

**Measuring Attachment in Adolescence: A Validation of the IPPA in Adolescents with  
Illegal Sexual Behaviors**

by

Ashley K. Norwood Strickland

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Approved by

Barry Burkhart, Chair, Professor of Psychology  
Elizabeth Brestan-Knight, PhD, Associate Professor of Psychology  
Margaret Keiley, EdD, Professor of Human Development and Family Studies  
Alejandro Lazarte, PhD, Associate Professor of Psychology  
Frank Weathers, PhD, Professor of Psychology  
Jan Newman, PhD, Assistant Clinical Professor of Psychology

## Abstract

The Inventory of Parental and Peer Attachment (IPPA; Armsden & Greenberg, 1987) is a well-established measurement instrument for assessing attachment during adolescence. However, the factor structure of the measure has not been systematically replicated, as inconsistent factor structures have been found across different adolescent populations. In this study, the factor structure of the IPPA was tested in a large sample ( $N = 747$ ) sample of adolescents in residential treatment for illegal sexual behaviors. Using confirmatory factor analysis (CFA), results were cross-validated using two purely randomized groups: Sample 1 ( $n = 387$ ) and Sample 2 ( $n = 387$ ). Initial CFA results indicated a three-factor solution was a good fit for the parent subscales but not for the peer subscales. An Exploratory Factor Analyses (EFA) was conducted using a Principal Components Analysis (PCA) for the peer subscales, and indicated a two-factor solution. The two-factor solution produced good model fit for the peer subscales. PCA findings for the peer subscales also indicated differences in item factor loadings that were discrepant from the original loadings suggested by Armsden and Greenberg (1987). Implications for the use of the IPPA with adolescents and areas for future research are discussed.

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It is true what they say: there are no shortcuts to any place worth going. The journey of my education taught me that if I had known where the path had led beforehand, I wouldn't have learned anything. So with the final chapter of this story coming to an end, I am happy to thank those who helped me along the way. First of all, thank you Barry. You believed in me when I was just an undergrad with a mediocre GPA and a big heart, and without your guidance, mentorship, and knack for helping folks get their second chances, I would not have completed this journey. Many thanks also to my husband, who has so lovingly and patiently accompanied me on this expedition. You change the lives of those around you and inspire me every day with the intense passion you have for your career—thank you for helping me pursue mine. Finally, to my parents, the ones who first taught me what secure attachment was and how wonderful it is to be cherished and safe. You were there for every victory, listened to every tirade, and talked me through all the tears—this is for you.

I admit I had my doubts along the way, but the Lord's plans once again proved better than my own. I pray that God will use me and my hard-earned education to make a great impact in this world for His glory, and His alone.

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## **Measuring Attachment in Adolescence: A Validation of the IPPA in Adolescents with Illegal Sexual Behaviors**

In order to measure a construct, such as attachment, a definition has to be crafted that ties the measurement of the construct to observable and definable operations. This methodological process of creating an operational definition requires that the construct be defined with clarity and sufficient precision in order to be measured reliably and validly. Attachment, first conceptualized as a necessary interpersonal process between an adult caregiver and an infant, has broadened considerably to include a complex of inter and intra-personal, psychological processes. These current constructs are far more complex than the safety regulation bond originally defined by the early ethnological researchers, who observed how children maintained a zone of safe connection to their mothers. It must be remembered that the original method of measuring infant attachment simply was to observe the infant's behaviors when separated from his/her mother; an operational definition explicitly defined by the construct. However, the difficulty of defining attachment as a psychological construct has been substantially increased, as the construct has been developmentally extended to include adolescents and adults—relationships far beyond just the mother/infant dyad.

As empirical research methods have evolved, so too have the definitions and interpretations of attachment. Mary Ainsworth described attachment as the “affectional tie that one person or animal forms between himself and another specific one—a tie that binds them together in space and endures over time,” (1967). She would later elaborate on this fundamental idea to include an “attachment-exploration” balance. In essence, Ainsworth hypothesized that an equilibrium must be achieved between the attachment figure, and the idea of exploration, in order to decide how to respond to the environment. Ainsworth predicted that proximity to the

caregiver is maintained, while simultaneously attempting to create a balance between exploration and safety (1969). Children's attachment is then revealed in light of the proximity to the caregivers, but also by the degree to which children engages in exploratory play and behavior. Environmental factors, such as current events in the environment, are weighed with mothers' availability, which in turn, shapes the attachment exhibited by child.

Expanding upon Ainsworth's operational definition of attachment, Bowlby (1973, 1988) suggested that "attachment was a biologically based system of specific behaviors organized to maintain or restore safety through proximity to a special and preferred other, usually an attachment figure." Both Ainsworth and Bowlby described the interrelationship between the security of a connection of caregiver and child, the biologically-based need to survive and experience safety, and to explore the environment. These early definitions of attachment were only the foundation for a vastly widened construct, in which the line is now blurred between what 'attachment' really *is* and how it *manifests* throughout development.

### **Attachment Theory and Styles**

Bowlby and Ainsworth established the foundation for attachment theory and demonstrated how attachment forms and operates in childhood. The psychological process by which an infant seeks to establish safety, is represented by proximity to the caregiver and the infant's experience of the caregiver as a protective, secure object. In this context, attachment was defined by concrete interactive behaviors. The infant's reaction to his/her mother's temporary abandonment and her subsequent return in the presence of a 'threat,' soon gave way to an identifiable pattern of attachment responding. Ainsworth (1969) then developed a unique system for identifying and classifying the infant responses which were then grouped into attachment categories (secure, ambivalent, avoidant, and disorganized). Parents who respond



appropriately and consistently to their infants' needs, allow their infants to experience the confidence that those needs will be met. Without any attachment-related concerns, *secure* infant can explore their worlds and invest resources in self-development. Securely attached children, were identified as being somewhat distressed by their mother's absence, but were comforted by her and expressed warm, relieved feelings at her return. In contrast, when caregivers' behaviors are unreliable or inconsistent, *insecure* infants must use their resources to manage distressing interactions with caregivers, as well as their own frustrations that arise because of the unpredictable interactions with the caregiver. Insecurely attached children display an array of coping behaviors and responses to their mother's absence. According to Ainsworth, some insecure children are labeled as anxious-ambivalent based on their inability to be consoled upon their mothers' return and, thus, they continued to remain distressed in her presence. *Ambivalent* infants experience caregivers who neglect their dependency needs, but also interferences with exploration and attempts at independence. Ambivalent infants are not comforted by attachment or avoidance as they struggle to find and maintain a distance from the parent that is soothing to their attachment needs. In Ainsworth's study, the remaining insecure children were labeled as avoidant, given their nonchalant behavior upon the mother's departure and reappearance, combined with an indifference to be physically comforted (1973). *Avoidant* infants experience intrusive, insensitive, or rejecting interactions from their parent and avoid proximity. This limitation of attachment forces avoidant infants to develop coping mechanisms to self-soothe and thus explore the world alone (Ainsworth Blehar, Waters, & Wall, 1978; Cassidy & Berlin, 1994; Isabella & Belsky, 1991; Vivona, 2000). This well-known experimental paradigm, "The Strange Situation," provided the crucible within which the development of secure, insecure, avoidant, and ambivalent attachment could be operationally realized. These constructs continue

to be integral to attachment research. However, attachment in adolescence adds significant complexity to the definition, as the construct begins to encompass far more than the mother/child dyad.

### **Attachment in Adolescence**

During adolescence, the proximity seeking behaviors once geared towards caretakers in childhood, begin to shift outward to create a broader and more interpersonally complex attachment network. In adolescence, Bowlby proposed that a hierarchy is created to help manage and organize the maintenance of the bonds with caregivers, while exploring new relationships with peers. Despite maintaining bonds with multiple attachment figures, adolescents will create a consistent order of preference for which figure they would seek out when the attachment system is activated (Bowlby, 1969, 1973). The debate between which figures are more important (peers versus parents) in adolescent attachment is a prominent debate throughout the literature (Armsden & Greenberg, 1987; Raja, McGee, & Stanton, 1992; Laible, Carlo, & Raffaelli, 2000; Freeman & Brown, 2001). The challenge to define the exact order of peers and parents in the adolescent attachment hierarchy is therefore influenced by more than proximity/safety seeking behaviors, but now includes an interplay of exploration and attachment preferences.

Research has argued that the necessity of parents for support and proximity is not as essential for adolescents as is it for younger children (Weiss, 1982). This may seem plausible given the developmental trajectory that allows adolescents to care for themselves more efficiently than a child. However, it should be noted that new attachment bonds formed over continual interactions within adolescence do not always serve to replace caregiver attachments, but may serve to supplement the attachment in the event that the caregiver is not available. Research also suggests that peers may be preferred over parents for emotional support in

nonemergency situations, due to a developmental shift (Hazan & Zeifman, 1994), but that parents continue to be influential in providing support during adolescence (Laible, Carlo, & Raffaelli, 2000). This is an important finding as it would suggest that the construct of attachment, particularly in adolescence, may be much more fluid during this developmental window than in any other stage of life. Although the bonds formed in the early stages of life revolve around caregivers, during adolescence, attachment and proximity seeking behaviors attempt to reach beyond the immediate family.

