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Social Withdrawal and Indices of Adjustment and Maladjustment
in Adolescence: Does Parent Warmth
and Extraversion Matter?

Mallory Abigail Millett

A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Master of Science

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ABSTRACT

Social Withdrawal and Indices of Adjustment and Maladjustment in Adolescence: Does Parent Warmth and Extraversion Matter?

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Master of Science

Social withdrawal is often associated with a number of indices of adjustment and maladjustment, but little research exists that attempts to uncover potential protective factors. This study longitudinally examined the moderating role of parent extraversion and parent warmth on the association between two types of social withdrawal (shyness and unsociability) and later indices of adjustment and maladjustment. Participants were 463 families from the flourishing families project. Results showed no longitudinal associations between social withdrawal and later indices of adjustment or maladjustment. However, when parent extraversion was added as a moderator, shyness was positively associated with prosocial behavior for those with introverted parents, and positively associated with shame for those with highly extraverted parents. Implications are discussed.

Keywords: shyness, unsociability, adolescence, adjustment, maladjustment, extraversion, parenting, warmth

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Social Withdrawal and Indices of Adjustment and Maladjustment in Adolescence: Does Parent Warmth and Extraversion Matter?

When compared to their social peers, socially withdrawn adolescents are more likely to experience internalizing problems (Wang, Rubin, Laursen, Booth-LaForce, & Rose-Krasnor, 2013), peer rejection (Oh et al., 2008), and later difficulties in their relationships (Nelson et al., 2008). Though these negative outcomes of social withdrawal have been well established cross-sectionally (Eggum-Wilkens, Valiente, Swanson, & Lemery-Chalfant, 2014; Nelson et al., 2008; Nelson, 2013), little research exists that identifies longitudinal links between withdrawal and adjustment or that attempts to uncover potential protective factors that may ameliorate this association. However, Chess and Thomas's (1991) work would suggest that a goodness of fit between parent and child characteristics is potentially protective against later negative outcomes. Parent extraversion is one characteristic of goodness of fit that may be especially salient for socially withdrawn adolescents, as it may affect the appropriateness of the social demands and expectations placed on the child (Van Tuijl, Branje, Dubas, Vermulst, & Van Aken, 2005). Additionally, the child's perception of the appropriateness of those demands is likely affected by the quality of the parent-child relationship (Langenhof, Komdeur, & Oldehinkel, 2016). Thus, the purpose of this study is to longitudinally examine the moderating effect of parent extraversion and parent-child connection on the relation between social withdrawal and later indices of maladjustment (depression, anxiety, and shame) and adjustment (self-regulation, and prosocial behavior towards strangers and friends) during adolescence.

Social Withdrawal in Adolescence

Adolescence is a stage known for significant social and cognitive changes that affect the development of all adolescents, but may also be especially important in understanding why

social withdrawal may specifically be challenging during the teenage years. For example, during adolescence, teens transition from spending more time with parents to spending more time with peers (Furman & Rose, 2015). It is estimated that adolescents spend twice as much time per week interacting with peers compared with parents (Brown & Larson, 2009) and much of that time is unsupervised by adults (Dijkstra & Veenstra, 2011). Additionally, during adolescence, we see the emergence of “cliques” and “crowds” in which membership can form a basis for adolescent identity and determine status, popularity, and power (Brown & Larson, 2009). Adolescents also tend to associate with peers of a similar popularity level (Dijkstra, Cillessen, & Borch, 2013), and are more likely to reject those who are less popular (Berger & Dijkstra, 2013; Leets & Sunwolf; 2005).

This becomes particularly important in understanding socially withdrawn teens who may face additional challenges with peers than more sociable teens. Social withdrawal, or the condition of continually and purposefully “removing oneself from peer interaction” (Rubin & Coplan, 2010, p. 8), becomes problematic in adolescence when we consider that, though there are several types of popularity with various sources, the one agreed upon determinant of popularity (when it represents being “well-liked”) is social skills (Litwack, Aikins, & Cillessen, 2012). Thus, as socially withdrawn teens often display deficits in social competence (Banerjee & Henderson, 2001), they form a specific group of those who experience high levels peer rejection or exclusion (Coplan et al., 2013) and are more likely to be isolated rather than members of specific “cliques” and “crowds” (Ennett & Bauman, 1996).

Moreover, adolescence is a time-period where the brain undergoes substantial changes that allow for hypothetical thinking, abstract thinking, metacognition, and relativism (Steinberg, 2017). As a result of these newfound abilities to think about thinking, adolescents often

experience increased introspection and self-consciousness which can make them seem egocentric (Elkind, 1967). This egocentrism may manifest itself in thought processes like the “imaginary audience”, or the idea that everyone is always watching, and the “personal fable”, or the idea that one’s experiences are unique and not easily understood, even when it is not the case (Goossens, Seiffge-Krenke, & Marcoen, 1992). Additionally, the early teenage years mark the point when individuals can first recognize that others can be thinking about oneself (Pfeifer & Peake, 2012), and thus adolescents begin to think more sophisticatedly about people, relationships, and social institutions (Smetana & Villalobos, 2009).

Hence, not only do socially withdrawn teens experience more peer rejection and exclusion during adolescence (Coplan et al., 2013), they now also have the cognitive abilities to derive meaning from that peer exclusion and make harmful, negative social comparisons (Hymel, Bowker, & Woody, 1993). When this is combined with aspects of adolescent egocentrism that make them think that everyone is watching them, peer exclusion can have serious psychosocial consequences (Liu et al., 2018)

Subtypes of Social Withdrawal

Though social withdrawal is associated with maladaptation throughout the lifespan (Eggum-Wilkens et al., 2014; Nelson et al., 2008; Nelson, 2013) there is theoretical (Asendorpf, 1990), and statistical evidence (Coplan, Prakash, O’Neil, & Armer, 2004; Nelson, 2013) that multiple subtypes of social withdrawal exist, and not all of these subtypes are equally maladaptive (Coplan & Weeks, 2010). In his model, Asendorpf (1990) divided social withdrawal into three subtypes based on independent motivations to approach and avoid social situations. The first subtype, shyness, is characterized by high social approach motivations *and* high social avoidance motivations. Thus, shy individuals typically *want* to interact with their peers, but may

be afraid to do so for various reasons. Because of this constant internal battle between two conflicting motivations, shyness is typically considered one of the more maladaptive types of social withdrawal and often leads to underdeveloped social skills (Banerjee & Henderson, 2001), higher internalizing problems (Barstead et al., 2018; Liu et al., 2018) and difficulties with peers (Oh et al., 2008).

On the other hand, the second subtype of social withdrawal called unsociability, is characterized by low motivations to approach social situations *and* low motivations to avoid them. This subtype is comparable to the personality dimension of introversion (Coplan, Ooi, & Baldwin, 2019) in that unsocial individuals typically have the skills to participate socially, but simply would prefer solitary activities to social ones. Though research on unsociability as a subtype of social withdrawal is very limited, in most stages of life, unsocial individuals are not any worse off than their sociable peers who have high social approach motivations, and low social avoidance motivations (Coplan & Weeks, 2010; Ooi, Baldwin, Coplan, & Rose, 2018). Thus, unsociability is typically considered to be a more benign form of withdrawal than the other two subtypes.

Finally, a third subtype of social withdrawal exists called avoidance that is comprised of individuals with low social approach motivations and high social avoidance motivations. Unlike shy individuals, avoidant individuals are those who do *not* have a desire to participate in social activities, but do have a strong desire, maybe driven by fear or other internal issues, to avoid social interaction. However, because data for this construct was not available in the current study, I chose only to consider shyness and unsociability for the purposes of this paper. Nevertheless, Asendorpf's model (1990) is particularly important to this study because it suggests that different *motivations* for behaving a certain way may lead to differing indices of

adjustment and maladjustment, even if the behavior itself (i.e. withdrawing from social interaction) appears the same.

