0.13*	0.11	0.23**	0.02	-0.20**	-0.18**	0.53**	0.45**	-	
18.	Parent Support (parent report)	-0.14*	0.02	0.15**	0.02	-0.10	0.11	0.03	-0.12*	0.23**	0.23**	0.03	0.12	-0.09	-0.02	0.25**	0.21**	0.18**	-

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
19. Parent Consistency (parent report)	-0.05	-0.07	-0.15**	0.07	-0.02	-0.12*	-0.20**	-0.27**	0.16**	0.33**	0.21**	0.16**	-0.14*	-0.08	0.20**	0.28**	0.07	0.40**	-						
20. Parent Monitoring (parent report)	-.18**	-0.02	0.14**	-0.01	-0.28**	0.13*	0.07	0.04	0.29**	0.20**	0.02	0.14	-0.13	-0.10	0.28**	0.23**	0.33**	0.37**	0.25**	-					
21. Activation Control (parent report)	-0.04	-0.14*	0.14*	-0.02	0.03	0.16**	-0.10	-0.11	0.04	0.10	0.12*	-0.04	-0.17**	-0.10	0.13*	0.17**	0.18**	0.19**	0.24**	0.05	-				
22. Attention (parent report)	-0.02	-0.04	0.06	0.02	-0.05	0.05	-0.05	-0.09	0.12	0.09	0.04	-0.00	-0.13*	-0.13*	0.15*	0.15**	0.13	0.22**	0.16**	0.07	0.66**	-			
23. Inhibitory Control (parent report)	0.04	-0.13*	0.02	0.01	-0.05	-0.02	-0.13*	-0.18**	0.13	0.14*	0.16*	-0.01	-0.22**	-0.12*	0.20**	0.20**	0.22**	0.23**	0.25**	0.08	0.56**	0.60**	-		
24. Frustration (parent report)	0.03	-0.01	-0.03	-0.09	-0.12*	-0.02	0.21**	0.11	-0.03	-0.12	-0.16**	0.16*	0.16**	0.02	-0.20**	-0.24**	-0.16*	-0.13*	-0.30**	-0.14*	-0.28**	-0.19**	-0.44**	-	
25. Custodial parent (1=full time, 2=part time)	0.10	-0.03	0.05	-0.14*	0.23**	0.06	0.11	-0.09	-0.12	-0.08	-0.23*	-0.01	0.04	0.08	-0.09	-0.06	-0.34**	0.02	0.04	-0.33**	0.03	-0.02	-0.05	0.02	-

Note. *p<.05 **p<.01. Sample size (N = 315) uses full information maximum likelihood.

Table 3

Confirmatory Factor Analyses Fit Indices for Negative Urgency and Positive Urgency

Model	χ^2(*df*)	RMSEA	CFI	TLI	SRMR
One-factor	732.016**(104)	0.138	0.792	0.760	0.089
Two-factor	342.070**(103)	0.086	**0.921**	0.908	**0.053**
Higher-order	342.070**(103)	0.086	**0.921**	0.908	**0.053**
Bifactor	196.863**(88)	0.063	**0.964**	**0.951**	**0.036**

Note. * $p < .05$, ** $p < .01$. Bolded indices indicate acceptable fit according to Hu & Bentler (1999).