Despite the fact that the majority of parents are not completely displaced as attachment figures during this transitional period, they may be viewed by the adolescent as more of an alternative attachment figure (Weiss, 1982). New opportunities arise daily for adolescents to interact and ‘bond’ with new ‘objects’ such as peers, sports teams, and individual interests. There is significant debate regarding whether these ‘bonds’ with peers are actually attachment per se. According to Rosenthal and Koback (2010), these new peer relationships that arise from adolescence provide increasing levels of intimacy, companionship, and instrumental support (Furman & Buhrmester, 1992). Because adolescents are readily accessible to create new attachments in this phase of development, their proximity seeking behaviors are influenced by companionship, belongingness, and even romantic interest.

The adolescent’s developmental maturation may lead them to no longer require physical proximity to feel safe and cared for; however, other forms of support emerge as important. The trust in caregivers’ availability when needed, begins to play an integral role in psychological safety, and thus, adolescent psychopathology (Arbona & Power, 2003). Taking this into account, adolescents’ perception of parental attachment plays an important role in psychological wellbeing and adjustment. The adolescent may then remain aware of the level of trust, security,

and availability the caregiver is able to provide, even if they appear to detach from the primary attachment figure. For example, an insecure or ambivalently attached adolescent, may exhibit emotion dysregulation (Cassidy, 1994). In this case, healthy emotion regulation skills and modeling may not have been provided by caregivers. The lack of a safe space in which to be nurtured may then lead to a loss in confidence and the trust of caregivers, and ultimately, may force the adolescent to identify another attachment ‘object.’

### **Developmental Context**

The availability of parental care, emotional support, and subsequently, a secure attachment, have been linked to the quality of the family environment (Baumrind, 1991; Kovan, Chung, & Sroufe, 2009; Rodriguez & Sutherland, 1999), in which negative parenting practices and poor attachment styles have been shown to increase externalizing behavior in youth (Leve, Kim, & Pears, 2005). This relationship highlights the importance of viewing attachment in adolescence through a developmentally appropriate lens. According to Cooper, Shaver, and Collins (1998), adolescent attachment may affect the psychopathology of an individual based on the level and kind of care their caregivers provided: sensitive and responsive (resulting in feelings of support and security), inconsistent in their responding (inducing anxiety, vigilance, and anger), or cool, rejecting, and unsupportive (inducing premature self-reliance and suppression of neediness and vulnerability). Taking into account the vast and ever changing neurological network of adolescent brains, as well as new social challenges, a “social-cognitive dilemma” manifests in adolescents, where adolescents must learn to assimilate new experiences with their own identity (Moretti & Peled, 2004). Adolescence is therefore a novel transition period in which home environment and perception of parenting merge with the adolescent’s constantly evolving higher-order cognitive functions.

An insecure attachment may be more than uncertainty within an attachment network, but may also be an alternative adaptive strategy for accessing resources in a larger social network (Chen & Chang, 2012). In a broad sense, attachment may be viewed through the framework of accessing and maintaining resources. Del Giudice (2009) proposed that although the “attachment system” is a universal characteristic, there is “much individual variation in the organization of actual attachment relationships” where peer dyads and behavioral strategies are reorganized to prepare for new social environments (p.2). This conceptualization of adolescent attachment is similar to the resource control theory, formulated by Hawley (1999), in which social behavior is reinterpreted in “resource-directed terms.” Extrapolating this to adolescent attachment, the varied social and relational outlets are seen as contributing directly or indirectly to survival (Turner, Foa, & Foa, 1971; Hawley, Little, & Card, 2007). Therefore, adolescent attachment may not only function to serve an emotional need, but also to fulfill and garner resources such as status, power, acceptance—also known in adolescence as popularity.

Attachment theory aside, competition for resources has been conceptualized as an “ongoing survival mechanism” that falls into one of two classifications: coercive or prosocial, (Hawley, 1999; Pelligrini, 2008). Adolescents may garner social resources in either a prosocial or coercive manner, but will nonetheless the manner in which they do so will be determined somewhat by their attachment. To this end, resource control theory may align with G. Stanley Hall’s “storm and stress” model of adolescence, during which adolescents seek to discover alternative problem solving strategies, emotion regulation skills, and social outlets (1904). Hall deduced this chaos was particularly evident in adolescents’ tendencies to question and contradict their parents, and their propensity for reckless and antisocial behavior (Hall, 1904). As research in the area of adolescent attachments has expanded, research now rejects the idea

that the ‘storm and stress’ model is universal, citing more individualized attachment patterns are appropriate, compared to generalized patterns (Arnett, 1999; Laible, Carlo, & Raffaelli, 2000). Throughout childhood and into adolescence, caregiver attachment continues to be considered a strong contributing factor for psychological adjustment in adolescence.

As previously stated, when extrapolated to adolescents, defining the construct of attachment becomes more complex. According to Goldberg, Grusec, and Jenkins (1999) the field of attachment research has diverged from Bowlby’s original observations and theory. The attachment between mother and infant has been assessed by observation. In adolescence, attachment is often assessed with self-report measures. These self-report measures are constructed to gain a clearer picture of what Bowlby termed “internal working models,” or the adolescents inter and intra-personal experiences and interpretations (1988). This “internal working model” can be viewed as a collection of internalized patterns that aid the individual in relating to people (Bowlby, 1988), and are also thought to be gradually shaped during development (Bretherton, 1990). Using the internal working model as a framework, an adolescent’s attachment may more accurately represent their cognitions, self-appraisal, and beliefs about the world rather than their most trusted relationship. Taking this into account, a comprehensive definition of attachment in adolescence must strive to encompass both the internal and external dimensions of attachment.

The interplay of attachment and its manifestation in adolescence is central to constructing an operationally sound construct. Related to behaviors, research has indicated that internalizing and externalizing problems in children and adolescents may arise from attachment disorganization (Buist, Dekovic, Meeus, & van Aken, 2004; Guarnieri, Ponti, & Toni, 2010; Muris, Meesters, van Melick, & Zwambag, 2001). However, the literature has produced varied

findings regarding the type and direction of the relationship that exists. Internalizing disorders have been linked more commonly to any insecure attachment in some studies (Nelis & Rae, 2009; Vivona, 2000), and specifically to ambivalent attachment in other studies (Kobak, Rosenthal, Zajac, & Masden, 2007). These inconsistencies may be due in part to the lack of uniformity in the measurement of attachment across studies, but could also reflect the importance of a developmentally-sensitive conceptualization of attachment in adolescence. To that end, Lopez and Glover (1993) posit that the parent-adolescent relationship may serve to promote or inhibit adolescent separation and individuation, in which the relationship may also serve to facilitate the development of self in the adolescent. Research has also conceptualized attachment to include behaviors, affects, and cognitions that are organized in response to the caregiver's sensitivity to the child's needs (Ainsworth, Blehar, Waters, & Wall, 1978; Sroufe & Waters, 1977). In this light, internalizing and externalizing behaviors may be a function of the attachment established by the caregiver's availability and responsiveness to the adolescent's needs. Thus, understanding the internalizing and externalizing patterns of attachment in adolescence is paramount to a well-conceptualized construct and an accurate measurement tool.

A more recent operational definition was proposed by Phil Rich (2006), who stated that attachment is "a process, an organized set of procedures, and a state of being," (p.6). He concludes that within this framework, the term attachment is a multidimensional construct that can be separated into attachment experiences, patterns, and strategies. Taking this theory into account, Rich suggests that it is necessary to require "diverse observational and measurement procedures" for assessing the construct of attachment across all stages of human development, (Rich, 2006, p.6). This unique view of a multidimensional measurement of attachment in

adolescence combines the importance of observation with self-report—a hybrid model of The Strange Situation and the self-report attachment measurement seen in adults.

Adolescent attachment should not only be viewed within a developmentally appropriate framework, but should be measured in a way that acknowledges the role of development in attachment formations. From this perspective, attachment in adolescence may be conceptualized around five components (Rich, 2006). The first component stems from an instinctual and biological process as a means to survival through resource acquisition. The second component involves the formation of personalities and patterns of interactions, when combined with our behavioral systems (i.e. reflexes, conditioned responses). The third component, is noted as a “cybernetic control mechanism,” where behavioral systems function in a feedback loop to help us to accurately receive, decode, and respond to stimuli in our environment. The fourth component allows the goal-oriented and corrected cognitive processes to relay information relative to reasoning, cognitive abilities, and attachment frameworks—through modeled responses and behavioral strategies. The fifth and final component involves a higher cognitive development throughout the lifespan, which subsequently alters our perceptions of attachments as we mature cognitively (Rich, 2006). Taking these components into account, the evolution and development of the adolescent’s perceptions of caregiver attachment and childrearing practices may change drastically from adolescence to middle-adulthood, as a result of experiences, insight, and perspective.