Social Withdrawal and Adjustment/Maladjustment

Indices of maladjustment. Shyness has been repeatedly associated with indices of maladjustment, specifically higher levels of depression (Liu et al., 2018; Nelson et al., 2008), anxiety (Barstead et al., 2018; Weeks, 2012), and shame (Henderson, 2002; Sette, Baldwin, Zava, Baumgartner, & Coplan, 2019). This relationship is consistent throughout childhood (Eggum-Wilkens et al., 2014; Hummel, Premo, & Kiel, 2017), adolescence (Barstead et al., 2018; Liu et al., 2017; Weeks, 2012), and emerging adulthood (Nelson et al., 2008; Nelson, 2013), in both individualistic and collectivistic cultures (Chen, Cen, Li, & He, 2005; Nelson, Lee, & Duan, 2015). There is even evidence that shyness is still related to internalizing problems in some Scandinavian countries where “quietness” or solitude seems to be a more accepted part of the culture (Ojanen, Findley-Van Nostrand, Bowker, & Markovic, 2017).

Taken together, these findings illustrate the continual emotional costs of constantly fighting the conflicting motivations to both approach and avoid social situations. This internal conflict is particularly salient during adolescence (Liu et al., 2018) when researchers naturally see an uptick in internalizing problems in the general population, regardless of social withdrawal (Graber, 2004). Upon entering adolescence, most teenagers already face a new array of social hurdles with less support from parents and heightened consequences for violating the “norm” (Furman & Rose, 2015). Shyness seems to only add fuel to that fire, as increased peer victimization (Oh et al., 2008) and new cognitive abilities characteristic of the developmental stage (Harter, 2012, ch. 3) allow for increased social comparisons that may make shy adolescents even more aware of their differences in social capabilities and social standings (Hymel et al.,

1993). Additionally, as shy individuals often experience heightened rejection sensitivity and fear of negative evaluation (Crozier, 2010), they may be especially prone to feelings of shame if they have negative experiences with peers (Sette et al., 2019) and/or parents.

Unsociability, in contrast to shyness, is the subtype of social withdrawal that is generally considered to be the least maladaptive. For example, during early (Ooi et al., 2018) and middle childhood (Coplan & Weeks, 2010; Coplan et al., 2013), unsociable individuals do not differ from their sociable peers on any indices of internalizing problems. Similarly, in adulthood, unsociability may even be adaptive as it protects against negative affect and can promote positive affect (Toyoshima & Sato, 2015; Toyoshima & Sato, 2019). However, there is both theoretical (Coplan et al., 2019) and empirical evidence (Barstead et al., 2018; Ozdemir, Cheah, & Coplan, 2015; Wang et al., 2013) that unsociability becomes somewhat maladaptive from early adolescence through emerging adulthood, peaking in negativity during middle adolescence. Indeed, past literature has linked unsociability to higher depression (Ozdemir et al., 2015; Wang, 2016), and anxiety (Barstead et al., 2018; Wang et al., 2013) in middle adolescence, but only to slightly higher depressive symptoms in late adolescence (Ozdemir et al., 2015) and emerging adulthood (Nelson, 2013).

Coplan and colleagues (2019) theorize that this peak in internalizing problems for unsocial individuals during adolescence develops parallel to the peak in both peer pressure (Sim & Koh, 2003) and the desire to conform (Berndt, 1979). Further, as unsocial adolescents have consistently missed opportunities for peer interaction throughout childhood (Rubin, Coplan, & Bowker, 2009), rising cultural (Cain, 2012) and peer (Rubin & Asendorpf, 1993) expectations about sociability combined with new cognitive abilities that create an “imaginary audience” (Harter, 2012, ch. 3) may cause some psychological distress. During late adolescence and

emerging adulthood, peer pressure weakens (Sim & Koh, 2003), and more positive beliefs about solitude develop (Larson, 1990; Larson, 1997) which may relieve some of this distress, and thus we see somewhat fewer internalizing problems for unsociable individuals in emerging adulthood and even fewer in later life (Toyoshima & Sato, 2015). Taken together, research links both shyness and unsociability to indices of maladjustment specifically during adolescence, and thereby highlights the need for more literature that examines potential protective factors. Additionally, the majority of the existing literature linking social withdrawal to maladjustment is cross-sectional, suggesting a need for supplementary longitudinal research that establishes these links across time. Thus, the first purpose of this study is to longitudinally replicate past findings that link shyness and unsociability to later indices of maladjustment (depression, anxiety, and shame) in order to test potential protective moderators.

Indices of adjustment. In addition to being positively associated with indices of maladjustment, past research has also reported *negative* associations between social withdrawal and indices of social *adjustment* like prosocial behavior (Guo, Sun, & Li, 2018; Laible et al., 2017) and self-regulation (Hipson, Coplan, & Seguin, 2019). Almost none of this literature examines different subtypes of social withdrawal like shyness and unsociability as separate constructs, but more generally, research on social withdrawal and prosocial behavior (defined as “voluntary behavior primarily aimed at benefitting another”; Padilla-Walker, Nielson, & Day, 2016, p. 331), shows a negative association (Guo et al., 2018; Hipson et al., 2019; Laible et al., 2017; Stanhope, Bell, & Parker-Cohen, 1987) or no association (Grady & Hastings, 2018; Gross et al., 2015) between the two. However, in each study, withdrawal is measured differently including measures of temperament (Gross et al., 2015), general reactivity (Laible et al., 2017), and harm avoidance (Khatoon, Karmakar, & Dogra, 2016). Additionally, most of this literature

focuses on children (Hipson et al., 2019; Khatoon et al., 2016; Laible et al., 2017) or adults (Guo et al., 2018) rather than adolescents.

Without a cohesive definition of social withdrawal across studies, it is difficult to determine whether the observed effects of lower prosocial behavior are the result of the social anxiety often connected to shyness, or simply the fact that withdrawal is associated with less proximity to other people, and therefore, fewer opportunities to be prosocial for both shy and unsocial individuals. However, though only two studies (Guo et al., 2018; Hipson et al., 2019) explicitly examined shyness as defined by Asendorf (1990), the majority of the other definitions (temperament, reactivity, and harm avoidance) fall more in line with the literature on shyness (Hastings, Nuselovici, Rubin, & Cheah, 2010) than the literature on unsociability (Coplan et al., 2019). Thus, it seems that shyness may be negatively associated with prosocial behavior (Guo et al., 2018; Hipson et al., 2019) while we know almost nothing about *unsociability* and its relation to prosocial behavior. Additionally, recent research has emphasized the importance of examining prosocial behavior as a multidimensional construct (Padilla-Walker & Carlo, 2014; Padilla-Walker, Dyer, Yorgason, Fraser, & Coyne, 2015) by separating specific targets of prosocial behavior (family, friends, strangers). Indeed, there is evidence in early childhood that shyness may only negatively affect prosocial behavior towards friends and strangers, but not family members (Stanhope et al., 1987). Thus, prosocial behavior towards friends and strangers may be more salient indices of adjustment than prosocial behavior towards family members when considering the impact of social withdrawal in adolescence.

In addition to prosocial behavior, shyness is consistently linked with poor self-regulation (Eisenberg, Fabes, & Murphy, 1995; Hipson et al., 2019) likely due to the fact that shy individuals often use suboptimal internal coping strategies like worry and self-blame to deal with

conflict (Findlay, Coplan, & Bowker, 2009; Kingsbury, Coplan, & Rose-Krasnor, 2013). In fact, some may even consider poor self-regulation to be a key characteristic of shyness as the physiological element of shyness often means that shy individuals experience heightened emotional reactivity (Hane, Fox, Henderson, & Marhsall, 2008) and a hypersensitive threat avoidance response (Morales, Perez-Edgar, & Buss, 2015) that make it difficult to regulate emotions. However, when examining shyness from a *motivational* standpoint rather than a *behavioral* standpoint, it is possible that there are some individuals who may experience the conflicting approach/avoid *motivations* of shyness, but then learn to regulate so that they do not display shy *behaviors*. For this reason, we include self-regulation as an indicator of adjustment that, in a way, represents a form of social capability.