Figure 1

Confirmatory Factor Structure Models for Aim 1

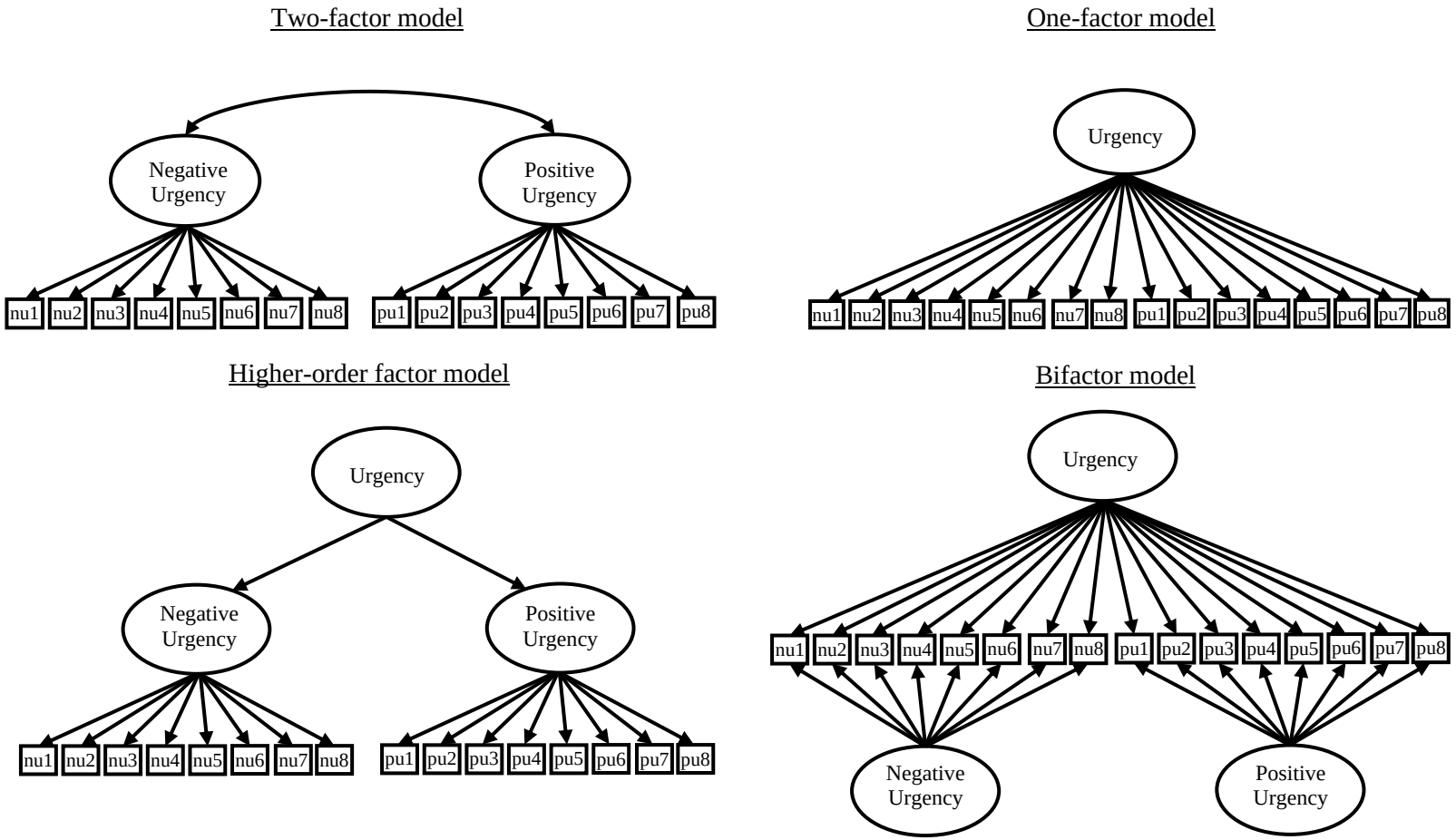


Figure 2

Parent NEO to Offspring Negative Urgency and Positive Urgency Model for Aim 2

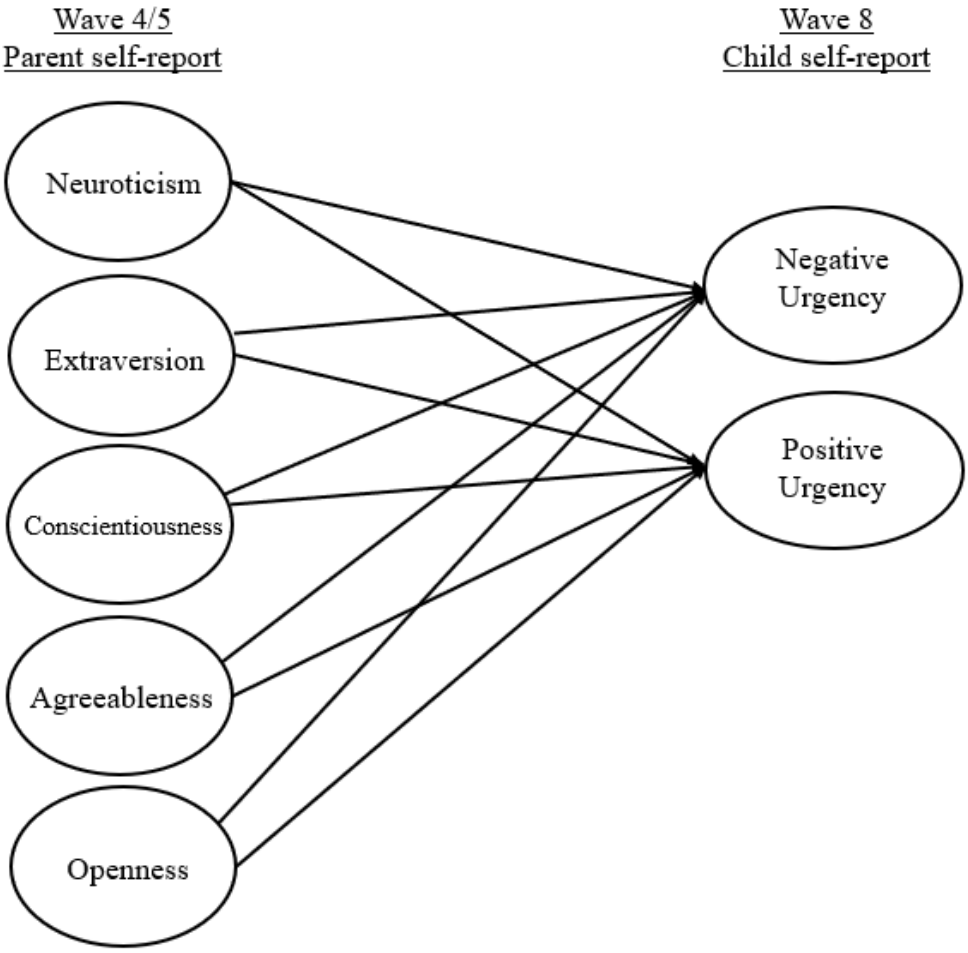


Figure 3

Mediation Model for Aim 3: Parent NEO to Urgency as Mediated by Positive Parenting Practices

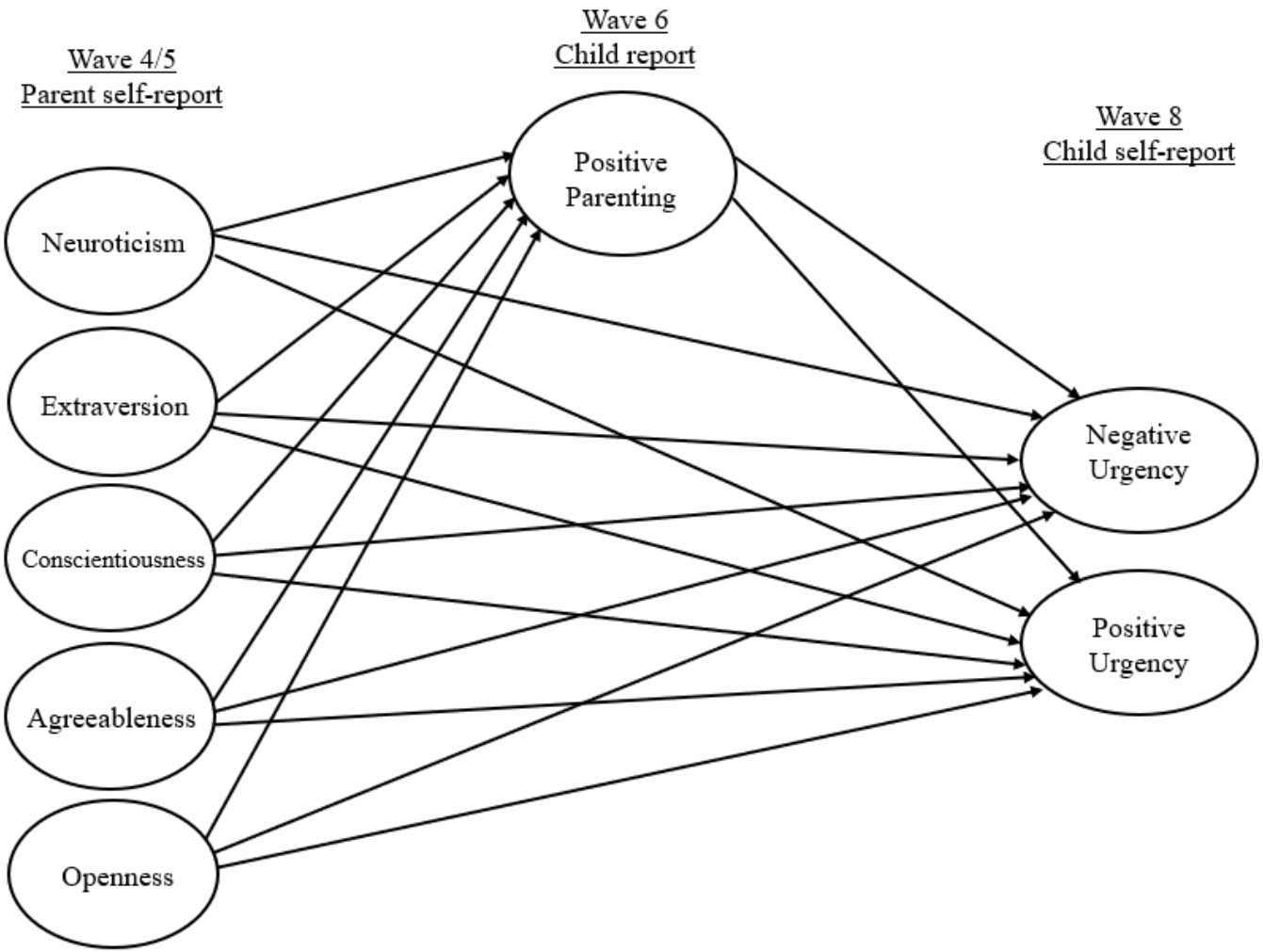
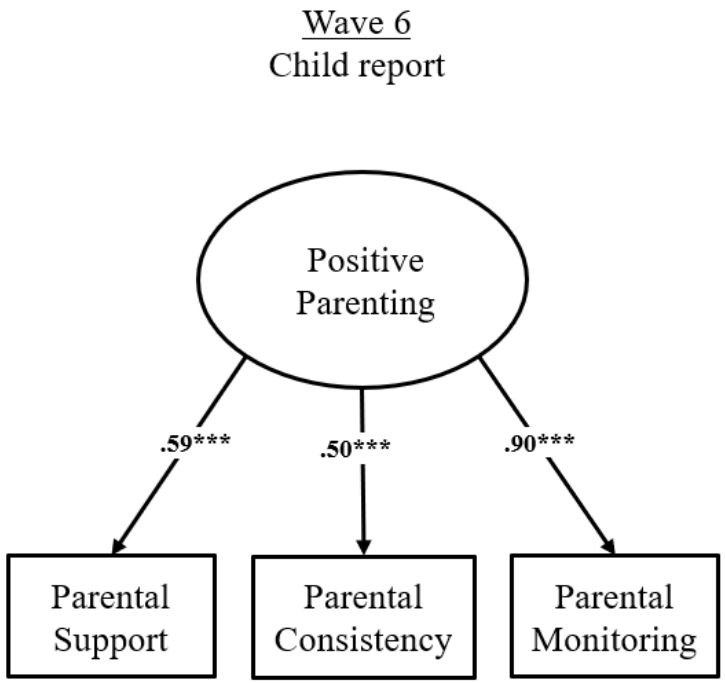


Figure 4

Positive Parenting Factor Loadings (reported by child, standardized)



Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 5

Positive Parenting Factor Loadings (reported by parent, standardized)