Attachment and the theories connected to attachment continue to provide a foundation from which to build a definition and measure of adolescent attachment that takes into account their unique development and individualization. As previously discussed, the varied approaches



to attachment are both necessary and sufficient as the field continues to retool and refine the construct of attachment in adolescence.

### **Measuring Attachment in Adolescence**

Attachment relationships in adolescence play an important role in overall psychological functioning during the transition into adulthood. Despite the relative contributions of genetics, environment, and temperament in the formation of attachment (Gillath, Shaver, Baek, & Chun, 2008), past research has inconsistently identified common factors that comprise ‘attachment.’ Research points to attachment being influenced by the quality of family relationships and emotional disorders in adolescence (West, Rose, Spreng, Sheldon-Keller, & Adam, 1998), while others indicate that a strong relationship with parents allows the adolescent to create emotional autonomy and thus healthy attachments later in life (Allen & Land, 1999). These highlighted discrepancies are only a small part of a larger network of inconsistencies in the operational definition of the attachment. This network of inconsistencies has then triggered a theoretical and measurement schism in adolescent attachment.

There is however, widespread agreement that while attachment is an especially valuable conceptual tool for understanding parent–adolescent relations, the empirical work on adolescent attachment has been hindered by a lack of uniform or reliable and valid measurements (West, Rose, Spreng, Sheldon-Keller, & Adam, 1998). Over the years, the field has scrambled to create multiple measures for attachment in adolescence, each tapping into a different aspect or operational definition of the construct. The most commonly utilized and cited measures of adolescent attachment are discussed in detail in the following section.

## **Adolescent Attachment Measures and Approaches**

**Adolescent attachment questionnaire.** The Adolescent Attachment Questionnaire, (AAQ) designed by West, Rose, Spreng, Sheldon-Keller, and Adam (1998), conceptualizes attachment as providing a “unique relationship with another individual who is perceived as available and responsive and who is turned to for emotional and instrumental support” (West et al., 1998, p. 663). The AAQ relies on Bowlby’s (1973) idea that the attachment figure must not only be available, but must also be perceived as willing to act responsively, dealing effectively with attachment-related distress and anxiety. The ‘Availability’ scale was created to determine the amount of confidence in the attachment figure as someone who can be reliably accessible and responsive to most of his/her attachment needs. Because an unavailable attachment figure can evoke feelings of anxiety, distress, and even anger, the “Angry Distress” scale was added as a way of detecting negative affective responses to the perceived unavailability of the attachment figure (West et al., 1998). Additionally, a “Goal-Corrected Partnership” scale was also added to assess the extent which the adolescent would consider and have empathy for the needs and feelings of the attachment figure.

The scales were developed in a construct-oriented, *a priori* from theoretical bases, and resulted in approximately 15 per scale, which were used to create a questionnaire with responses scored on a 5-point Likert scale from Strongly Disagree to Strongly Agree. Interestingly, in the original study by West et al. (1998), the majority of adolescents (91.5%) identified their mother as their attachment figure and 8.5% identified someone other than their mother (e.g., father or grandmother) as their attachment figure. Throughout the AAQ’s development, importance was placed on psychometric properties with respect to the construct validity and reliability of the measure.

The AAQ demonstrates excellent reliability and validity as a measure of adolescent attachment. Cronbach's alpha ranged from .62 to .80, indicating a satisfactory degree of internal consistency and for all three scales, the mean difference was close to zero where the value zero was contained in the 95% confidence interval. This demonstrated agreement between scores at time one and time two and resulted in high temporal test-retest correlations between all three scales. The AAQ was developed under statistically sound and empirically validated procedures and has shown superior construct validity with the Adult Attachment Interview (AAI). The *a priori design* contributes to the strength of the measure, in which statistical analyses were used to refine and confirm the psychometric strength of the theoretically based scales. Additionally, the AAQ demonstrates strengths in its brevity, appropriate developmental level for adolescents, combined with psychometric and theoretical constructs. Due to these factors, the AAQ should be considered a leading measure for the assessment of attachment in adolescence.

Although the AAQ has established reliability and validity with the AAI, several noted drawbacks exist. According to Crowell and Treboux (1995), insufficient attention has been given to attachment self-report measures with respect to the construct validity of the measure. For instance, according to West and colleagues (1998), the AAI is considered the "gold standard" for measuring attachment in adults and some even consider it so for adolescents; however, there is discrepancy between the AAI and the AAQ in regard to scale validity. Even though correspondence between the AAQ scales and the primary classifications used by the AAI exist, it would be imprudent to regard the scales as directly assessing security or insecurity in the attachment relationship. As with any self-report measure, it is more likely the perception of the attachment relationship, as opposed to the actual attachment dynamic itself that is being measured. It is imperative then to note that the scales should only be considered as assessments

of adolescents' perceptions of the available responsiveness of the attachment figure (West et al., 1998, p.670).

**Parental bonding instrument.** The Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) hypothesized that the 'bond' between parent and child may be broadly influenced by child characteristics, characteristics of the parent or attachment figure, and by those characteristics of the reciprocal, dynamic and evolving relationship between the child, also known as attachment (p.1). During its development, Parker and colleagues noted the prevalence of two primary parenting dimensions, care and overprotection, and constructed an original group of items representative of these dimensions. Items were subjected to factor analyses, and resulted in the 25-item form of the PBI (1979). The PBI was designed to measure parental behaviors and attitudes and includes maternal and paternal scales with regard to two variables — 12 'care' items (opposite extreme being indifference or rejection) and 13 'overprotection' items (opposite extreme being encouragement of autonomy). These scales are rated on four-point Likert scales ranging from *very like* to *very unlike*.

Several studies have examined the PBI scales and their relationship with various psychosocial outcomes in adolescents. A large number of PBI-based studies have suggested the relevance of low parental care, separately or in conjunction with parental over-protection to certain psychiatric conditions (Parker et al., 1997). Parker & Gladstone (1996) also found that individuals with generalized anxiety disorder are more likely to have been recipients of 'affectionless control' (i.e. low care, high protection), while 'affectionate constraint' (i.e. high care, high protection) appears to have some specificity to panic disorder. Additionally, the construct of 'affectionless control' may create a predisposition to generalized anxiety, while the construct of 'affectionate constraint' is more applicable to the parental style evoked by children

with psychological deficits, such as behavioral inhibition. Based on the literature, in most studies where the PBI is used, regardless of the hypothesis, the measure continues to withstand empirical and clinical scrutiny as a measure of parental attachment and bonding.

The PBI possesses sound psychometric properties. Exhibiting good to excellent internal consistency, the PBI has had split-half reliability coefficients of .88 for care and .74 for overprotection in other studies. Additionally, the PBI demonstrates good stability, as evidenced by three week test-retest correlations of .76 for care and .63 for overprotection. The PBI correlates significantly with independent rater judgments of parental caring and overprotection, demonstrating good concurrent validity, with interrater coefficients at .85 for the Care scale and .69 for the Overprotection scale. Concurrent validity was examined by correlating the previously mentioned raters' scores with those of the actual scales, where those correlations ranged from .78 for the Care scale to .48 for the Overprotection scale. In the original sample, as well as in subsequent normed samples, Parker and colleagues discovered that Care and Overprotection scales were significantly correlated for both mothers (-.47) and fathers (-.36) and argued that overprotection may therefore be associated with lack of care, so that when interested in either factor independently, or in relation to another variable, these correlations should be accounted for (1979). The operational definition of Care and Overprotection helped the PBI achieve sound reliability and validity, and the scales were a unique contribution to the attachment measurement and conceptualization literature.

Despite the fact that the PBI has become popular among researchers and clinicians due to its ease of use and sound psychometric properties, drawbacks of the measure should also be discussed. The PBI was designed for and normed upon adults (fifth-year medical students) and their experience of their parents as remembered prior to age 17 (Parker, Tupling, & Brown,

1979). Because the measure was normed on young adults, the normed sample should be taken into account when used for research and also when extrapolated to attachment in adolescence. There is also controversy among researchers regarding the factor structure of the PBI. Murphy, Brewin, and Silka (1997) commented on the unusual structure of the PBI, in that among multi-dimensional measures of parenting styles, the PBI is constructed on the assumption that two dimensions (care and overprotection) adequately describe the nature of the attachment relationship being studied. In some studies a two factor structure has been acceptable (Arrindell, Hanewalk, & Kolk, 1989; Kazarian, Baker, & Helmes, 1987); however, other studies have called into account the accuracy of the original structure and found that three factors best accounted for the variance detected (Cubis, Lewin, & Dawes, 1989; Gomez-Beneyto, Pedros, Tomas, Aguilar, & Leal, 1993). If these limitations are not accounted for while using the PBI, errors may be made regarding attachment classification, which may then lead to inaccurate clinical and research implications.