As far as unsociability and self-regulation, there is one study to suggest that unsociability might be *positively* linked with self-regulation, as it is associated with better inhibition control (Eisenberg et al., 1995). Otherwise, we also know very little about unsociability and its relation to self-regulation. Therefore, the second purpose of this study is to examine the links between each subtype of social withdrawal (shyness and unsociability) and indices of social adjustment (self-regulation, and prosocial behavior towards strangers and friends) in order to better differentiate outcomes associated with shyness vs unsociability, and to gain a deeper understanding of the association between unsociability and social adjustment in adolescence.

Parent Personality

Though a large body of literature exists that consistently links social withdrawal (or at least shyness) to indices of adjustment and maladjustment during adolescence, very few studies have attempted to uncover protective factors that may ameliorate the negative effects of social withdrawal. However, Chess and Thomas's (1991) theory of temperament would suggest that

potential protective and exacerbating factors are found in the goodness of fit between an individual's inborn traits and their social environment. Therefore, if a person's characteristics allow him/her to successfully meet the demands and expectations of those with whom they regularly interact (i.e. peers, parents, teachers), they will likely be more able to follow a positive developmental trajectory. As evidenced by past research showing socially withdrawn adolescents to have poorer quality relationships with their peers (Oh et al., 2008) and their parents (Hastings et al., 2010; Van Zalk & Kerr, 2011), it is likely that social withdrawal makes it difficult for adolescents to meet social demands and expectations, thereby putting them at risk for a poor fit with their social environment from an early age. Consequently, protective factors may originate from aspects of a "friendlier" social environment that narrows the gap between the expectations placed on socially withdrawn adolescents and their capabilities.

Though peers generally become an increasingly important social relationship during adolescence (Furman & Rose, 2015), because both unsocial and shy adolescents tend to have fewer peer interactions (Rubin et al., 2009), and shy adolescents also report poorer quality friendships (Oh et al., 2008), the role of parents may still be especially important for socially withdrawn teens. Indeed, multiple studies have found parenting *behavior* to be an important aspect of goodness of fit during adolescence (Lerner & Lerner, 1987; Newland & Crnic, 2017; Talwar, Nitz, & Lerner, 1990), particularly in the context of social withdrawal (Hastings et al., 2010). However, very few studies have examined the role of parent *personality*, which may influence the types of behaviors that a parent uses (Clark, Kochanska, & Ready, 2000). More specifically, as the personality dimension of extraversion is associated with parents' own social preferences (Jung, 1923; Myers-Briggs, 1985), parent extraversion may affect the degree of

appropriate social demands placed on the child and thereby influence the relationship between child withdrawal and indices of adjustment and maladjustment.

Shyness. A more extraverted parent may be a better fit for shy adolescents who have high social approach motivations (Asendorf, 1990), as they may have higher social expectations and therefore be more willing and able to scaffold social skills (Guerin et al., 2011) in a way that would allow the high approach motivation to “win-out” over the high avoidance motivation. Indeed, Vygotsky’s social development theory (1978) implies that adolescents learn best when a responsible adult can help them to perform tasks that are just beyond their current capabilities, but not too challenging to be discouraging. Thus, though shy adolescents might typically face difficulties with indices of adjustment like self-regulation (Hipson et al., 2019) and prosocial behavior (Laible et al., 2017), if they are challenged appropriately by a parent who is more capable in those areas, they may be more likely to learn to be socially “successful” at regulating and being prosocial which might also alleviate some depression, anxiety, and shame. Therefore, the third purpose of this study is to examine the moderating effect of parent extraversion on the association between adolescent shyness and indices of maladjustment (depression, anxiety, and shame) and adjustment (self-regulation and prosocial behavior towards strangers and friends).

Unsociability. On the other hand, having a more extraverted parent might actually be a poor fit for unsocial adolescents who have low social approach and avoidance motivations. If Coplan and colleagues (2019) proposition is correct that unsociability is related to indices of maladjustment (depression, anxiety, and shame) during adolescence because of a desire to conform to peer pressure and societal expectations about sociability, having an extraverted parent with high social expectations may feel like additional pressure while a more introverted parent who can empathize may allow unsocial adolescents to view their low approach motivation

as more acceptable. Indeed, the existing studies that examine parent personality as it relates to goodness of fit in adolescence have shown that parent-child personality similarity is not related to adolescent externalizing problems (Franken, Laceulle, Van Aken, & Ormel, 2017), but does protect against adolescent internalizing problems (Hirvonen, Vaananen, Aunola, Ahonen, & Kiuru, 2018) concurrently and prospectively (Van Tuijl et al., 2005). Therefore, the fourth purpose of this study was to examine the moderating role of parent extraversion on the association between adolescent unsociability and indices of maladjustment (depression, anxiety, and shame) and adjustment (self-regulation and prosocial behavior towards strangers and friends).

Parental Warmth & Support

Finally, there is also evidence that the amount of warmth and support offered by a parent may affect the salience of parent extroversion/introversion as a moderator, in that warm and supportive parenting may buffer against the negative effects of poorness of fit or strengthen the positive effects of goodness of fit (Langenhof et al., 2016). For example, as previously mentioned, an extraverted parent might be more likely to be able to help push their shy child out of his/her comfort zone in a healthy way. However, if the amount of parental warmth and support colors the child's perception of his/her parent's behavior, then a child may see that "pushing" as being unaccepting of the self or even intrusive if it is enforced in a way that is not warm or supportive, which may have an adverse effect on child outcomes.

Moreover, the idea that warmth and support can serve as a protective factor is in congruence with the stress-buffer model (Cohen & Wills, 1985) that suggests that important social relationships can act as a buffer to negative outcomes in stressful situations. Indeed, there is evidence that warm parent child relationships during adolescence protect against internalizing

problems in general (Hair, Moore, Garrett, Ling, & Cleveland, 2008), and specifically when the child experiences some form of social withdrawal (Booth-LaForce et al., 2012; McDonald, Bowker, Rubin, Laursen, & Duchene, 2010). Surprisingly, though shy adolescents are more likely to have poor relationships with their parents (Hastings et al., 2010; Van Zalk & Kerr, 2011) parental warmth and support can still be a buffer for shy adolescents (Barstead et al., 2018). For these reasons, the final purpose of this paper is to examine the three-way interaction between parent-child warmth, parent extraversion, and social withdrawal on each of the indices of adjustment and maladjustment.

The Current Study

The purpose of this study was to longitudinally examine the effects of shyness and unsociability on indices of maladjustment (depression, anxiety, and shame) and adjustment (self-regulation and prosocial behavior towards strangers and friends) during adolescence, and then to test the influence of parent extraversion and parent-child warmth as potential moderators. In regards to my first research question, I hypothesize that shyness will be positively associated with all indices of maladjustment (depression, anxiety, and shame) as heavily indicated in previous literature (Barstead et al., 2018; Liu et al., 2018; Sette et al., 2019). I also hypothesize that unsociability will be positively associated with depression and anxiety in accordance with Coplan and colleagues' theory (2019) and previous literature on adolescent unsociability and its relation to depression (Ozdemir et al., 2015; Wang, 2016) and anxiety (Barstead et al., 2018; Wang et al., 2013). However, as there is nothing to indicate that unsociability is associated with shame, I also hypothesize that unsociability will be unrelated to shame.

In regards to my second research question, I hypothesize that shyness will be negatively associated with all indices of adjustment (self-regulation, and prosocial behavior towards friends

and strangers) consistent with previous literature (Hipson et al., 2019; Laible et al., 2017). There is little to no research available to inform a hypothesis about the relation between unsociability and indices of adjustment like prosocial behavior and self-regulation. However, because unsociability may conceptually be related to spending less time with people and therefore fewer opportunities to be prosocial, I hypothesize that unsociability will be negatively related to prosocial behavior towards strangers and friends.

In regards to my third and fourth research questions, I hypothesize that parent extraversion will weaken the association between shyness and indices of maladjustment and adjustment because an extraverted parent might be more able to appropriately scaffold social skills (Vygotsky, 1978). However, because of past research on the ability of parent-child personality match to reduce internalizing problems (Hirvonen et al., 2018; Van Tuijl et al., 2005), I also hypothesize that parent extraversion will strengthen the relationship between unsociability and indices of maladjustment (depression and anxiety).