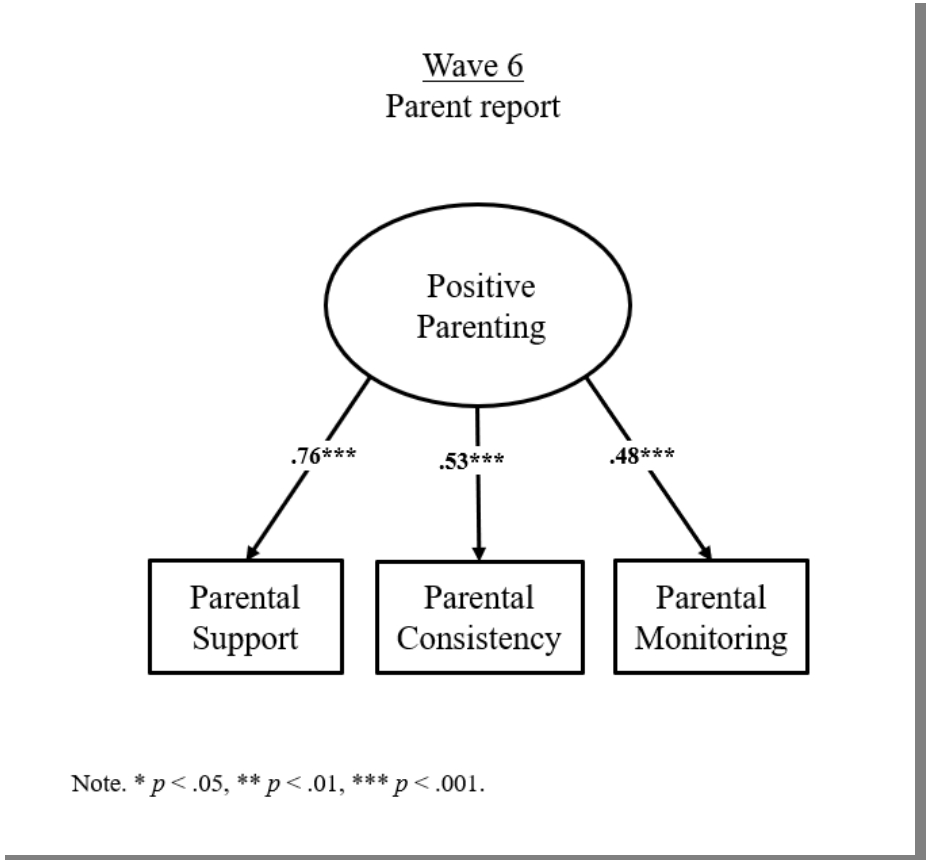
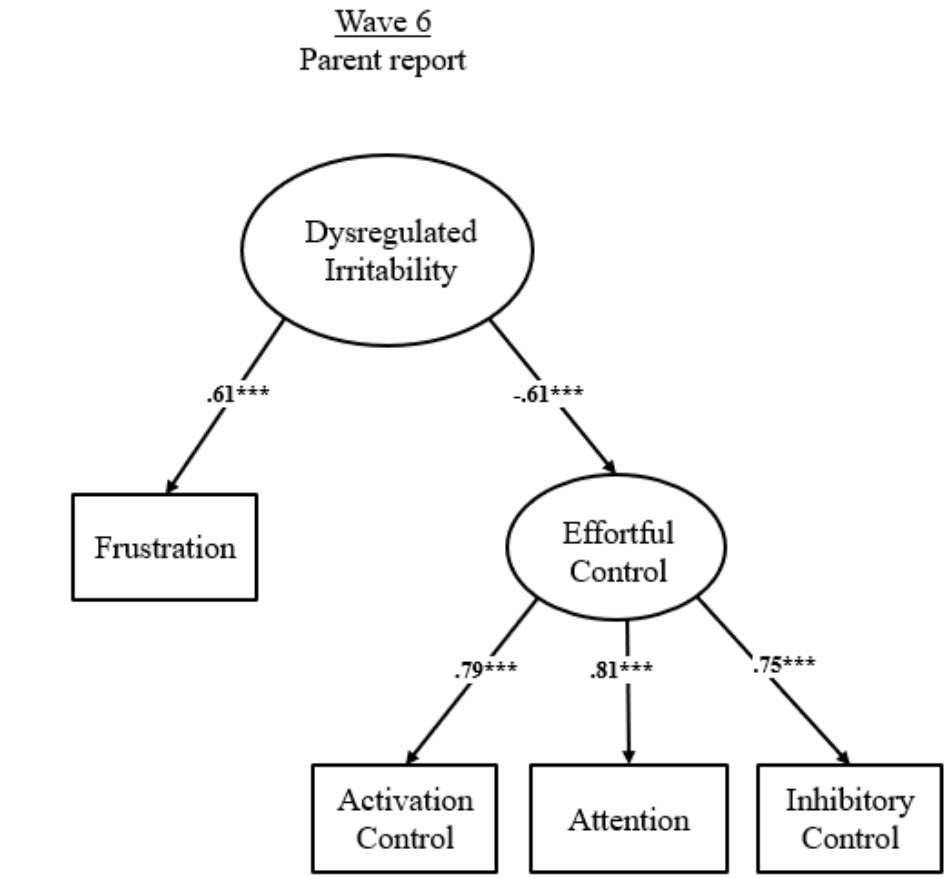


Figure 6

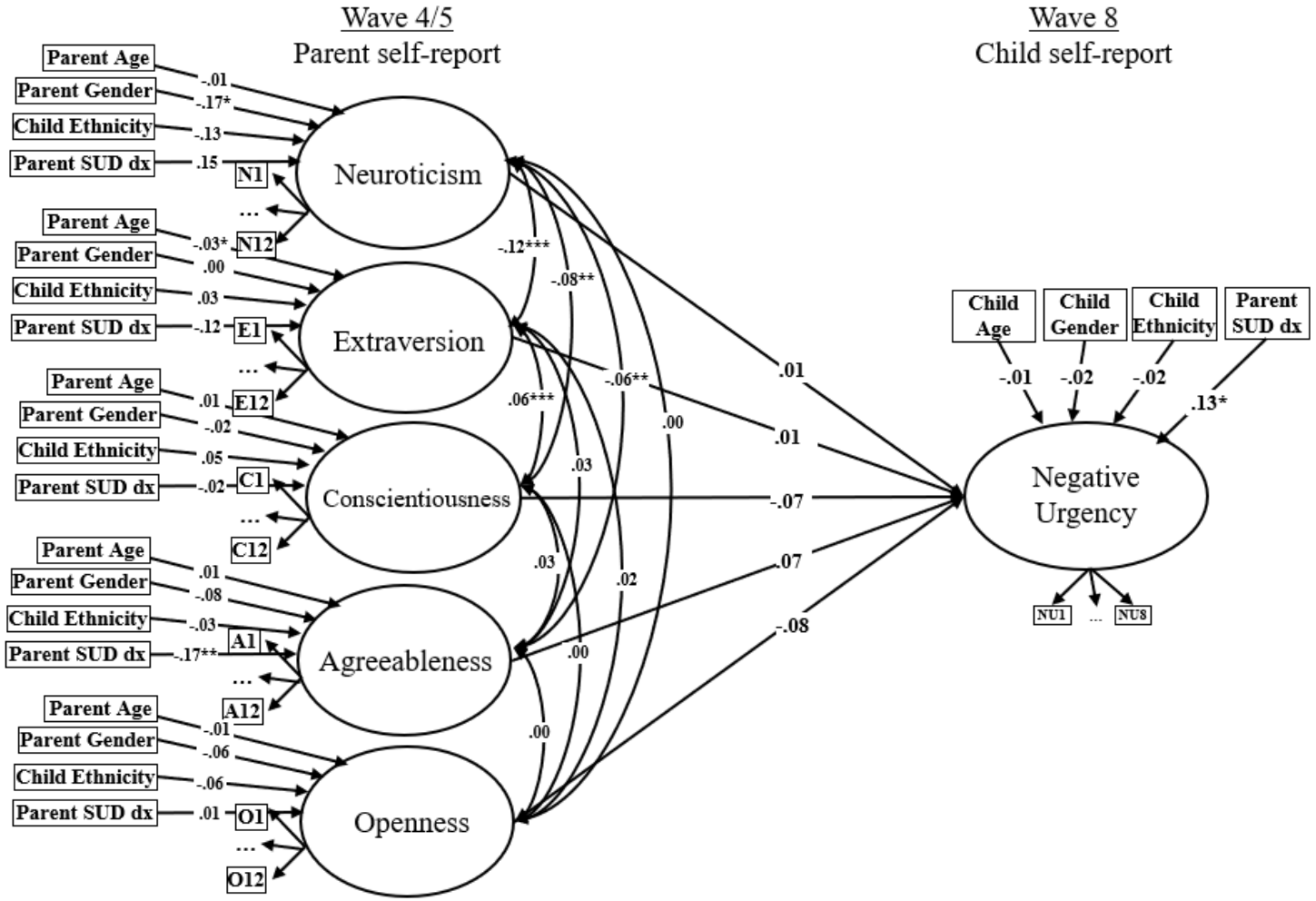
Child Dysregulated Irritability Factor Loadings (standardized)



Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 7

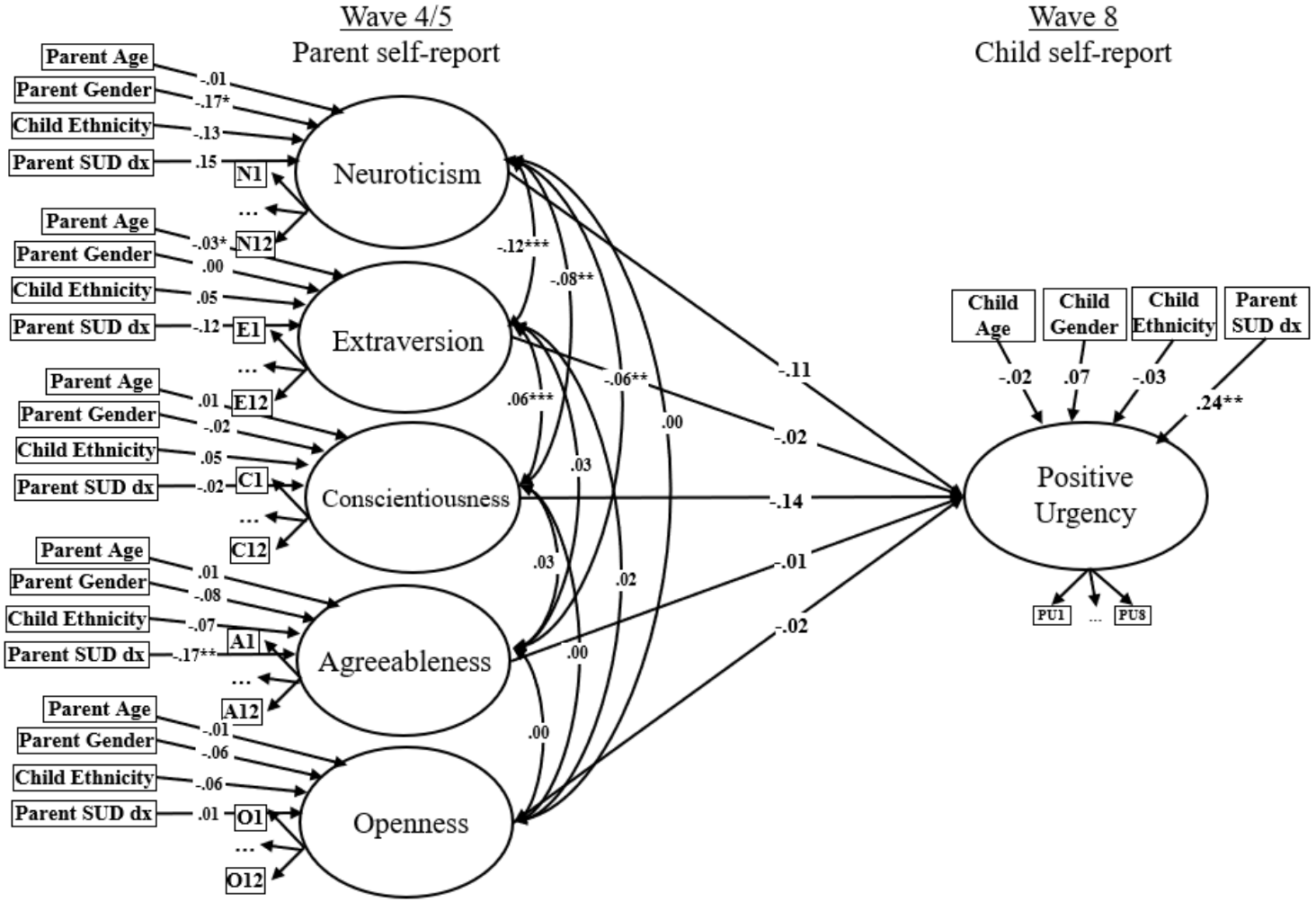
Unstandardized Structural Equation Model Estimates for Parent NEO Dimensions Predicting Negative Urgency



Note. * $p < .05$, ** $p < .01$. Correlations between covariate variables are not shown.

Figure 8

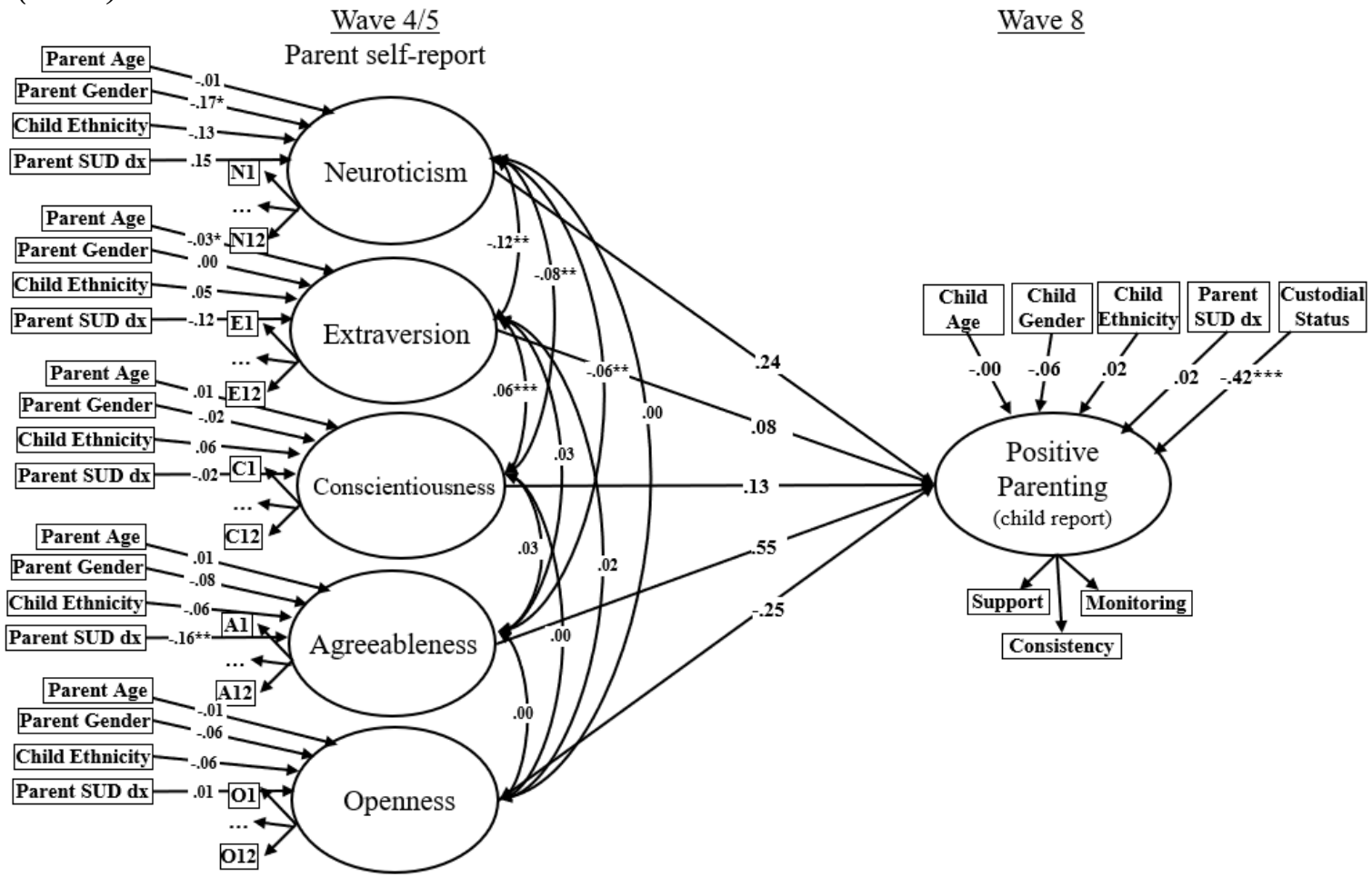
Unstandardized Structural Equation Model Estimates for Parent NEO Dimensions Predicting Positive Urgency



Note. * $p < .05$, ** $p < .01$. Correlations between covariate variables are not shown.