While consensus in the field that attachment plays an important role in various psychological outcomes does exist, capturing this construct, specifically in adolescence, is particularly difficult. In an attempt to address this predicament, many researchers have turned to Armsden and Greenberg's (1987) Inventory of Parental and Peer Attachment (IPPA) as a means to determine attachment patterns in adolescence.

**Inventory of parental and peer attachment.** The Inventory of Parent and Peer Attachment (IPPA, Armsden & Greenberg, 1987) was developed as a self-report measure to “assess adolescents’ perceptions of the positive and negative affective/cognitive dimension of relationships with their parents and close friends—particularly how well these figures serve as sources of psychological security” (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990, p. 687). Responses from the measure are divided into three broad dimensions which are assessed on degree of “mutual trust; quality of communication; and extent of anger and alienation.” The original version consisted of 28 parent and 25 peer items, yielding two attachment scores on two dimensions, Trust and Alienation (Greenberg, Siegel & Leitch, 1984). The revised version divides the ‘parent’ scales into separate “Mother” and “Father” sections, and when combined with the Peer section, now provides three attachment scores on three factors: Trust, Communication, and Alienation. Certain items are reversed scored based on negatively worded items, and then totals are summed for each section.

Developed from an original pool of 77 items, subjects indicate how often each statement is true for them on a five-point Likert scale with response categories consisting of Never, Seldom, Sometimes, Often, and Almost Always or Always. The two extreme responses are scored as 1 or 5, depending on whether an item is positively or negatively worded (Armsden & Greenberg, 1987).

***Psychometric validity.*** Armsden and Greenberg (1987) indicated the IPPA scales were highly intercorrelated, with coefficients ranging from .76 to -.40. Using this finding, the authors created a “psychological security” score comprised of trust + communication – alienation. This difference score was calculated in all of Armsden and Greenberg’s (1987) validation studies; however, use of the subscale scores is considered best practice. Alpha coefficients of .91, .91,

and .86 were reported for the Trust, Communication, and Alienation parent subscales, and .91, .87, and .72 coefficients were indicated for those peer scales. Three-week test-retest, reliabilities for a sample of 27 18-to-20-year-olds were .93 and .86 on parent and peer attachment measures. Despite high construct overlap, the original IPPA established adequate reliability.

The IPPA has been validated across diverse adolescent populations and has demonstrated its robust applications across adolescent psychopathology and family functioning. IPPA parent attachment scores have been shown to be moderately correlated with positive family communication (Lewis, Woods, & Ellison, 1987), as well as levels of family support, conflict, cohesiveness, and the tendency to seek parents out in times of need (Lopez & Glover, 1993). IPPA parent and peer attachment scores have also been moderately correlated with family functioning and self-concept within the family dynamic (Armsden & Greenberg, 1987). In a sample of adolescents (age 10-16) being treated for psychiatric disorders, the IPPA parent attachment scores were found to be related to clinical diagnoses of depression (Armsden, McCauley, Greenberg, Burke & Mitchell, 1990). IPPA peer and parent attachment scores have also been correlated with personality constructs such as self-esteem, life-satisfaction, depression, anxiety, as well as resentment and alienation (Armsden & Greenberg, 1987). The IPPA's utility throughout adolescent social, emotional, and family functioning makes it a highly useful measure of adolescent attachment; however, some drawbacks must be taken into account when the measure is utilized.

***Strengths, weaknesses, and barriers to use.*** The IPPA has demonstrated empirical utility in the identification of parent and peer attachment patterns in adolescents; however, strengths and weaknesses should be dually noted. In the original validation sample, Armsden and Greenberg indicated that attachment could be derived from scale scores of peer and parent



attachment (1987). Although the classification of individual differences followed Bowlby's attachment theory, the division of the subscale score into thirds has been indicated to be arbitrary—resulting in a relatively low percentage of individuals with accurately classified attachment. In the original study, the raw-score distribution of each IPPA subscale (Trust, Communication, Alienation) was divided into lowest, middle and highest third, and each subject assigned a converted score of 1 (low), 2 (medium) or 3 (high) for each subscale. These 'scores' were then used as the criteria to classify participants' attachment. Individuals were denoted as Secure if: Alienation scores were not high, and if either of their Trust or Communication Scores was high (i.e. 3) and the other was medium (i.e. 2). Ambivalent denoted the group in which Trust and Communication scores were on the average medium level, and Alienation scores were not low. Individuals were denoted as Avoidant group if: Trust and Communication scores were both low, and if their Alienation scores were medium or high level. Finally, in cases where the Trust or Communication score was medium but the others were low, individuals were denoted as Avoidant if Alienation score was high, but Ambivalent was denoted if Alienation was medium. The IPPA is not widely accepted as a classification measure of attachment (Lyddon, Bradford, & Nelson, 1993), and despite Armsden and Greenberg's early attempts to utilize the IPPA as an attachment identification' tool, their method of attachment classification appears imprecise and statistically unsound.

Although the IPPA exhibits sound psychometric properties and demonstrates clinical utility, there are other limitations that should be kept in mind when using the measure (Lopez & Gover, 1993). In earlier studies using the IPPA, Quintana and Lapsley (1987) found no link between parental attachment and psychosocial factors such as identity development; however, Lapsley, Rice, and FitzGerald (1990) found parent and peer scores to be predictive of personal

and social identity, as well as college adjustment. Despite these inconsistencies in the predictive validity of the measure, some researchers continue to implement the IPPA as a means of ‘prediction’ for these outcomes. There is also evidence to suggest scores on the IPPA subscales may diminish as puberty proceeds, due to an ‘emotional-distancing’ hypothesis developed by Papini and colleagues (1991). Their study found that perceived attachment to parents diminished with maturity; however, pubertal maturity did not moderate the buffering effects that attachment creates (Papini, Roggman, & Anderson, 1991). It may be conceptually appropriate to expect a degree of parental disengagement during adolescence as a normative response; however, using this theory, the IPPA scale scores may inaccurately portray the adolescent as more disengaged. Therefore, the IPPA results should be interpreted through a developmentally appropriate lens in order to take into account the fluctuations in parent and peer attachments during adolescence. Despite these few drawbacks, research has indicated that the IPPA is the “most appropriate instrument to evaluate adolescents’ perceptions of the quality of their attachment relationships” because of the utility in its ability to assess attachment dyads but also the individual differences in attachment styles across the dyads (Guarnieri, Ponti, & Tani, 2010). Thus, providing additional factor structure validation for the Trust, Communication, and Alienation subscales within a unique adolescent population would be a significant contribution to the literature.

***Factor structure.*** In the original sample of 179 college students aged between 16 and 20 years, the authors posited two factors: one indicating a “positive affective/cognitive experience of trust in the accessibility and responsiveness of attachment figures” and another indicating “negative affective/cognitive experiences of anger and/or hopelessness resulting from unresponsive or inconsistently responsive attachment figures,” (Armsden & Greenberg, 1987, p. 431). However, the authors felt the construct of attachment was more robust than two

dimensions, so using the criterion of eigenvalues greater than 1, the authors extracted (and rotated orthogonally) three factors in both the parent and peer subscale. For the parent subscale, factor one (Trust) was interpreted as “parental understanding and respect and mutual trust”, factor two (Communication) as “the extent and quality of verbal communication with parents” and factor three (Alienation) as “feelings of alienation and isolation.” The peer subscales demonstrated parallel structure, as the first factor (Trust) was interpreted as “mutual respect and trust”, the second (Communication) as “perceived quality of communication,” and the third (Alienation) as “alienation from friends, but with the recognition of the need to be closer to them,” (Armsden & Greenberg, 1987, p. 433). It should be noted that the subscales were highly correlated both in the parent ( $r$  between .70 and .76) and peer forms ( $r$  between .40 and .76). Recognizing these high intercorrelations, the authors suggest using an “overall attachment security” score when possible, which is obtained by adding the Trust and Communication subscale scores and subtracting the Alienation score (Pace, Martini, & Zavattini, 2011).

More recent studies have examined the IPPA factor structure across adolescent populations. Vignoli and Mallet (2004) aimed to validate a shortened French form of the IPPA in a sample of 289 adolescents. EFA analyses of the three factors (Trust, Communication, Alienation), revealed only partial correspondence to Armsden and Greenberg’s (1987) factor structure (Vignoli & Mallet, 2004). Similarly, in an examination of 1059 Italian adolescents consisting of 402 males and 574 females ranging in age from 13-18 ( $M = 15.66$ ,  $SD = 1.59$ ), the three-factor model (Trust, Communication, Alienation) demonstrated the best fit despite high item intercorrelation (Pace, Martini, & Zavattini, 2011). Another survey of 399 Italian adolescents (199 males and 200 females), with ages ranging from 12 to 20 ( $M = 16.44$ ,  $SD = 3.02$ ), also achieved best model fit with the three-factor solution (Guarnieri, Ponti, & Tani,

2010). Using the revised version of the IPPA (Mother, Father, and Peer version), a collaboration of researchers examined Chinese (N = 350) Italian (N = 352) and Costa Rican (N = 243) adolescents and found the three-factor model to be optimal for maternal and paternal attachment (Li, Delvecchio, Miconi, Salcuni, and Di Riso, 2014). With regards to factor quantity, Pace, Martini, and Zavattini (2011) posit that perhaps it is not appropriate to dictate a specific factor structure for the IPPA, because the original measure was designed to examine the individual differences of attachment in adolescence. Pace, Martini, and Zavattini's viewpoint has contributed to the uncertainty surrounding the IPPA's ability to accurately capture attachment within the author's three factor solution.