Finally, in regards to my last research question, I make separate hypotheses for each type of social withdrawal. First, for shy adolescents, I hypothesize that extraversion will be more salient for indices of *adjustment* because parent scaffolding (Vygotsky, 1978) would conceptually be more effective in regards to social skills, while parental warmth will be more salient for indices of *maladjustment* because parental warmth seems to specifically be an effective buffer against internalizing problems (Booth-LaForce et al., 2012; Hair et al., 2008). Thus, for shyness, the optimal “fit” will be high parent extraversion and high parent-child warmth, which will weaken both indices of adjustment and maladjustment while the poorest fit will be high introversion with low warmth, which would strengthen both paths. For unsociability, I hypothesize that parent extraversion will strengthen the association between unsociability and

indices of maladjustment (depression and anxiety), but also that high parent-child warmth will neutralize those negative effects (see Figure 1).

Method

Procedure

The participants for this study were taken from Wave V and VI of the *Flourishing Families Project (FFP)*, a longitudinal study of inner-family life involving families with a child between the ages of 13 and 18. Wave V and VI were selected because they were the first waves where data about social withdrawal was available. Participant families for the FFP were selected from a large northwestern city and were interviewed during the first eight months of 2007 for a Wave I data sample. Subsequently, families were interviewed at yearly intervals for a second (2008), third (2009), fourth (2010), and fifth time (2011). Families were primarily recruited using a purchased national telephone survey database (Polk Directories/InfoUSA). This database claimed to contain 82 million households across the United States and had detailed information about each household, including presence and age of children. Families identified using the Polk Directory were randomly selected from targeted census tracts that mirrored the socio-economic and racial stratification of reports of local school districts. All families with a child between the ages of 10 and 14 living within target census tracts were deemed eligible to participate in the FFP. Of the 692 eligible families contacted, 423 agreed to participate, resulting in a 61% response rate. However, the Polk Directory national database was generated using telephone, magazine, and internet subscription reports; so families of lower socio-economic status were under-represented. Therefore, in an attempt to more closely mirror the demographics of the local area, a limited number of families were recruited into the study through other means (e.g.,

referrals, fliers; $n = 77$, 15%). By broadening the approach, the social-economic and ethnic diversity of the sample was increased.

All families were contacted directly using a multi-stage recruitment protocol. First, a letter of introduction was sent to potentially eligible families (this step was skipped for the 15 families who responded to fliers). Second, interviewers made home visits and phone calls to confirm eligibility and willingness to participate in the study. Once eligibility and consent were established, interviewers made an appointment to come to the family's home to conduct an assessment interview that included video-taped interactions, as well as questionnaires that were completed in the home. The most frequent reasons cited by families for not wanting to participate in the study were lack of time and concerns about privacy. It is important to note that there were very little missing data. As interviewers collected each segment of the in-home interview, questionnaires were screened for missing answers and double marking.

Sample Description

The sample consists of 463 families (92.6% retention from Wave I) with a child within the target range (311 two-parent families and 151 single-parent families). Participant children averaged 15.3 years of age, while mothers averaged 47.2 years and fathers average 49.3 years in age. Two hundred ninety-eight families were of European American ethnicity, 56 were African American, with smaller number for Hispanics (1) and Asian Americans (4). Eighty-nine families are categorized as multi-ethnic, based on a combination of two or more ethnicities among family members. In terms of parental education, 61% of mothers and approximately 70% of fathers had a bachelor's degree or higher. Related to yearly family income, 19.8% of families reported making less than \$59,000; 19.8% reported income in the \$60,000-99,000; 22.8% reported income in the \$100,000-149,000, with another 16.2% making \$150,000 or more per year.

Approximately, 29.8% of single parents reported being never-married, 46.4% divorced, 15.2% cohabiting, 4% widowed, and 4.6% not cohabiting but in a committed relationship.

Measures

Shyness. To assess shyness, participants were asked to decide how much each of three statements from Coplan, Prakash, O'Neil, and Armer (2004) was like them on a scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Higher scores represented higher shyness, and sample items included "Although I desire to talk and be with other people, I feel nervous about interacting with them" and "I'd like to hang out with other people, but I'm sometimes nervous to do that". Internal reliability was sufficiently high ($\alpha = .80$).

Unsociability. Unsociability was also assessed using three different items from the same scale from Coplan and colleagues (2004). Higher scores represented higher unsociability, and sample items included "I don't have a strong need to be with other people" and "I like spending time alone more than I like spending time with other people." Internal reliability was sufficiently high ($\alpha = .75$).

Indices of maladjustment. To assess indices of adjustment, we examined measures of depression, anxiety, and shame at both waves V and VI.

Depression. Children's depression was assessed using the 20-item self-report CES-DC (Center for Epidemiological Studies Depression Scale for Children; Weissman, Orvaschel, Padian, 1980). Participants responded by rating the degree to which they have experienced each item in the past week, on a scale ranging from 1 (*not at all*) to 4 (*a lot*). Higher scores indicate greater depressive symptoms. Sample items included "I was bothered by things that usually don't

bother me,” and “I felt lonely, like I didn’t have any friends.” Internal reliability was sufficiently high ($\alpha = .89$).

Anxiety. Adolescent anxiety was assessed using the six-item generalized anxiety disorder subscale from the Spence Child Anxiety Inventory (Spence, 1998). Participants responded using a 4-point scale ranging from 0 (*never*) to 3 (*always*), with higher scores reflecting greater levels of anxiety. Sample items included, “I worry a lot about things,” and “When I have a problem, my heart beats really fast.” Internal reliability was sufficiently high ($\alpha = .88$).

Shame. Adolescent feelings of shame were assessed using an eight-item self-report measure, adapted from the Shame Profile Scale (Harper & Hoopes, 1990), a measure of interpersonal/intrapersonal feelings of shame. Participants responded on how often they experienced thoughts and feelings like “I feel like I am never quite good enough” and “I think that people look down on me” on a scale from 1 (*never*) to 5 (*almost always*). Higher scores represented higher levels of shame. Internal reliability was sufficiently high ($\alpha = .94$).

Indices of adjustment. To assess indices of adolescent adjustment, I used measures of self-regulation and prosocial behavior towards strangers and friends.

Self-Regulation. The adolescent’s ability to regulate negative emotions and disruptive behavior, and to set and attain goals was assessed using a modified 13-item measure (Novak & Clayton, 2001). Participants responded to items like “I have a hard time controlling my temper” and “I get distracted by little things” on a scale from 1 (*never true*) to 4 (*always true*). Higher scores represented greater ability to regulate negative emotion/behavior and to reach goals. Internal reliability was sufficiently high ($\alpha = .83$).

Prosocial behavior. Adolescents' prosocial behavior was measured using 18 items based on the Inventory of Strengths (Peterson & Seligman, 2004). The measure assesses prosocial behavior directed toward others/strangers (9 items, a modified version of the Peterson and Seligman original measure), and prosocial behavior directed toward friends (9 items created for the Flourishing Families Project). Respondents answered on a scale from 1 (*not like me at all*) to 5 (*very much like me*) in terms of how much they disagreed or agreed with statements like "I help people I don't know, even if it is not easy for me," and "I voluntarily help my neighbors." Higher scores indicate greater levels of prosocial behavior. Internal reliability was sufficiently high (Strangers: $\alpha = .856$; Friends: $\alpha = .93$).

Parent extraversion. The personality of the parent with whom the child spends the most time was assessed using an adapted version of the Big Five Personality scale (Manders, Scholte, Janssens, & DeBruyn, 2006) comprised of five subscales scales: extraversion/introversion, conscientiousness, agreeableness, emotional stability, and resourcefulness. For the purposes of this paper, I used only the items that make up the extraversion/introversion scale. Participants were asked to indicate the degree to which six characteristics describe them as compared to other people. Sample characteristics include "reserved", "quiet", and "bashful". The scale was then reverse coded so that higher scores represent higher parent extraversion. Internal reliability was sufficiently high ($\alpha = .83$)

Parental warmth and support. The adolescent's report of their parent's warmth was assessed using the five-item warmth and support subfactor of the Parenting Styles and Dimensions Questionnaire Short Version (PSDQ, Robinson, Mandleco, Olsen, & Hart, 2001). Children were asked how often their parent did certain behaviors related to warmth like "my parent encourages me to talk about my troubles," and "my parent gives comfort and

understanding when I am upset.” Responses were given on a five-point Likert-type scale ranging from 1 (*never*) to 5 (*always*), with higher scores indicating higher levels of warmth and support.