Figure 9

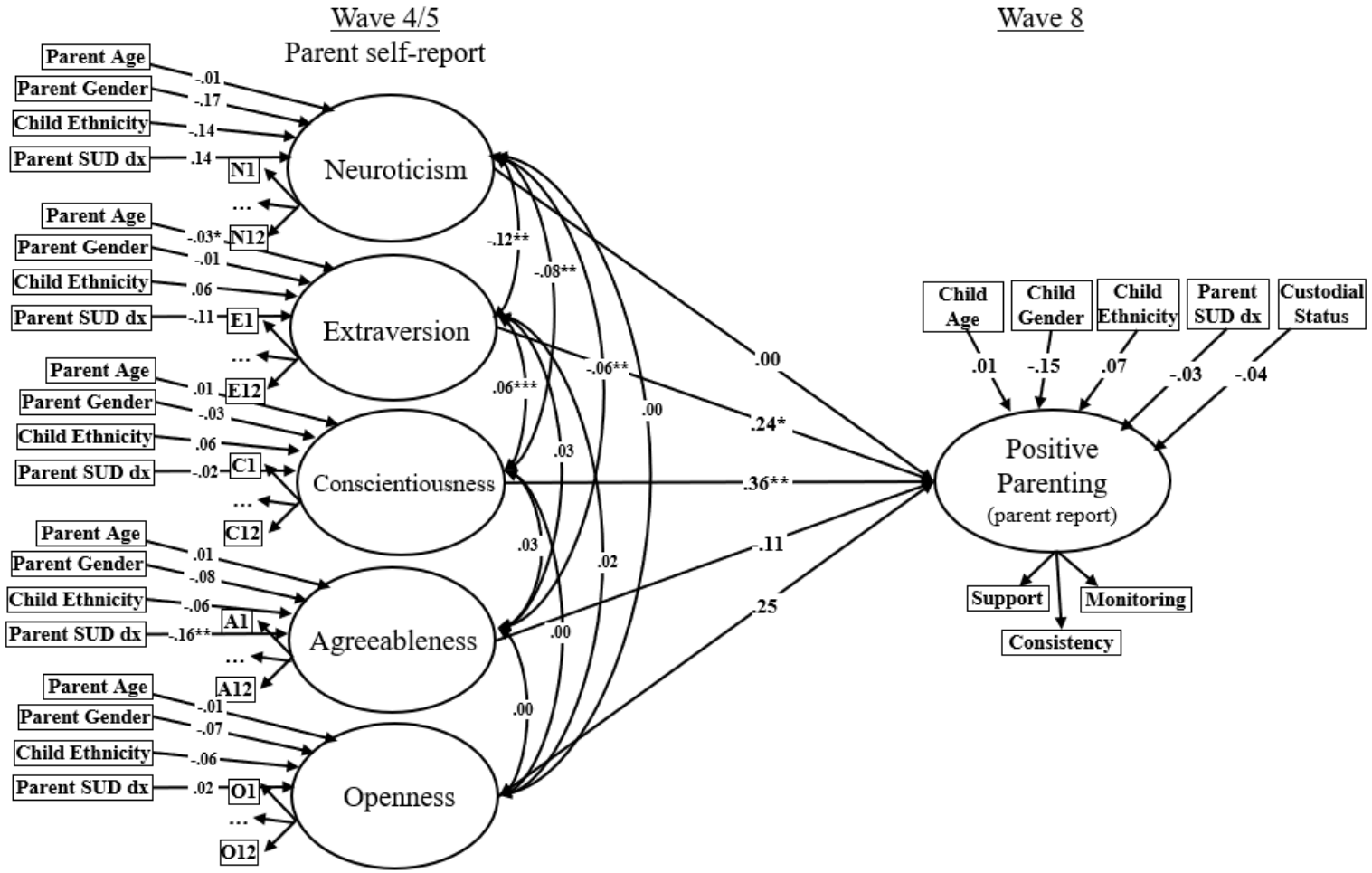
Unstandardized Structural Equation Model Estimates for Parent NEO Dimensions Predicting Positive Parenting Reported by Child (Path A)



Note. * $p < .05$, ** $p < .01$. Correlations between covariate variables are not shown.

Figure 10

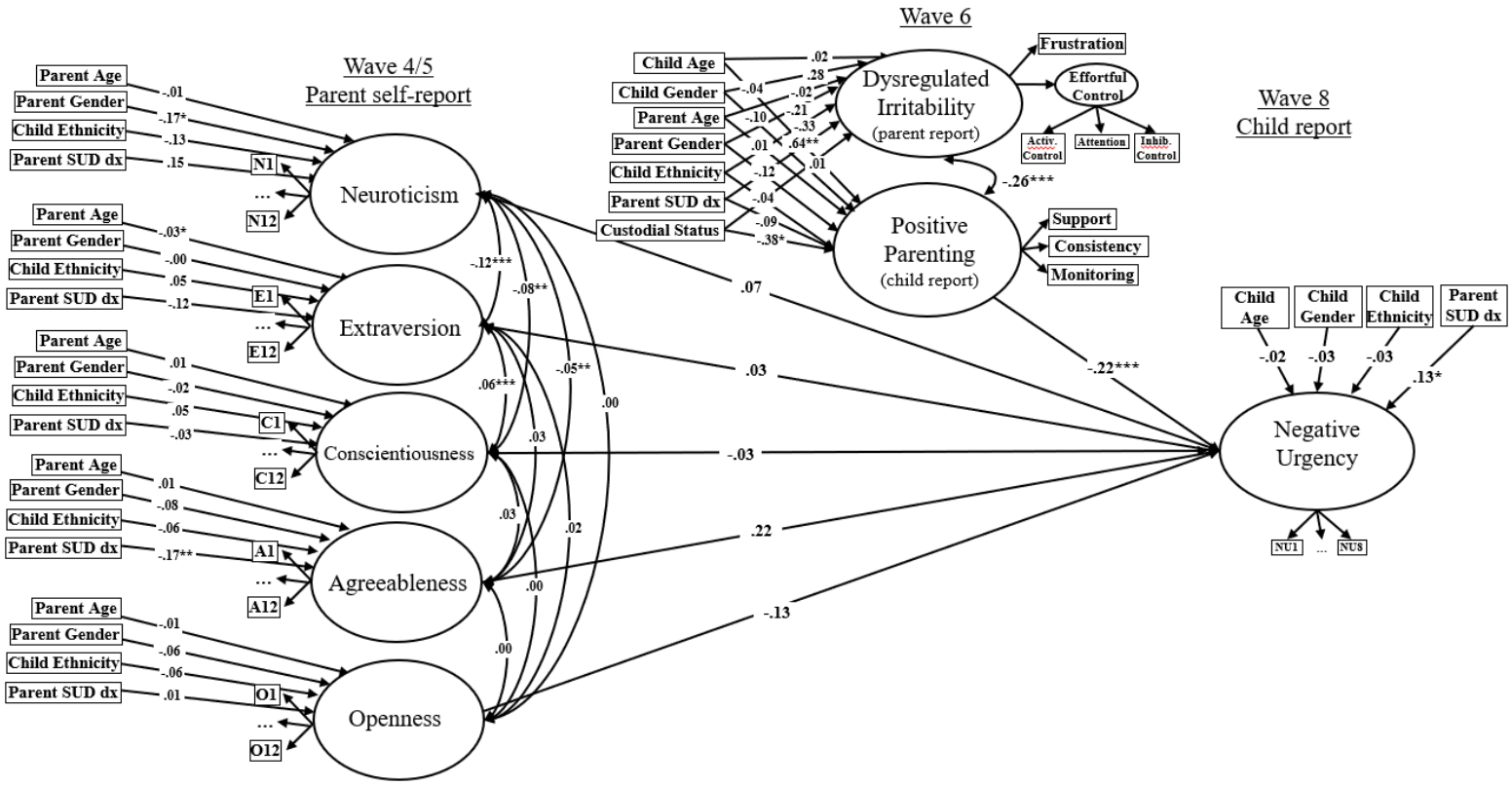
Unstandardized Structural Equation Model Estimates for Parent NEO Dimensions Predicting Positive Parenting Reported by Parent (Path A)



Note. * $p < .05$, ** $p < .01$. Correlations between covariate variables are not shown.