Interestingly, Johnson, Ketring, and Abshire (2003), examined the factor structure of the IPPA for parent and peer subscales in a small sample of adolescents (N = 89, mean age: 14.3 years) who were "at risk of having one or more children or adolescents removed from the home because of abuse, neglect, or juvenile offenses" (Johnson, Ketring, & Abshire, 2003, p.336). Confirmatory factor analysis (CFA) results indicated poor fit for the three-factor model in both parent and peer subscales. The authors then utilized an EFA and found that a two-factor solution fit best—similar to Armsden and Greenberg's original two factor interpretation of trust and alienation (Johnson, Ketring, & Abshire, 2003). For the parental IPPA, the author's utilized scree plot analysis and determined two factors, one related to trust and another to alienation, which accounted for approximately for 49.1% and 52.5% of the variance for mother and father, respectively. These findings are particularly relevant to the current study due to the potential similarities in externalizing behaviors, family environment, and other socioeconomic factors that mirror the population in the current study. In light of inconsistencies in the IPPA factor structure

literature, a main goal of this study is to determine the validity of the IPPA factor structure within a unique population of adolescents.

### **Present Study**

Recognizing the utility and clinical implications of the measurement of attachment using the IPPA, the current study is aimed at examining both parental and peer attachments in Adolescents with Illegal Sexual Behaviors (AISB). It is common for AISBs to have experienced a traumatic childhood or upbringing, an unstable home life, and/or sexual abuse. Most often, these adolescents are in homes with only one biological parent present, if any, and may be subjected to a myriad of step-parents or caregiver significant others. This chaos and attachment disorganization becomes the lens through which these adolescent males view their environment and thus, their relationships with others. Given these considerations, the present study aims to contribute to the validation of the IPPA with this population; more specifically, the validity and reliability of the IPPA's factor structure across diverse groups of adolescents. AISBs are conceptualized to be a heterogeneous population (see Caldwell, 2002) and have been found to be more similar to other delinquent adolescents than different (Seto & Lalumière, 2010). Therefore, from a methodological standpoint, it is important to confirm the clinical utility and psychometric characteristics of the measure as it applies to AISBs. Similarly, from a theoretical standpoint, understanding attachment and its relationship to assessment and treatment may significantly contribute to therapeutic outcomes and overall improvement with the AISB population. Based on available theoretical and empirical evidence, the following hypotheses were posited:

*Hypothesis 1:* The IPPA will demonstrate adequate psychometric properties including validity and internal consistency, in the AISB population.

*Hypothesis 2a:* The factor structure of the original 28-item Parent and 25-item Peer IPPA as reported by Armsden and Greenberg (1987) will be tested using the three-factor model consisting of Trust, Communication, and Alienation.

*Hypothesis 2b:* The IPPA factor structure has not been tested in the current population, thus, the measure may demonstrate a different factor structure than previous studies in non-clinical samples. Exploratory Factor Analysis (EFA) techniques will be utilized if necessary.

*Hypothesis 3:* A cross-validation of the best model fit will then be conducted for both parent and peer subscales, using a Confirmatory Factor Analysis (CFA).

*Hypothesis 4:* In order to confirm the IPPA's psychometric properties in the current sample, concurrent and discriminant validation will be assessed using measures that are deemed relevant and/or irrelevant measures to attachment.

## **Method**

### **Setting**

Beginning in 1999, the state of Alabama passed legislation requiring that all adjudicated juvenile sexual offenders receive treatment. In order to meet state requirements, the Department of Youth Services (DYS) sought partnerships with organizations willing to provide comprehensive psychological services to juvenile offenders, including the Department of Psychology at Auburn University and the School of Social Work at the University of Alabama (Burkhart, Peaton, & Sumrall, 2009). Together, the Accountability Based Sex Offender Program (ABSOP) was established and has continued to develop and evolve into a second iteration referred to as ABSOP-II. It is guided by principles of community safety, holism, and empiricism.

The goal of the ABSOP-II program is to conduct comprehensive assessment and best-practice treatment for each juvenile sex offender. Assessment facilitates the identification of each juvenile's therapeutic goals and needs, as well as his individual strengths and weaknesses. In residential treatment, the youths are exposed to a multimodal treatment approach including individual and group treatment, psychoeducation, residential, and shared community activities or extra-curricular involvement (e.g., music, art, and sports). Residential and treatment staff are trained to implement the Children and Residential Experiences (CARE) model, which is designed to provide services in the best interest of the child and to promote treatment that is developmentally focused, family involved, relationship based, competence centered, trauma informed, and ecologically oriented (Holden et al., 2010). Treatment model also utilizes components of the Good Lives Model (Yates, Prescott, & Ward, 2010), to emphasize positive

psychology and rehabilitation. For more detailed information about the treatment program and principles of practice, please contact the author.

ABSOP-II is capable of housing up to 60 adjudicated adolescent sexual offenders, but it is only one program contained within the Mount Meigs Complex in Montgomery, Alabama. Overall, the facility also includes a general juvenile correctional facility, capable of housing over 260 adjudicated males, and a specialized chemical addictions program. Given distinct needs, presenting concerns, and developmental considerations of the adolescents with illegal sexual behaviors (AISBs) and adolescents with general delinquent behaviors (AGDBs), the two populations are housed separately on campus.

## **Participants**

The original sample consisted of 774 adolescent males (56 % European-American, 40.5% African-American, and 3.4% ‘other’ (which includes Hispanic, Biracial, and ‘Other’) who ranged in age from 11-20 years, ( $M = 15.74$ ,  $SD = 4.29$ ) and had been admitted to a secured detention facility in a southeastern state after adjudication for illegal sexual behaviors. Each case was assigned a random number generated by Excel, and the cases were then sorted by the random variable (smallest to largest). The 774 cases were then split in into two equal samples of 387. Sample 1 served as the calibration sample in which parameter estimates and overall model fit indices were obtained for attachment factors proposed by Armdsen and Greenberg (1987). Sample 2 served as the validation sample. Both samples were equivalent in terms of age and ethnicity and can be reviewed in Table 1.

## **Measures**

*Inventory of Parental and Peer Attachment* (IPPA; Greenberg, Siegel & Leitch, 1984) consists of 28 parent items and 25 peer items, with items divided between Trust,



Communication, and Alienation subscales. Developed from an original pool of 77 items, subjects indicate how often each statement is true for them on a five-point Likert scale with response categories consisting of Never, Seldom, Sometimes, Often, and Almost Always or Always. According to Armsden and Greenberg (1987) the revised version of the IPPA which separately assesses mother and father attachment is recommended; however, at the time the data was collected, the revised version was not implemented. Items and corresponding factor structure as set forth by Armsden and Greenberg (1987) can be viewed in Table 2 (Parent) and Table 3 (Peer).

The *Parental Bonding Instrument* (PBI; Parker, Tupling, & Brown, 1979) is a 25-item scale designed to measure parental behaviors and attitudes. In this study, the measure will be used to establish concurrent validity for the IPPA within the AISB population.

The *Millon Adolescent Clinical Inventory* (MACI; Millon, 2006) is a 160-item self-report measure used to assess a broad range of psychological problems in adolescents ages 13–19. For this study, the Borderline Tendency Scale, Oppositional Scale, Anxious Feelings Scale, Depressive Affect Scale, and Conforming Scale scores will be used to provide convergent and divergent validity for the IPPA parent and peer constructs.

Other items used for validation purposes include the Peer Relations Total Factor Scale from the Alabama Risk Needs Assessment and participant grade level.

## **Procedure**

Data used in the study were archival and part of a larger data set, drawn from an on-going assessment and treatment protocol at Mt. Meigs. The IPPA is a part of the comprehensive pre-treatment assessment that all AISBs complete upon arrival to Mt. Meigs. These measures are administered by trained research assistants, graduate students in clinical psychology, or licensed

clinicians. The IPPA is then entered by hand and scored using an excel spreadsheet to ensure subscale and reverse scores are calculated correctly. Scores derived from the admission assessment are then presented to a treatment team and are also interpreted in a full psychosocial evaluation report. All data are stored in a secure, locked room and entered into a large database with other variables obtained during the assessment protocol. Informed consent was obtained from all participants in the study.

The pretreatment battery and intake process requires approximately one month to complete. Details about the overarching project have been omitted in favor of describing procedures specific to this study, but additional information can be provided upon request. All procedures for this study were approved by the university's Human Research Protection Program and Institutional Review Board (IRB).