Internal reliability was sufficiently high ($\alpha = .757$)

Controls. Adolescent respondents reported their age in years, while parents reported the race of their child. Parents also reported their own education levels (as measured by highest completed grade level ranging from less than high school to advanced degree), as well as annual household income.

Analysis Plan

In order to answer each research question, seven structural equation models were estimated using Mplus software (Muthen & Muthen, 2011). In each model, shyness, unsociability, parental extraversion, and parental warmth were represented as latent variables, while outcome variables and control variables were modeled as observed variables.

Model 1. To address my first and second research questions, the first model examined the main effects of shyness, unsociability, parental extraversion, and parental warmth at time 1 on each measure of maladjustment (depression, anxiety, and shame) and adjustment (self-regulation, prosocial behavior towards strangers, and prosocial behavior towards friends) at time 2 controlling for the previous wave’s measures of adjustment and maladjustment (see Figure 2).

Models 2 & 3. To address my third and fourth research questions, two more models were estimated. Each was similar to Model 1, but with the subtypes of social withdrawal separated (one for shyness, one for unsociability). I then used the *xwith* command in Mplus to examine the latent variable interaction between parent extraversion (measured as a continuous variable) and each subtype of social withdrawal.

Models 4 & 5. Models 4 and 5 were estimated exactly like models 2 and 3, except replacing parent extraversion with parent warmth represented as a continuous variable. Thus, model five examines the interaction between shyness and parental warmth, and model six examines the interaction between unsociability and parental warmth.

Models 6 & 7. Finally, to address my last research question, the `xwith` command in Mplus was used to create variables representing the three-way interaction between each subtype of social withdrawal, parental extraversion, and parental warmth. Thus, model six contained the three-way interaction for shyness and model seven the three-way interaction for unsociability.

Results

Descriptive Statistics

Means, standard deviations, and correlations between all main study variables from the measurement model are reported in Table 1. Both shyness and unsociability were positively correlated with depression, anxiety, and shame, and negatively correlated with self-regulation, prosocial behavior towards strangers, and prosocial behavior towards friends at time one. The correlations were similar for time two outcome variables with the only exception being that shyness at time one was not associated with prosocial behavior towards friends at time two. All factor loadings for latent variables were greater than .40 and are reported in Table 2. The first model examining only main effects had good model fit ($X^2(460) = 5227.42$, $p < .001$, CFI = .969, RMSEA = .031). However, no absolute model fit indices are available for the models that included a latent variable interaction.

Model 1

Contrary to my hypotheses, neither shyness nor unsociability at time one was significantly associated with any indices of maladjustment or adjustment at time two when

controlling for depression, anxiety, shame, prosocial behavior, and self-regulation at time one (see Table 3). Similarly, parental warmth and extraversion were not significantly associated with any outcome variables. However all stability paths for outcomes variables were significant including depression ($\beta = .43, p < .001$), anxiety ($\beta = .46, p < .001$), shame ($\beta = .59, p < .001$), prosocial behavior towards strangers ($\beta = .64, p < .001$), prosocial behavior towards friends ($\beta = .66, p < .001$), and self-regulation ($\beta = .63, p < .001$).

Models 2 & 3

The second and third models tested the moderating role of parent extraversion by including a latent variable interaction between shyness and parent extraversion in model 2 (see Table 4) and an interaction between unsociability and parent extraversion in model 3 (see Table 5). For the model that included shyness, the interaction between shyness and parent extraversion was significantly associated with shame ($\beta = .11, p = .035$), and prosocial behavior towards friends ($\beta = -.10, p = .038$) at time two. Simple slopes analyses for low, medium, and high levels of parental extraversion showed that low parent extraversion was significantly different from zero ($B = .10, p = .03$) for prosocial behavior towards friends (see Figure 3), suggesting that for adolescents with more introverted parents, shyness was positively associated with prosocial behavior towards friends. For shame (see Figure 4), high parent extraversion was significantly different from zero ($B = .16, p = .005$) suggesting that for adolescents with highly extraverted parents, shyness was positively associated with shame.

In the third model, the interaction between unsociability and parental extraversion was only significantly associated with self-regulation at time two ($\beta = -.09, p = .043$), suggesting that parent extraversion may have a small effect on the association between unsociability and self-

regulation. However, none of the simple slopes were significantly different from zero, so I did not interpret this finding.

Models 4 & 5

The fourth and fifth models tested the moderating role of parent warmth by including a latent variable interaction between shyness and parental warmth in model 4 (see Table 4) and an interaction between unsociability and parental warmth in model 5 (see Table 5). In the fourth model, the interaction between shyness and parental warmth was not significantly associated with any outcomes. In the fifth model, the interaction between unsociability and parental warmth was significantly associated with depression ($\beta = -.16, p = .003$), shame ($\beta = -.13, p = .01$), and prosocial behavior towards friends ($\beta = -.12, p = .035$). However, none of the simple slopes (high, medium, or low warmth) were significantly different from zero, and so these findings were not interpreted.

Models 6 & 7

The sixth and seventh models tested both parent extraversion and parent warmth as moderators by including a three-way latent variable interaction between shyness, extraversion, and parental warmth in model 6 (see Table 4), and a three way interaction between unsociability, extraversion, and warmth in model 7 (see Table 5). However, the three-way interaction in both models was not significantly associated with any of the six outcomes.

Follow Up Analysis

Because my findings that shyness and unsociability were not related to any indices of adjustment or maladjustment one year later were so unexpected, two follow up analyses were conducted. The first, a longitudinal model identical to Model 1 except excluding parental extraversion and warmth, yielded no additional results. Second, the same model was estimated

cross-sectionally. Model fit for this model was acceptable ($X^2(44) = 84.09, p < .001, CFI = .981, RMSEA = .043$). Results showed that shyness positively predicted anxiety ($\beta = .26, p < .001$) and shame ($\beta = .24, p < .001$), but was not significantly associated with any indices of adjustment. Unsociability positively predicted depression ($\beta = .31, p < .001$) and shame ($\beta = .21, p < .001$), and negatively predicted prosocial behavior towards friends ($\beta = -.21, p = .001$).

Discussion

As social withdrawal during adolescence has repeatedly been positively associated with indices of maladjustment (Barstead et al., 2018; Liu et al., 2018; Ozdemir et al., 2015), and negatively associated with indices of adjustment (Coplan et al., 2014; Findlay et al., 2009; Hipson et al., 2019), this study attempted to uncover potential protective (and/or exacerbating) factors by testing four main research questions. The first purpose was to understand how two subtypes of social withdrawal, specifically shyness and unsociability, are separately related to indices of maladjustment like anxiety, depression, and shame. The second purpose was to examine the effects of shyness and unsociability on indices of adjustment like self-regulation, and prosocial behavior towards friends and strangers. Finally, the third and fourth purposes were to examine whether parent extraversion moderated these associations by itself, and/or when interacted with parent warmth. Results showed that shyness and unsociability were not longitudinally associated with any indices of adjustment or maladjustment. However, shyness was positively associated with anxiety and shame cross-sectionally, while unsociability was positively associated with depression and negatively associated with prosocial behavior towards friends cross-sectionally. Additionally, when parent extraversion was added as a moderator, shyness was longitudinally associated with shame and prosocial behavior towards friends in that, when parents were more introverted, shyness was positively associated with prosocial behavior

towards friends, and when parents were highly extraverted, shyness was positively associated with shame. Finally, parental warmth did not significantly change the way that parent extraversion moderated the relation between social withdrawal and indices of adjustment and maladjustment.

The Moderating Role of Parental Extraversion

First, contrary to my hypotheses, the finding that parent extraversion moderated the paths between shyness and later shame and prosocial behavior towards friends seems to indicate that for shy adolescents, having a more introverted parent may be a better representation of “goodness of fit” (Chess & Thomas, 1991). Because there is little to no research on the influence of parent personality on social withdrawal, many of the possible explanations for these findings are only justified conceptually, and therefore, additional research is necessary to truly understand why parent introversion may be a better fit.