Figure 11

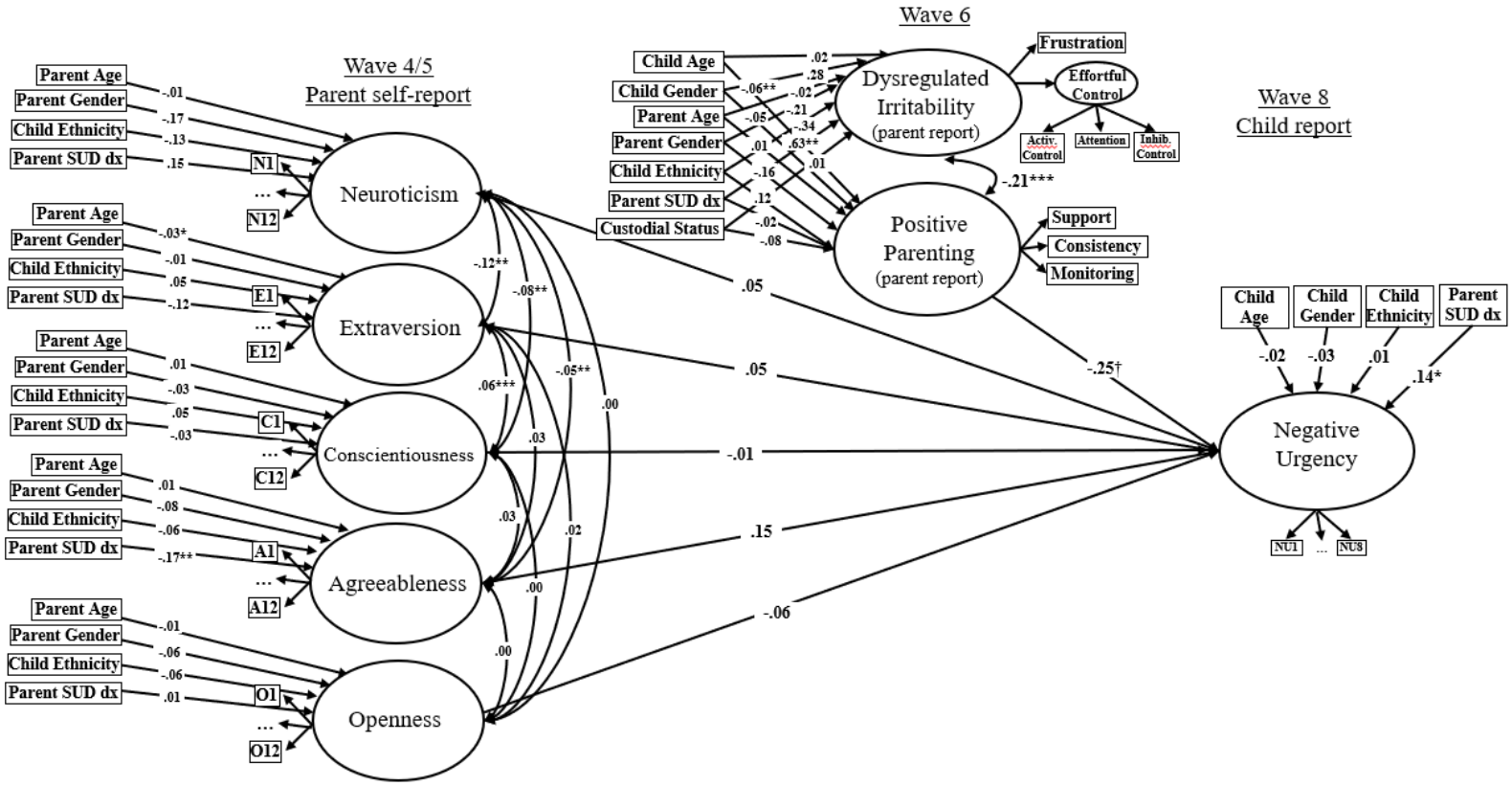
Unstandardized Structural Equation Model Estimates for Positive Parenting (Child Report) Predicting Negative Urgency, Controlling for Child Dysregulated Irritability (Path B)



Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Correlations between covariate variables are not shown.

Figure 12

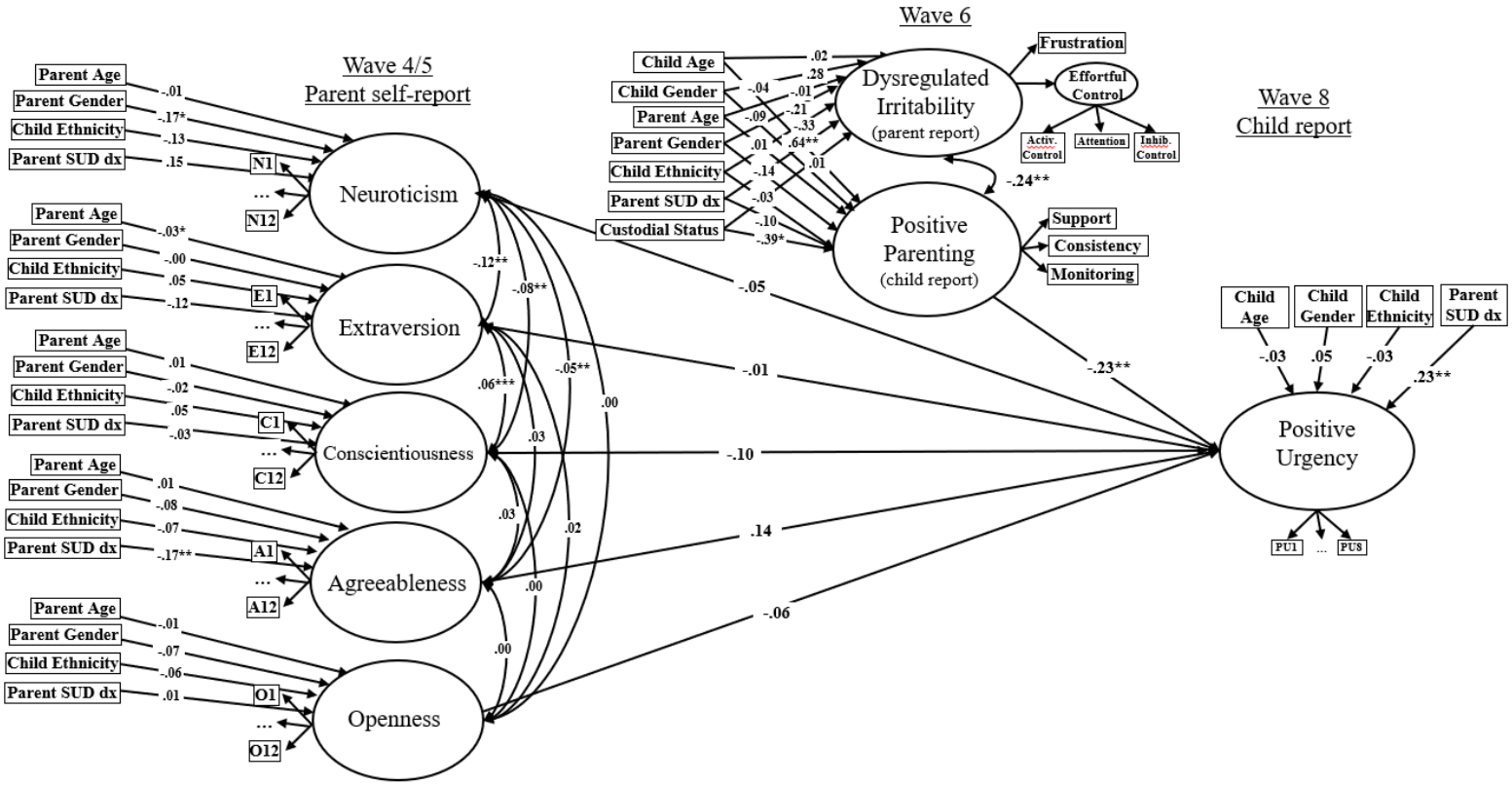
Unstandardized Structural Equation Model Estimates for Positive Parenting (Parent Report) Predicting Negative Urgency, Controlling for Child Dysregulated Irritability (Path B)



Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. Correlations between covariate variables are not shown.