### **Analytic Strategy**

The total sample of 774 AISBs was randomly split into two independent samples with equivalent age and race demographics (see Table 1). Exploratory Factor Analysis (EFA) procedures were conducted using SAS Software v9.4 (2005) and SPSS Version 23. Confirmatory Factor Analysis (CFA) procedures were conducted using full information maximum-likelihood (FIML) estimator in Mplus v7.3 (Muthén & Muthén, 2012).

Because the chi-square likelihood ratio test statistic (Bollen, 1989) is sensitive to departures from multivariate normality and is affected by sample size, other goodness of fit indices were used. CFA Model fit was determined using the Standard Root-Mean-Square Error of Approximation (RMSEA; Steiger & Lind, 1980), Comparative Fit Index (CFI; Bentler, 1990), and the Chi-square/degrees of freedom ratio less than 5 (Wheaton, Muthen, Alwin, & Summers,

1977). CFI values more than .90 indicate “good” model fit, and RMSEA values less than .10 indicate good model fit (Windle & Mason, 2004).

A CFA for the parent subscales was conducted on Sample 1 using Armsden and Greenberg’s (1987) factors (Trust, Communication, Alienation). The three-factor solution provided a good fit, as determined by RMSEA and CFI values as well as Chi-square/degrees of freedom ratios. The three-factor solution was then confirmed for parents on Sample 2.

A CFA for the peer subscales was then conducted on Sample 1 using Armsden and Greenberg’s (1987) factors (Trust, Communication, Alienation). The peer subscales demonstrated poor model fit for the three-factor solution due to a lack of convergence, as reported by Mplus. Because of the failure of model convergence in the peer subscales, it was necessary to conduct an EFA in order to determine a factor structure more appropriate for peer attachment within this population. A final two-factor peer solution (Trust/Communication and Alienation) was determined using Eigenvalues greater than 1, visual examination of the scree plot, and theoretical assumptions related to peer attachment.

## Results

### Descriptive Statistics

Sample 1 ( $n = 387$ ) was comprised of 56.8% European-American adolescent males, 40.1% African-American, and 3.1 % other (consisting of Hispanic, Asian, Biracial, & ‘Other’). Similarly, Sample 2 ( $n = 387$ ) consisted of 55.3% % European-American adolescent males, 40.8% African-American, and 3.9 % other (consisting of Hispanic, Asian, Biracial, & ‘Other’). Sample 1 and 2 were also equal with respect with to ages of 15.6 ( $SD = 5.78$ ) and 15.9 ( $SD = 1.84$ ), respectively.

Descriptive statistics for parent and peer Trust, Communication, and Alienation items along with comparisons across Sample 1 and Sample 2 are presented in Table 4. Based on IPPA item means and standard deviations, results further confirm the similarity of Sample 1 and Sample 2.

The IPPA also demonstrated good to excellent reliability as assessed by internal consistency. Cronbach’s alpha (Cronbach, 1951) was used as an index of internal consistency and reliability, which is routine practice in all psychological research where multiple-item measures of a construct are used. Internal consistency of the three parent subscales, as measured by Cronbach’s alpha, for Trust, Communication, and Alienation ranged from .93 to .80. Cronbach’s alpha for the peer scale Trust/Communication was .95 indicating a satisfactory degree of internal consistency but .61 for the peer Alienation scale indicating in an unsatisfactory degree of internal consistency.

## **Validation of previous factor structure**

Based on previous research with the IPPA's factor structure, a model consisting of the original factors (Trust, Communication, and Alienation) was fit to the data. Initial CFA results indicated moderate model fit for the parent three-factor model. According to Floyd and Widaman (1995), if an item does not correlate at least moderately (e.g.,  $r = .20$  or greater) with other items in the construct, that item will perform poorly in a factor analysis (p. 288). Using Floyd and Widaman's (1995) criteria, items with standardized factor loadings of .20 or less were removed from the model: This included: item 3: ("I wish I had different parents,"), item 5: ("I have to rely on myself when I have a problem to solve,"), item 7: ("I feel it's no use letting my feelings show,") and item 10: ("My parents expect too much from me."). The current study proposes that those items, based on the item reliabilities, do not accurately capture the Trust and Communication factors within our population. Inter-correlations for parent subscale in Sample 1 are presented in Table 5. The three-factor model (Trust, Communication, and Alienation) was fit again in Sample 1 without items 3, 5, 7, and 10 and resulted good fit for the parent subscales:  $X^2(231) = 592.05, p < .01$ ; CFI = .94; RMSEA = 0.06;  $X^2/df \sim 3$ .

The three-factor model (Trust, Communication, and Alienation) was also fit for peer subscales in Sample 1. Results in Mplus indicated that the peer three-factor model did not converge. Peer subscale item ICCs for Sample 1 are presented in Table 6. Because of lack of model convergence, an EFA was warranted to explore a more appropriate factor structure for the population.

## **Exploratory Factor Analysis (EFA)**

In order to better understand the poor three-factor model fit for the peer subscales, an exploratory factor analysis (EFA) using principal components analysis (PCA) was conducted for

Sample 1 and Sample 2. Using oblique rotation as the method of extraction, three components (or factors) are presented in Table 7. The first factor appears to be a combination of Armsden and Greenberg's (1987) Trust and Communication factors. In this study, we describe this factor as "Trust/Communication," as the items appear assess attitudes towards belongingness, support, and attachment figure availability. The Trust/Communication factor is comprised of items originally prescribed as Trust (6, 8, 12, 13, 14, 15, 19, 20, 21) 24) and Communication (1, 2, 3, 7, 16, 17, 24, 25). The Trust/Communication factor also included item 9 ("I feel the need to be in touch with my friends more often"  $\lambda = .60$ ), which is designated as an Alienation factor, according to Armsden and Greenberg. The current study's author proposes that this item is more appropriately measuring a trust and support aspect of peer attachment as opposed to alienation and is therefore an appropriate item to include factor one. Results indicate that the Trust/Communication factor in the AISB population is identical to Armsden and Greenberg's initial factor which assesses "positive affective/cognitive experience of trust in the accessibility and responsiveness of attachment figures," (p. 431).

A second factor was identified for peers as "Alienation" where the items describe a sense of frustration, disappointment, and emotional turmoil as a result of an inconsistent attachment. Items indicated for the second factor included those originally created for the Alienation scale (i.e. items 4, 11, 18, and 23). PCA results also indicated that item 5 ("I wish I had different friends") should also load on the Alienation factor. This is an interesting finding as Armsden and Greenberg intended item 5 to load on the Trust scale. The current study indicates that within this population, item 5 may assess the underlying sense of frustration and emotional turmoil experienced within peer attachments, and is therefore appropriate to include on the Alienation factor. This finding related to item 5 is consistent with other studies that have also found

discrepancies in item loadings (Guarnieri, Ponti, & Tani, 2010; Pace, Martini, & Zavattini, 2011). A review of the original two-factor structure, reveals that the Armsden and Greenberg defined their second factor as capturing the “negative affective/cognitive experiences of anger and/or hopelessness resulting from unresponsive or inconsistently responsive attachment figures,” (Armsden & Greenberg, 1987, p. 431). Of the three components presented, only two items appeared to load on the third factor. It is proposed that these items: item 10 (“My friends don’t understand what I’m going through these days”) and item 22 (“I get upset a lot more than my friends know about,”) are not characteristic of either of the two factors relevant in this population. The two factor solution showed acceptable levels of accounted variance and substantial standardized loadings ( $r > .30$ ) with the expected signs for all the items. Eigenvector values can be found in Table 7. PCA findings suggest that a two-factor solution of Trust/Communication and Alienation is indicated in the AISB population.

### **Cross-Validation and Confirmatory Factor Analysis (CFA)**

The three-factor parent model (Trust, Communication, and Alienation) was cross-validated using Sample 2, and produced good fit:  $X^2(231) = 534.10$ ;  $p < .01$ ; CFI = .88; RMSEA = 0.08;  $X^2/df \sim 2$ . Analyses revealed significant factor loadings for the parent items ( $p < .001$ ) and results from Sample 2 are presented with CFA parent item loadings for Sample 1, in Table 8. Sample 2 parent subscale item ICCs are presented in Table 9. Latent dimensions (Trust, Communication, and Alienation) were found to be highly correlated in the expected directions for parents: Trust and Communication:  $r = .96$ ; Alienation and Trust:  $r = -.74$ , and Communication and Alienation:  $r = -.71$ . These high intercorrelations are consistent with other research findings that have questioned the utility of scales with such high overlap (Guarnieri, Ponti, & Tani, 2010; Pace, Martini, & Zavattini, 2011).