However, recent popular literature (Cain, 2012) has brought to light that western culture places high value on extraversion and sociability which may make individuals who are more quiet feel like something is “wrong” with them personally. Though research has yet to test the effects of an extraverted ideal on the socially withdrawn, is it possible that having a highly extraverted parent may be a continual reminder to a shy adolescent that he/she is different from the “ideal” leading to feelings of shame. This may especially be the case when shy adolescents who *want* to approach social situations but struggle to do so see that sociability may come easily to a highly extraverted parent. Additionally, as previously mentioned, it is possible that highly extraverted parents may have higher social expectations for their children which may manifest themselves in higher social demands placed on the child. If the child perceives those demands and expectations as beyond their current capabilities, it may lead to feelings of inadequacy.

It is also important to note that I did not study parenting behaviors in this study. However, as parent personality has been shown to influence the types of behaviors a parent uses (Clark et al., 2000), it may be possible that highly extraverted parents use different types of parenting behaviors with their shy children than introverted parents, or those in the middle of the introversion/extraversion spectrum. Further research is necessary to understand how parenting behaviors may be an important feature to goodness of fit for socially withdrawn adolescents.

Significant Non-Findings

Indices of maladjustment. In regards to my findings concerning shyness, unsociability, and indices of maladjustment, the lack of significant longitudinal links was very surprising considering that the vast majority of previous literature consistently connects shyness with depression (Liu et al., 2018; Nelson et al., 2008) and anxiety (Barstead et al., 2018; Weeks, 2012). However, though there are a number of longitudinal studies that link shyness to depression and anxiety during childhood (Gazelle & Ladd, 2003; Rubin & Mills, 1988), the majority of the literature in adolescence is cross-sectional (Henderson, 2002; Liu et al., 2018; Sette et al., 2019; Weeks, 2012). Thus, the non-findings of this study make an important contribution to the literature on shyness in that they suggest that the negative effects of shyness may not be as powerful overtime once a person hits adolescence given the stability of indices of maladjustment like depression and anxiety. Indeed, of all the studies cited in this paper that connect social withdrawal to indices of maladjustment in adolescence, only one was longitudinal (Barstead et al., 2018). In that study, Barstead and colleagues (2018) found shyness and unsociability in eighth grade to be associated with anxiety (but not depression) in ninth grade. The grade level of the adolescents was particularly important because it represented the transition from middle school to high school, a transition than may provoke more shyness and

trigger more anxiety from one year to the next than would simply examining two consecutive years of high school as was the case in the current study.

Taken together, I propose two potential explanations for the lack of significant main effects. First, as the two waves of this study did not cover a significant transition period, it is possible that social withdrawal “stabilizes”, so to speak, and simply does not predict any *more* depression, anxiety, or shame than was already present in the previous year. Thus, though shyness in the last year of middle school may predict anxiety in the first year of high school when teens expect to face new social pressures, the lack of social novelty from one year of high school to the next may make it so that shyness is not associated with any additional anxiety when controlling for anxiety from the previous year.

Second, because the majority of the literature connecting shyness and unsociability to indices of adjustment and maladjustment is cross-sectional, we cannot infer the direction of effects. Thus, it is possible that indices of maladjustment like depression, anxiety, and shame, may actually be preceding social withdrawal, as teens may use withdrawal from social interaction as a method of coping with their negative feelings (Watson & Nesdale, 2012). Indeed, the cross-sectional findings in this study found shyness to be associated with shame and anxiety while unsociability was cross-sectionally associated with depression. If we consider Asendorff’s model of motivations for withdrawal (1990), it makes sense that feelings of shame and anxiety may lead to conflicting motivations to both avoid and approach social situations (shyness), while depression may lead to a low social approach motivation (unsociability). Future research is needed to test whether internalizing problems are associated with social withdrawal longitudinally.

Indices of adjustment. Additionally, there were no significant longitudinal links between either subtype of social withdrawal and indices of adjustment. As there was little to no previous literature on the relation between unsociability and prosocial behavior or self-regulation, my finding that unsociability did not predict either prosocial behavior or self-regulation one year later makes is a significant addition in that it gives additional support to the idea that unsociability may be a more benign form of social withdrawal (Coplan et al., 2019). However, this is based on the finding that unsociability was not *negatively* associated with indices of adjustment during adolescence. Future research is necessary to determine how unsociable teens compare to their sociable peers (instead of shy peers) on reports of prosocial behavior and self-regulation. It is possible that though unsociability may be unrelated to prosocial behavior or self-regulation, sociability may be *positively* associated with indices of adjustment (Gross et al., 2015).

In regards to shyness, the lack of significant main effects was, once again, surprising considering the literature showing that shyness is often negatively associated with prosocial behavior (Guo et al., 2018; Hipson et al., 2019; Laible et al., 2017; Stanhope et al., 1987), and self-regulation (Eisenberg et al., 1995; Hipson et al., 2019). A number of these studies were longitudinal (Hipson et al., 2019; Laible et al., 2017; Stanhope et al., 1987), but this study was the first of our knowledge that examined the influence of shyness (defined as having conflicting motivations to approach and avoid social situations) on prosocial behavior during *adolescence*. It is possible that shyness in early childhood is negatively associated with prosocial behavior (Laible et al., 2017; Stanhope et al., 1987), but by the time these shy individuals reach adolescence, they have learned that prosocial behavior is important in order to maintain social standing in their community and friend groups. However, future research could examine whether

these prosocial behaviors during adolescence, particularly towards strangers, may be considered “higher cost” (Eisenberg & Spinrad, 2014) for shy individuals than for sociable individuals to understand if there are positive or negative repercussions to helping when it is particularly difficult for an individual.

Parent Warmth

Contrary to my final hypothesis, parental warmth did not change the way that parent extraversion moderated the association between social withdrawal and indices of adjustment or maladjustment. Similarly, no hypotheses were made as to the influence of warmth as its own moderator (excluding parent extraversion), as this was not a main focus of the paper, but my analyses did show that parent warmth was also not an important moderator on its own. This is likely because indicators of relationship quality like parental warmth often act as a buffer against negative outcomes (Cohen & Wills, 1985), and my preliminary model did not show any associations between social withdrawal and negative outcomes that needed to be buffered.

Limitations and Conclusion

Though this study had many strengths, including its longitudinal structure, there were a few limitations. First, though the study was longitudinal, because participants were in later adolescence the time period captured from one wave to the next was a relatively stable time period in comparison to earlier adolescence, or the transition from middle school to high school. Thus, some of the effects of social withdrawal may not have been captured. Future researchers might consider conducting a similar study in earlier adolescence, or examining the effects of social withdrawal using daily diary methodology in order to capture the daily fluctuations in social withdrawal based on day-to-day contexts. Similarly, though parent extraversion was an important piece of the story in this study, it was selected because a measure of parental social

withdrawal was not available. Future research would do well to examine the effects of parents' own experiences with social withdrawal on their children's withdrawal. Finally, because of the number of models already estimated as a part of this study parent extraversion and parent warmth were only included for the parent with whom the child spends the most time. Future research should examine whether the role of parent extraversion and warmth differs as a function of the gender of the parent and the gender of the child. The sample was also mostly white with higher than average income and education, and thus these findings should be replicated with more diverse samples as well.

In conclusion, social withdrawal may not be as negative when examined longitudinally rather than cross-sectionally because of the stability of indices of maladjustment and adjustment. Additionally, having an introverted parent may be a good fit for shy adolescents as it seems to protect against shame and promote prosocial behavior towards friends. Thus, it may be important for highly extraverted parents with shy children to be cautious about imposing social demands and expectations that may be inappropriately high at a given timepoint. Future research is necessary to specifically understand why and how parent personality affects socially withdrawn adolescents.