Figure 13

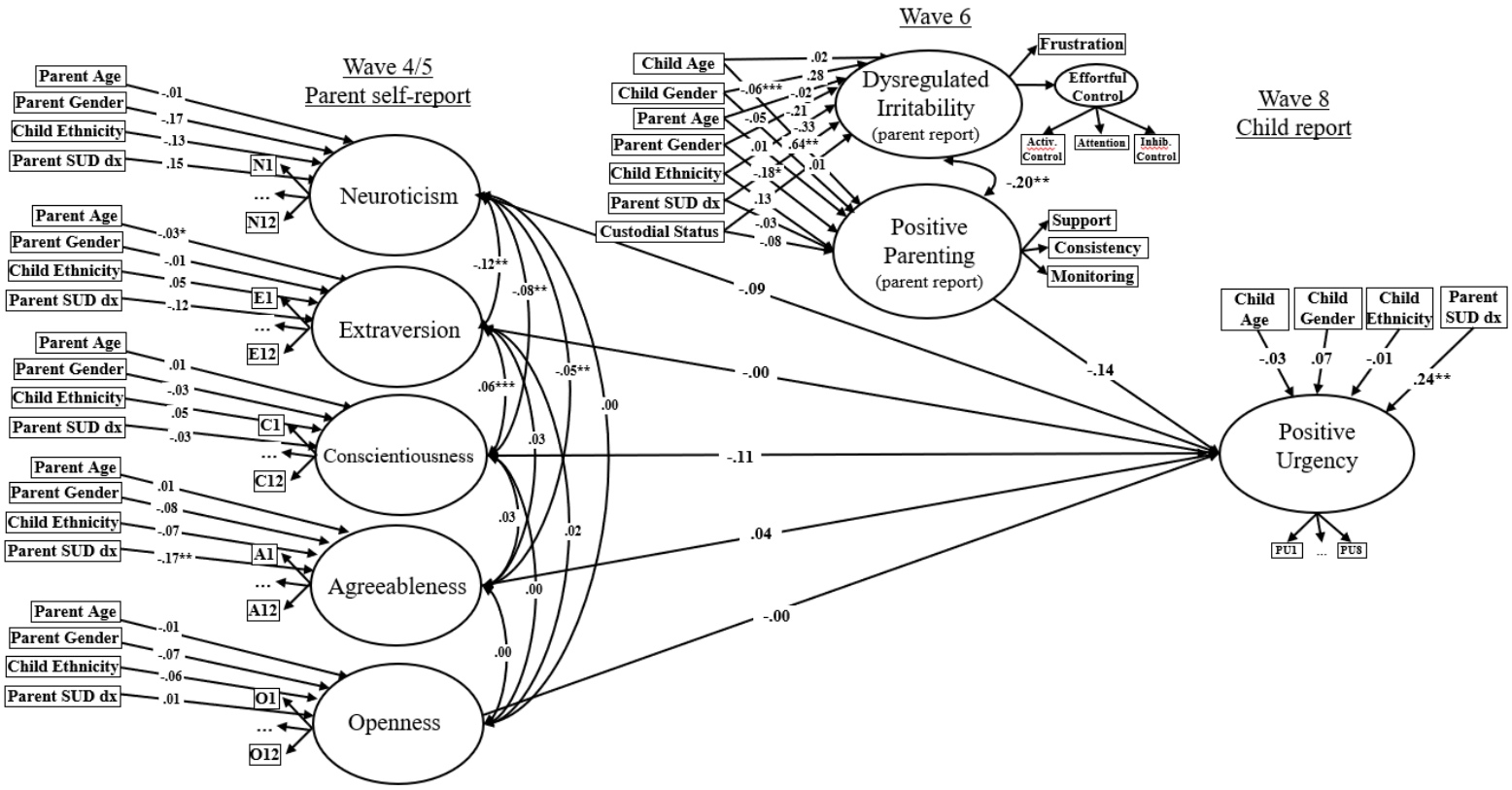
Unstandardized Structural Equation Model Estimates for Positive Parenting (Child Report) Predicting Positive Urgency, Controlling for Child Dysregulated Irritability (Path B)



Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Correlations between covariate variables are not shown.

Figure 14

Unstandardized Structural Equation Model Estimates for Positive Parenting (Parent Report) Predicting Positive Urgency, Controlling for Child Dysregulated Irritability (Path B)



Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Correlations between covariate variables are not shown.

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APPENDIX A

NEGATIVE URGENCY AND POSITIVE URGENCY ITEMS

Negative Urgency items
1. If I feel like doing something, I tend to do it, even if it's bad 2. When I feel bad, I often do things I later regret in order to make myself feel better now 3. Sometimes when I feel bad, I keep doing something even though it is making me feel worse 4. When I am upset, I often act without thinking 5. When I feel rejected, I often say things that I later regret 6. I often make matters worse because I act without thinking when I am upset 7. When I am mad, I sometimes say things that I later regret 8. Sometimes I do crazy things I later regret
Positive Urgency items
1. When I am very happy, I can't stop myself from going overboard 2. When I am really thrilled, I tend not to think about the results of my actions 3. When I am in a great mood, I tend to do things that could cause me problems 4. I tend to act without thinking when I am very, very happy 5. When I get really happy about something, I tend to do things that can lead to trouble 6. When I am really happy, I tend to get out of control 7. I tend to lose control when I am in a great mood 8. When I am very happy, I tend to do things that may cause problems in my life

APPENDIX B

BIFACTOR MODEL LOADINGS (STANDARDIZED)

	Estimate	S.E.	p-value
Negative Urgency factor			
NU1	0.325	0.055	0.000
NU2	0.361	0.050	0.000
NU3	0.280	0.056	0.000
NU4	0.616	0.042	0.000
NU5	0.571	0.043	0.000
NU6	0.669	0.039	0.000
NU7	0.591	0.043	0.000
NU8	0.363	0.047	0.000
Positive Urgency factor			
PU1	0.120	0.064	0.062
PU2	0.024	0.065	0.712
PU3	-0.057	0.067	0.396
PU4	0.011	0.067	0.866
PU5	0.028	0.067	0.674
PU6	0.364	0.083	0.000
PU7	0.626	0.106	0.000
PU8	0.189	0.072	0.009
Urgency factor			
NU1	0.375	0.052	0.000
NU2	0.513	0.044	0.000
NU3	0.392	0.050	0.000
NU4	0.438	0.048	0.000
NU5	0.479	0.046	0.000
NU6	0.499	0.045	0.000
NU7	0.444	0.048	0.000
NU8	0.595	0.039	0.000
PU1	0.624	0.038	0.000
PU2	0.740	0.029	0.000
PU3	0.845	0.020	0.000
PU4	0.833	0.021	0.000
PU5	0.862	0.018	0.000
PU6	0.762	0.035	0.000
PU7	0.769	0.048	0.000
PU8	0.808	0.026	0.000

APPENDIX C

HIGHER-ORDER FACTOR MODEL LOADINGS (STANDARDIZED)

	Estimate	S.E.	p-value
Negative Urgency factor			
NU1	0.494	0.046	0.000
NU2	0.630	0.038	0.000
NU3	0.488	0.047	0.000
NU4	0.734	0.031	0.000
NU5	0.746	0.029	0.000
NU6	0.812	0.024	0.000
NU7	0.734	0.030	0.000
NU8	0.689	0.034	0.000
Positive Urgency factor			
PU1	0.638	0.035	0.000
PU2	0.730	0.028	0.000
PU3	0.813	0.021	0.000
PU4	0.815	0.021	0.000
PU5	0.850	0.018	0.000
PU6	0.821	0.021	0.000
PU7	0.841	0.019	0.000
PU8	0.834	0.019	0.000
Urgency factor			
Negative Urgency factor	0.968	0.070	0.000
Positive Urgency factor	0.688	0.050	0.000