Similarly, the peer two-factor model (Trust/Communication and Alienation) as indicated by the PCA, indicated good fit for Sample 1:  $X^2(210) = 860.51; p < .001; CFI = .88; RMSEA = 0.09; X^2/df \sim 4$ , and Sample 2:  $X^2(210) = 711.71; p < .001; CFI = .88; RMSEA = 0.08; X^2/df \sim 3$ . Sample 2 peer subscale item ICCs are presented in Table 10. Peer item factor loadings are presented for Sample 1 and Sample 2 in Table 11. Latent peer dimensions were found to be associated in the expected direction, and were moderately correlated: Trust/Communication and Alienation:  $r = -.49$ . This is a confirmatory finding, as we would not expect these constructs to be positively related. These results also indicate that the two peer factors are more differentiated and therefore may indicate a fundamental difference in parent versus peer attachment within adolescence.

### **Concurrent and Discriminant Validity**

In order to further validate the IPPA's psychometric properties within the AISB population, a multitrait- multimethod analysis was conducted. With this analysis, the communality of variables is "partitioned out into variance caused by the trait and the method factors, and...produces disattenuated estimates of all parameters," (Floyd & Widaman, 1995, p. 297). Research indicates that this method is superior to analyzing correlations for determining validity. The multitrait- multimethod analysis assesses the associations of each measured variable with the latent construct, and is able to demonstrate significant convergent validation (Floyd & Widaman, 1995, p. 297).

The IPPA parent factors of Trust, Communication, and Alienation demonstrated good concurrent and discriminant validity and results can be viewed in Table 12. Parent Trust was significantly related to PBI Mother Care ( $r = .20, p < .001$ ), PBI Mother Overprotection ( $r = -.25, p < .001$ ) indicating that more care by mother, as perceived by the adolescent, is related to more



trust in parent; while the more overprotective the adolescent's mother appears, the less parental trust is perceived. Parent Communication was related to PBI Father Care ( $r = .21, p < .05$ ); PBI Mother Overprotection ( $r = -.20, p < .05$ ); and Peer Relations ( $r = .50, p < .001$ ). These findings indicate that more father care and less mother overprotection experienced by the adolescent, results in higher ratings of parental Communication, and Peer Relations perceptions. This is an interesting finding, but a practical one if the adolescent feels they can communicate well with their parents and they are getting along, the adolescent may be more likely to perceive peer interactions with the same attitude. Parent Alienation was found to be significantly related to scores on the MACI Conformity Scale ( $r = -.25, p < .001$ ); PBI Father Care ( $r = -.20, p < .05$ ); PBI Mother Overprotection ( $r = .30, p < .001$ ); and Peer Relations ( $r = -.59, p < .01$ ). Findings suggest that more father care and mother overprotection are related to lower parent Alienation. Interestingly, the less conforming behaviors and attitudes the adolescent reports experiencing, the more parent Alienation they may experience. This may be due to the idea that if the adolescent feels they do not belong with their peers, then they may feel even more isolated from their parents as a result, which is substantiated by the negative relationship between parent Alienation and Peer Relations. Finally, the parent scales demonstrated discriminant validity related to the participant's grade level and age, which is expected. Overall, results support the validation of the three IPPA parent factors (Trust, Communication, and Alienation) within the AISB population.

The IPPA peer factors of Trust/Communication and Alienation also demonstrated good concurrent and discriminant validity and results can be viewed in Table 13. The Trust/Communication factor was found to be strongly correlated with PBI Father Care ( $r = .43, p < .001$ ) and exhibited discriminant validity related to participant age and grade level. Interestingly, neither two factors were related to whether the adolescent got along with their

classmates and may be explained by a lack of social skills or embarrassment to admit not being liked or accepted in school on a self-report measure. The peer Alienation factor demonstrated strong relationships to depressive symptoms ( $r = .20, p < .001$ ), indicating that the more depressive symptoms experienced by the adolescent, the more alienated they feel from their peers. PBI Father Overprotection ( $r = .30, p < .001$ ) and PBI Father Care ( $r = -.32, p < .001$ ) results also suggest that more peer Alienation is experienced more when the adolescent perceives more father overprotection and low father care. Finally, there was a strong relationship between Peer Relations ( $r = -.42, p < .001$ ) and Alienation, where the more Alienation the adolescent experiences, the less positive they perceive their relationships with peers.

Multitrait-multimethod analyses confirm the IPPA's strong concurrent and discriminant validity within the AISB population. The strong relationship demonstrated between the IPPA factors and PBI subscales is consistent with other research which has demonstrated relationships between the IPPA and levels of family support, conflict, cohesiveness, and the tendency to seek parents out in times of need (Lopez & Glover, 1993). Additionally, the current study's validation results are consistent with studies in which parent and peer attachment scores were moderately correlated with family functioning and self-concept within the family dynamic (Armsden & Greenberg, 1987). In conclusion, the three-factor parent model (Trust, Communication, and Alienation) and two-factor peer model (Trust/Communication and Alienation) demonstrated good to excellent fit within the AISB and results indicate that the IPPA is a valid measure of adolescent attachment within this population.

## Discussion

In this study, the factor structure of the original 28-item parent and 25-item peer Inventory of Parental and Peer Attachment (IPPA; Greenberg, Spiegel, Leitch, 1984) was examined in a sample of adolescent males in residential treatment for illegal sexual behaviors. The sample of 774 participants was randomly divided into two equivalent groups; Sample 1  $n = 387$  and Sample 2  $n = 387$ . These groups were not significantly different in terms of age or race, and the split samples provided for a cross-validation process. First, the original three-factor structure (Trust, Communication, and Alienation) developed by Armsden and Greenberg (1987) was fit to the data. The three-factor solution produced good model fit for parent subscales in both Sample 1 and Sample 2. However, the three-factor model did not converge for the peer subscales. Based on these findings, the authors then conducted a PCA in Sample 1 and Sample 2 for the peer subscales. Using Eigenvalues, scree plot analysis, and theoretical assumptions, a two factor solution emerged for the peer subscale. The first factor was indicative of a Trust/Communication construct and a second factor was identified as Alienation. The two-factor model (Trust/Communication and Alienation) indicated good fit for peers in both Sample 1 and Sample 2. Overall, PCA, CFA, and validation analyses demonstrate that a three-factor parent solution (Trust, Communication, and Alienation) and a two-factor peer solution (Trust/Communication and Alienation) are statistically and theoretically indicated for use in the AISB sample.

### **An Operational Definition of Adolescent Attachment**

The current study provides validation for the IPPA within another sample of adolescents and is an important step in the journey to create a clearer and more articulated definition of attachment in adolescence. The discrepancy in the three-factor parent solution and two-factor

peer solution is consistent with other studies who have found only partial correspondence to Armsden and Greenberg's (1987) original factor structure (Vignoli & Mallet, 2004). Study results also highlight the unique attachment presentations within the AISB population, but speak more broadly to how adolescents experience attachment along a developmentally appropriate spectrum. For instance, we can assume that parent/adolescent attachment is perhaps a more complex construct based on the three-factor solution found in our sample. Within the three parent factors (Trust, Communication, and Alienation) that provided excellent fit to the data, we see a multifaceted operational definition of parent/adolescent attachment. Based on the study's findings, the Trust and Communication that are experienced by adolescents towards their parents is so significantly different from how it is experienced with their peers, that the constructs maintained their own factor integrity. However, when extrapolated to the peer/adolescent relationship, the Trust and Communication items were absorbed together into one factor, suggesting that adolescents perceive the trust and communication differently for peers than they do for parents. Because results indicated a two-factor solution for the adolescent/peer dyad, we can conclude that the operational definition of attachment may be more polarized for adolescents and peers—where you are either “for me” (Trust/Communication) or “against me” (Alienation).

Attachment measurements for adolescents must adopt this developmentally appropriate approach to item and subscale construction. Although the IPPA partially attempts to utilize a developmental approach, the current study suggests that separate operational definitions of attachment for peer and parents are indicated. For example, the IPPA parent and peer scales possess parallel items such as parent item 13: (“When we discuss things, my parents consider my point of view”) and peer item 3 (“When we discuss things, my friends consider my point of view”). It is naïve to assume that the communication style, method, and even purpose of

discussing issues with parents serves the same function for peers in adolescence. Specifically, adolescents want to feel accepted by peers and experience the “with me” dimension of attachment, as opposed to the “against me” end of the spectrum. However, when applied to the parent/adolescent dyad, adolescents may value a more “give and take” of respect and discourse as a means of maturing and becoming more self-aware.

Recalling that the availability of parental care, emotional supports, and subsequently, a secure attachment, have been linked to the quality of the family environment (Baumrind, 1991; Kovan, Chung, & Sroufe, 2009; Rodriguez & Sutherland, 1999), it stands to reason that adolescents from a more chaotic environment display more disorganized or insecure attachments within the parent and peer dyads. It is typical for AISBs to come from a home in which they are raised by a single parent, step-parent, or other relative and are also subjected to negative parenting practices. Strained caregiver/adolescent attachment dyads similar to the ones experienced by AISBs, have been shown to increase externalizing behavior in youth (Leve, Kim, & Pears, 2005). When combined with insecure attachment, these external variables may account for the similarities between the two-factor peer structure in the current study and the study conducted by Johnson, Ketring, and Abshire (2003). In their sample of 89 adolescents from a home labeled as being “at risk of having one or more children or adolescents removed from the home because of abuse, neglect, or juvenile offenses” (Johnson, Ketring, & Abshire, 2003, p.336) a two-factor solution was also found to account for similar amounts of variance compared to the current study. The similarities in samples between the two studies indicate the unique and important contribution that negative external variables can have on attachment. Recalling that AISBs are a heterogeneous population (Caldwell, 2002), and are more similar to other delinquent adolescents than different (Seto & Lalumière, 2010), current study findings, taken

with results from Johnson, Ketring, and Abshire's (2003) study suggest that there may be a relationship between delinquent behavior and how attachment is experienced with peers in adolescence.