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Appendix

Table 1. Zero order correlations between all main study variables at time one and time two

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.Shyness	--															
2.Unsociability	.33***	--														
3.P. Extraversion	-.09	-.04	--													
4.P. Warmth	-.04	-.19***	.03	--												
5.Depression_1	.19***	.30***	.01	-.15***	--											
6.Anxiety_1	.29***	.17***	.01	-.05	.49***	--										
7.Shame_1	.29***	.28***	.00	-.15***	.60***	.46***	--									
8.PB Strangers_1	-.11*	-.13**	.05	.30***	-.02	.15**	.02	--								
9.PB Friends_1	-.13**	-.19***	.08	.18***	-.00	.14**	.02	.49***	--							
10. Self-Reg_1	-.11*	-.12*	-.01	.14**	-.44***	-.39***	-.40***	.09*	.08	--						
11.Depression_2	.15***	.15**	-.02	-.11*	.57***	.37***	.43***	.05	-.01	-.39***	--					
12.Anxiety_2	.23***	.12*	.00	.02	.30***	.57***	.30***	.11*	.16***	-.26***	.48***	--				
13.Shame_2	.23***	.18***	-.01	-.10	.39***	.35***	.64***	.07	.10*	-.29***	.63***	.45***	--			
14.PB Strangers_2	-.14**	-.15**	.03	.26***	-.03	.13**	-.00	.71***	.40***	.07	.02	.11*	.06	--		
15.PB Friends_2	-.04	-.15**	.09*	.17***	-.05	.10*	-.01	.37***	.71***	.09	-.06	.14**	.01	.46***	--	
16. Self-Reg_2	-.12*	-.29**	.01	.07	-.29***	-.33***	-.30***	.06	.07	.66***	-.46***	-.40***	-.39***	.04	.09*	--
Mean	2.49	1.98	5.00	3.74	1.71	.96	1.91	3.25	4.30	2.65	1.83	1.13	2.15	3.49	4.36	2.77
SD	1.08	.95	1.14	.82	.58	.58	.87	.74	.70	.61	.66	.66	.96	.75	.69	.59

Note. 1 represents time 1 and 2 represents time 2

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$;

Table 2. *Factor loadings of all latent variables*

	Shyness	Unsociability	P. Warmth	P. Extraversion
Item 1	.68	.80	.71	.68
Item 2	.91	.84	.60	.77
Item 3	.81	.71	.81	.75
Item 4	--	--	.59	.62
Item 5	--	--	.76	.62
Item 6	--	--	--	.59

Note. P. = Parent.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$;

Table 3. *Standardized main effects from model 1 including stability paths*

	Indices of Maladjustment			Indices of Adjustment		
	Depression 2	Anxiety 2	Shame 2	PB Strangers 2	PB Friends 2	Self-Reg 2
Shyness	.00	.08	.07	-.07	.04	-.01
Unsocial	-.03	.01	.02	-.03	-.05	.03
P. Extraversion	-.03	.01	-.16	-.02	.03	.00
P. Warmth	-.04	.03	-.02	.04	.02	-.03
Depression_1	.43***	.01	-.00	-.01	-.04	.04
Anxiety_1	.04	.46***	.01	.05	.02	-.09*
Shame_1	.08	.02	.59***	.01	-.00	-.03
PB Strangers_1	.08	-.03	.02	.64***	.00	.01
PB Friends_1	-.06	.06	.09*	.03	.66***	.05
Self-Regulation 1	-.13	-.05	-.04	.01	.02	.63***

Note. P. = Parent, PB. = Prosocial Behavior. □

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$;

Table 4. *Standardized interaction effects for Shyness*

	Indices of Maladjustment			Indices of Adjustment		
	Depression	Anxiety	Shame	PB Strangers	PB Friends	Self-Regulation
Model 2						
Shyness	-.02	.08	.06	-.08	.04	-.00
P. Extraversion	-.03	.01	-.02	-.02	.03	.01
Shyness*Extra.	.04	.04	.11*	.04	-.10*	-.04
Model 4						
Shyness	-.00	.08	.07	-.07	.02	-.00
P. Warmth	-.04	.04	-.03	.05	.02	.03
Shyness*Warmth	-.06	.06	-.07	.05	.02	.05
Model 6						
Shyness	-.02	.07	.05	-.07	.04	-.00
P. Extraversion	-.02	.01	-.02	-.02	.03	-.01
P. Warmth	-.05	.04	-.02	.05	.01	-.03
Shyness*Extra.	.04	.02	.10	.04	-.08	-.05
Shyness*Warmth	-.07	.05	-.07	.04	.02	.06
Warmth*Extra	-.05	-.06	-.01	.04	.00	.12*
Shyness*E.*W.	-.06	.06	.06	-.03	-.06	-.02

Note: P. = Parent, Extra. & E. = Extraversion, W. = Warmth, PB = Prosocial Behavior.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$;

Table 5. *Standardize interaction effects for Unsociability*

	Indices of Maladjustment			Indices of Adjustment		
	Depression	Anxiety	Shame	PB Strangers	PB Friends	Self-Regulation
Model 3						
Unsocial	-.02	.02	.04	-.05	-.04	.03
P. Extraversion	-.03	.00	-.03	-.01	.02	-.00
Unsocial*Extra.	-.06	-.05	-.03	-.04	-.11	-.09*
Model 5						
Unsocial	-.05	.03	.03	-.05	-.05	.02
P. Warmth	-.04	.04	-.02	.04	.02	-.03
Unsocial*Warmth	-.16**	-.06	-.13**	-.05	-.12*	-.01
Model 7						
Unsocial	-.05	.03	.01	-.04	-.03	.02
P. Extraversion	-.03	.01	-.01	-.02	.01	-.01
P. Warmth	-.03	.04	-.02	.05	.03	-.03
Unsocial*Extra.	-.04	-.06	-.00	-.03	-.09	-.07
Unsocial*Warmth	-.14	-.05	-.14	-.05	-.10	.00
Warmth*Extra	-.04	-.09	-.00	.04	-.01	.09
Unsocial*E.*W.	-.06	.02	.05	-.01	-.06	-.01

Note: P. = Parent, Extra. & E. = Extraversion, W. = Warmth, PB = Prosocial Behavior.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$;

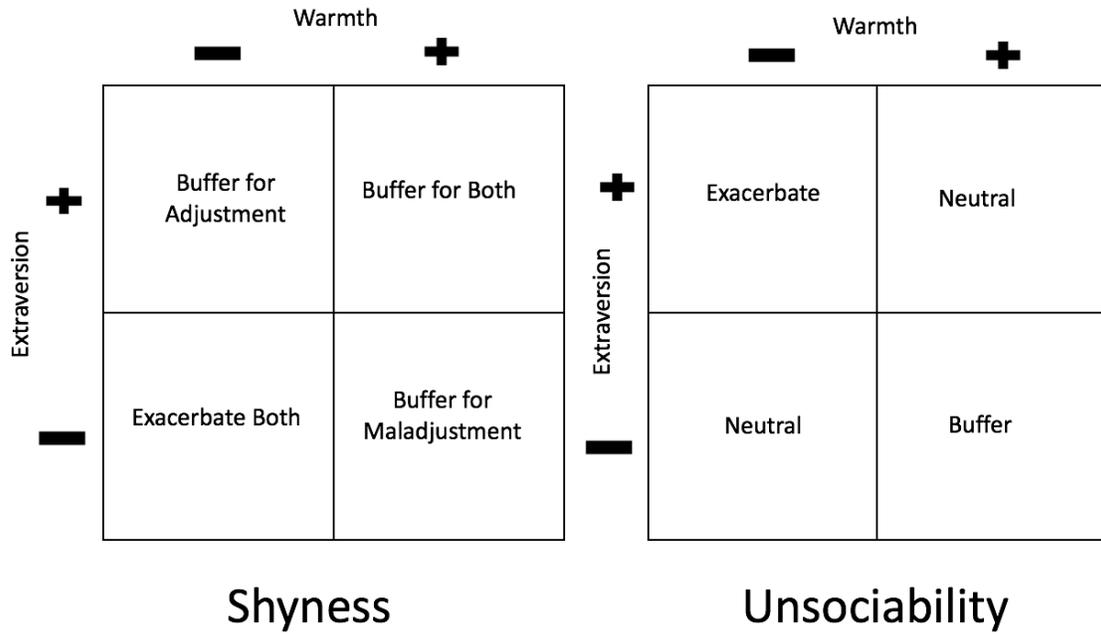


Figure 1. Hypotheses for the three way interaction between parental warmth, parental extraversion, and each type of social withdrawal.