APPENDIX D

TWO-FACTOR MODEL LOADINGS (STANDARDIZED)

	Estimate	S.E.	p-value
Negative Urgency factor			
NU1	0.494	0.046	0.000
NU2	0.630	0.038	0.000
NU3	0.488	0.047	0.000
NU4	0.734	0.031	0.000
NU5	0.746	0.029	0.000
NU6	0.812	0.024	0.000
NU7	0.734	0.030	0.000
NU8	0.689	0.034	0.000
Positive Urgency factor			
PU1	0.638	0.035	0.000
PU2	0.730	0.028	0.000
PU3	0.813	0.021	0.000
PU4	0.815	0.021	0.000
PU5	0.850	0.018	0.000
PU6	0.821	0.021	0.000
PU7	0.841	0.019	0.000
PU8	0.834	0.019	0.000
Corr. Negative Urgency and Positive Urgency	0.666	0.038	0.000

APPENDIX E

ONE-FACTOR MODEL LOADINGS (STANDARDIZED)

	Estimate	S.E.	p-value
Urgency factor			
NU1	0.407	0.049	0.000
NU2	0.570	0.040	0.000
NU3	0.432	0.048	0.000
NU4	0.526	0.043	0.000
NU5	0.555	0.041	0.000
NU6	0.589	0.039	0.000
NU7	0.538	0.042	0.000
NU8	0.643	0.035	0.000
PU1	0.633	0.036	0.000
PU2	0.751	0.027	0.000
PU3	0.800	0.022	0.000
PU4	0.809	0.021	0.000
PU5	0.834	0.019	0.000
PU6	0.796	0.023	0.000
PU7	0.815	0.021	0.000
PU8	0.811	0.021	0.000

APPENDIX F

MODIFICATION INDICES FOR THE TWO-FACTOR MODEL

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.
Factor loadings				
Neg Urg by PU2	22.651	0.251	0.251	0.292
Pos Urg by NU8	19.918	0.262	0.262	0.292
Correlations				
NU6 with NU4	25.154	0.124	0.124	0.379
NU7 with NU5	13.574	0.107	0.107	0.257
PU4 with PU2	21.074	0.086	0.086	0.293
PU5 with PU3	17.196	0.060	0.060	0.288
PU7 with PU3	22.887	-0.072	-0.072	-0.328
PU7 with PU6	73.554	0.124	0.124	0.592
PU8 with PU2	17.814	-0.067	-0.067	-0.274

APPENDIX G

MODIFICATION INDICES FOR THE HIGHER-ORDER FACTOR MODEL

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.
Factor loadings				
Neg Urg by PU2	22.651	0.635	0.251	0.292
Pos Urg by NU8	19.920	0.471	0.262	0.292
Urgency by NU8	19.924	3.347	3.347	3.740
Urgency by PU2	22.651	0.274	0.274	0.318
Correlations				
NU6 with NU4	25.154	0.124	0.124	0.379
NU7 with NU5	13.574	0.107	0.107	0.257
PU4 with PU2	21.074	0.086	0.086	0.293
PU5 with PU3	17.196	0.060	0.060	0.288
PU7 with PU3	22.887	-0.072	-0.072	-0.328
PU7 with PU6	73.554	0.124	0.124	0.592
PU8 with PU2	17.814	-0.067	-0.067	-0.274

APPENDIX H

MODIFICATION INDICES FOR THE ONE-FACTOR MODEL

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.
Correlations				
NU3 with NU2	16.059	0.138	0.138	0.232
NU4 with NU1	17.371	0.136	0.136	0.241
NU4 with NU2	10.540	0.111	0.111	0.189
NU5 with NU2	12.213	0.124	0.124	0.204
NU5 with NU4	31.691	0.205	0.205	0.329
NU6 with NU1	20.880	0.140	0.140	0.264
NU6 with NU2	17.300	0.134	0.134	0.243
NU6 with NU4	93.112	0.317	0.317	0.564
NU6 with NU5	57.277	0.259	0.259	0.442
NU7 with NU2	16.036	0.142	0.142	0.233
NU7 with NU4	38.699	0.225	0.225	0.363
NU7 with NU5	71.571	0.319	0.319	0.493
NU7 with NU6	51.383	0.244	0.244	0.418
NU8 with NU4	10.382	0.100	0.100	0.189
NU8 with NU5	24.710	0.161	0.161	0.292
NU8 with NU6	15.823	0.117	0.117	0.234
NU8 with NU7	26.007	0.165	0.165	0.299
PU3 with NU4	13.070	-0.088	-0.088	-0.221
PU4 with NU7	11.045	-0.082	-0.082	-0.203
PU4 with PU2	15.916	0.073	0.073	0.253
PU4 with PU3	10.913	0.056	0.056	0.214
PU5 with NU3	12.272	-0.074	-0.074	-0.215
PU5 with NU4	14.912	-0.081	-0.081	-0.240
PU5 with NU6	12.186	-0.069	-0.069	-0.217
PU5 with NU7	11.744	-0.075	-0.075	-0.212
PU5 with PU3	26.911	0.078	0.078	0.343
PU6 with NU5	23.946	-0.122	-0.122	-0.298
PU6 with NU6	12.203	-0.079	-0.079	-0.213
PU7 with NU1	15.096	-0.081	-0.081	-0.235
PU7 with NU5	12.352	-0.082	-0.082	-0.216
PU7 with NU6	11.333	-0.071	-0.071	-0.207
PU7 with NU8	11.174	-0.067	-0.067	-0.207
PU7 with PU6	90.986	0.148	0.148	0.621
PU8 with NU4	15.072	-0.081	-0.081	-0.238
PU8 with NU5	16.990	-0.089	-0.089	-0.253
PU8 with NU6	14.030	-0.073	-0.073	-0.230
PU8 with NU7	17.821	-0.091	-0.091	-0.258
PU8 with PU2	16.314	-0.064	-0.064	-0.257
PU8 with PU5	19.795	0.057	0.057	0.297
PU8 with PU6	10.593	0.047	0.047	0.212
PU8 with PU7	22.567	0.064	0.064	0.312

APPENDIX I

MODIFICATION INDICES FOR THE BIFACTOR MODEL

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.
Factor loadings				
Neg Urg by PU2	21.411	0.699	0.182	0.212
Correlations				
NU6 with NU4	16.673	0.116	0.116	0.390
NU7 with NU5	13.854	0.113	0.113	0.275
PU3 with PU2	12.378	-0.069	-0.069	-0.260
PU4 with PU2	16.175	0.076	0.076	0.278
PU8 with PU2	14.459	-0.059	-0.059	-0.242
PU8 with PU5	11.629	0.041	0.041	0.245

APPENDIX J

CONFIRMATORY FACTOR ANALYSES FIT INDICES FOR NEGATIVE URGENCY AND POSITIVE URGENCY AS SEPARATE FACTORS

Model	$\chi^2(df)$	RMSEA	CFI	TLI	SRMR
Negative Urgency (one-factor)	53.699**(20)	0.073	**0.965**	**0.950**	**0.035**
Positive Urgency (one-factor)	161.399**(20)	0.150	**0.924**	0.894	**0.039**

Note. * $p < .05$, ** $p < .01$. Bolded indices indicate acceptable fit according to Hu & Bentler (1999).

APPENDIX K

NEGATIVE URGENCY FACTOR MODEL LOADINGS (STANDARDIZED)

	Estimate	S.E.	p-value
Urgency factor			
NU1	0.491	0.047	0.000
NU2	0.612	0.039	0.000
NU3	0.475	0.048	0.000
NU4	0.745	0.030	0.000
NU5	0.750	0.030	0.000
NU6	0.826	0.024	0.000
NU7	0.740	0.030	0.000
NU8	0.663	0.036	0.000

APPENDIX L

POSITIVE URGENCY FACTOR MODEL LOADINGS (STANDARDIZED)

	Estimate	S.E.	p-value
Urgency factor			
PU1	0.636	0.036	0.000
PU2	0.718	0.029	0.000
PU3	0.812	0.022	0.000
PU4	0.812	0.022	0.000
PU5	0.850	0.018	0.000
PU6	0.825	0.021	0.000
PU7	0.844	0.019	0.000
PU8	0.838	0.019	0.000