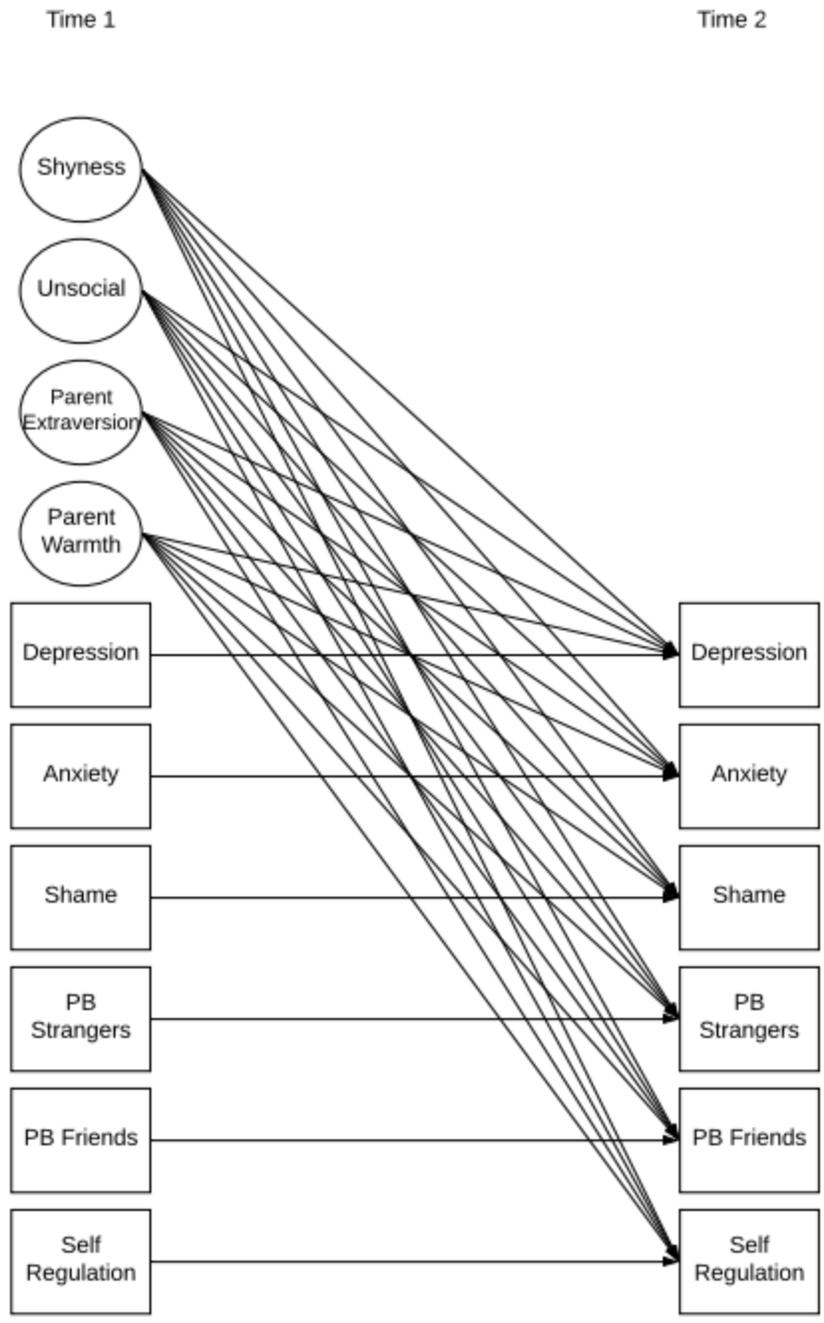


Figure 2. Main effects as represented in model 1. Error terms and correlations are not pictured for parsimony.

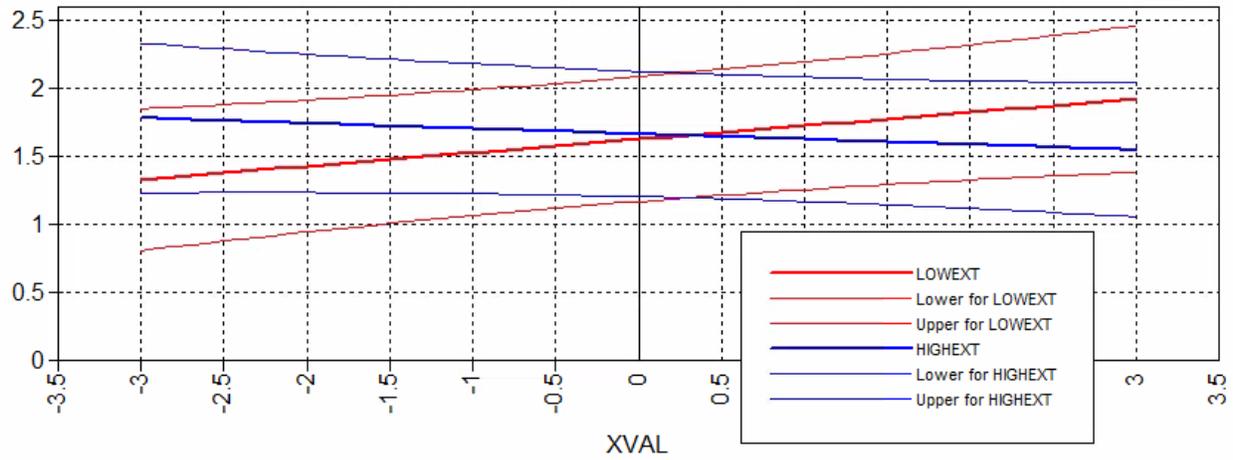


Figure 3. Interaction between parent extraversion and shyness predicting prosocial behavior towards friends. xval represents shyness and lowext/highext represents low parent extraversion and high parent extraversion. The highext line was not significantly different from zero.

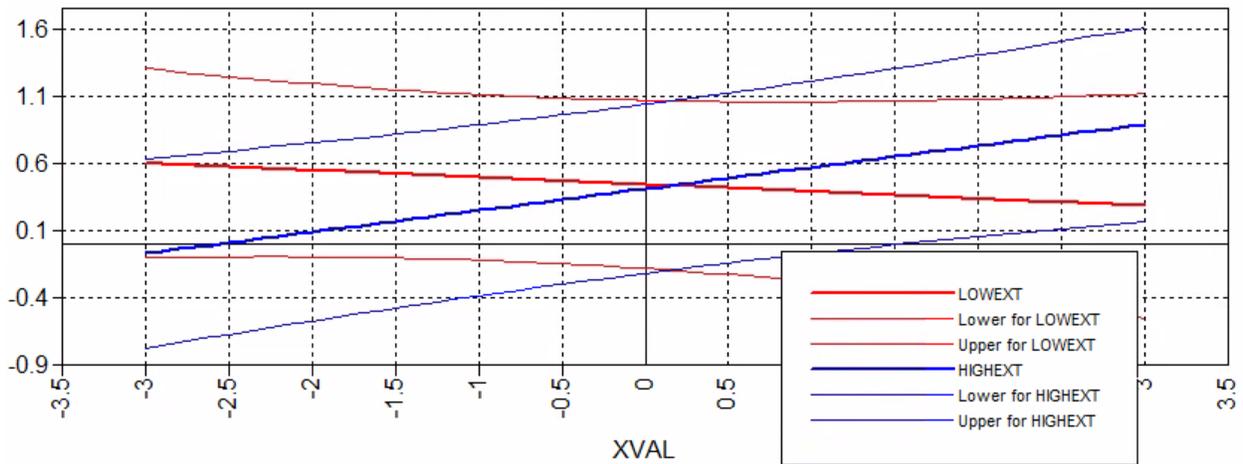


Figure 4. Interaction between parent extraversion and shyness predicting shame. xval represents shyness and lowext/highext represents low parent extraversion and high parent extraversion. The lowext line was not significantly different from zero.