Although the IPPA was designed to capture facets of adolescent attachment (Trust, Communication, and Alienation), the lack of consistency in construct findings across populations indicate that there should be a renewed focus on the internalized schemas of attachment that are included in attachment measures for adolescents. Attachment theories have generally described a necessary component of being dependent or reliant upon a caregiver for support or security in childhood. This is in contrast to adolescence, where the child, now adolescent, has become more autonomous. In the current study, parent item 10,  $r = .09$  ("My parents expect too much from me") loaded poorly on the hypothesized Trust factor and was removed; however, taking into account the fluidity of adolescence, the item may instead measure the adolescent's struggle with reciprocity and responsibility. Attachment in adolescence then may be heavily dependent on reciprocity and the struggle with responsibility within the context of both peer and parent relationships.

Because the adolescent no longer needs physical proximity to feel safe and cared for, trust, reciprocity, and responsibility begin to play an integral role in adolescent psychopathology (Arbona & Power, 2003). For this reason, adolescents' perceptions of parental attachment remain a factor in psychological wellbeing and adjustment even as the adolescent may appear to detach from the primary caregivers. For example, an insecure adolescent, may exhibit emotion dysregulation (Cassidy, 1994), which in this study, may be captured in peer subscale item 22, ("I get upset a lot more than my friends know about"). Despite a continued relationship and connection with parents, the current study suggests that adolescents may lack insight into their

emotion dysregulation, may be too unfamiliar with healthy coping mechanisms, or may be too embarrassed to report their struggles. In any of those situations, the construct does not appear relevant in our population of AISBs and was removed from the factor structure. This finding may speak more to the limitation of self-report measures—where honesty, insight, and self-awareness are key, in an adolescent sample.

Additionally, parent subscale item 7 (“I feel it’s no use letting my feelings show”) was removed from the parent model, and parent subscale item 15 (“My parents sense when I’m upset about something,”) was retained, but displayed significantly poor loadings on the Communication factor. Because these items did not fit in the model for our population, it may suggest that adolescents view Communication with parents in a very literal sense as opposed to conceptualizing the construct as providing an emotional and nurturing connection. In any case, if adolescents do not feel supported and/or cared for, they may not be able to healthily regulate their emotions as well as their peers who are securely attached. This may be viewed as a failure or rejection and may lead to further isolation from attachment figures— thereby increasing the parent and peer Alienation experienced by the adolescent and decreasing the Trust and Communication they perceive.

### **Utilization of the IPPA in Adolescent Populations**

The three-factor peer solution, which has demonstrated some utility in studies of varied adolescent populations (see Li, Delvecchio, Miconi, Salcuni, & Di Riso, 2014; Guarnieri, Ponti, & Tani, 2010; Pace, Martini, & Zavattini, 2011) produced poor model fit in the current study. This may be attributed to a combination of inconsistent factor structure findings in previous studies and the unique presentation of the population. First, the IPPA has not been validated in adolescent males with illegal sexual behaviors before this study. Thus, the poor three-factor

model fit for peers may be more indicative of unique attachment presentations within the population. PCA results indicated, and subsequent CFA findings supported a two-factor solution for peer subscales in adolescence, which further supports the unique developmental process of attachment in adolescence.

Second, Armsden and Greenberg (1987) noted the high internal consistency and overlap in scales, which has been a problem for consistent factor structure replication. Although researchers have found three-factor solutions for parents and peers, there have been item-loading inconsistencies and variations from the original measure (Li, Delvecchio, Miconi, Salcuni, & Di Riso, 2014; Guarnieri, Ponti, & Tani, 2010; Pace, Martini, & Zavattini, 2011). Additionally, results from Vignoli and Mallet's (2004) study revealed only partial correspondence to Armsden and Greenberg's (1987) factor structure. Interestingly, parent subscale item 15 ("When we discuss things, my parents consider my point of view") loaded poorly on the Communication factor in the current study; however, other researchers have also questioned the item's suitability for other constructs, such as Communication (Pace, Martini, & Zavattini, 2011). Pace and colleagues go on to propose that items, such as number 15, be taken out and factor structure reassessed (2011). The current study's poor item loadings on item 15 are not atypical and, likely, should be considered a function of the IPPA and not the sample population.

Inconsistencies in IPPA item loadings have been acknowledged by numerous researchers, and each replication of the measurement validation suggests changes to item composition and/or factor structure; however, there has not been a statistically-superior, validated form of the IPPA. For example, Vignoli and Mallet (2004) developed a short form of the IPPA consisting of only six Communication, four Trust, and four Alienation items, and were able to show lower inter-correlations than Armsden and Greenberg (1987). This is promising news for improved IPPA



psychometrics; however, these short-forms appear to be unique combinations of author-dictated or population-specific definitions of attachment. Other studies have proposed that because the IPPA was originally intended to provide a multidimensional approach to attachment, that the constructs of Trust, Communication, and Alienation remain too broad. Despite being somewhat more precise than the original two-factor solution, Pace, Martini, and Zavattini (2011) indicate that focusing on the sub-dimensions of the three-factors (Trust, Communication, and Alienation) for both parent and peer subscales, would produce more refined items that accurately measure the constructs.

### **Validation of the IPPA**

The current study was the first of its kind, to the best of the author's knowledge, to evaluate the IPPA within a population of AISBs. The parent factors (Trust, Communication, and Alienation) and peer factors (Trust/Communication and Alienation) produced solid concurrent and discriminant validity, and are indicative of the measure's utility within this population. Parent Trust and Communication as well as peer Trust/Communication factors were found to be related to high levels of mother care and low levels of father overprotection. This finding is consistent with previous research indicating that adolescents who perceive secure and warm relationships with their parent's express higher self-esteem and greater emotional wellbeing (Armsden & Greenberg, 1987; Greenberg, Siegel, & Leitch, 1983). A very interesting relationship was discovered between peer Alienation and Depressive symptoms—where the more depressive symptoms the adolescent is experiencing, the more alienated from peers they feel. In not only the AISB population, but all adolescents, it stands to reason that the classic symptoms of depression (e.g., low self-esteem, worthlessness, weight fluctuations, anhedonia) do not lend themselves to helping the adolescent want to be a part of a group; therefore,

alienating them more. Being aware of this relationship may help providers, teachers, parents, and even peers to be able to recognize the symptoms of emotional distress and intervene before the adolescent becomes too alienated.

### **Limitations**

This study has several limitations. First, participants were in a clinical setting, unlike the college sample used in the IPPA validation study by Armsden and Greenberg (1987). This population presents a unique set of demographic and socioemotional variables, and it would be best practice to compare these results to the factor structure in multiple parallel populations in order to determine best model fit and validity. Second, data are based on self-report. Though the IPPA has demonstrated psychometric validity, special attention should be used when interpreting the data from detained youth. Many participants are detained for the first time when they arrive to the facility, and some may have been reported to authorities by a family member, perhaps even their parents, for the illegal sexual behavior. This combination of variables (clinical sample, recently detained, and sudden attachment disruption) may skew participant responses and significantly change direction and strength of item loadings and factor structure. Finally, the study utilized the original version of the IPPA (28 parent items, 25 peer items). This version was already integrated into the standard psychological assessment administered to all incoming adolescents at the facility. Perhaps the most clinically useful strength of the measure is the version which includes Mother, Father, and Peer subscales. Armsden & Greenberg (1989) recommend its use over the original version whenever possible; therefore results from this study should be viewed with that recommendation in mind. The revised IPPA (Mother, Father, Peer) may help to provide a better understanding of attachment in adolescents with illegal sexual behaviors, which warrants further empirical investigation.

## **Strengths**

Despite these limitations, findings from the present study contribute to the literature examining the factor structure of the IPPA. This research setting provides a unique glimpse into a population with recent attachment disruptions, which warrants further exploration. The AISB's operational definition of attachment may therefore be very fluid during this transition time, as a part of normal adolescent development. This window during adolescence may be transformative and could also lend insight into the shifting dyads of attachment with parents (caregivers) and peers. Future studies should also examine the relationship between the participant responses at the beginning of treatment, compared to responses during and after treatment. Again, because the AISB population is detained, there is perhaps an even more unique opportunity to measure attachment across time within the same adolescent. A longitudinal study could aid in the increased accuracy of an operational definition of attachment in adolescence. For this reason, examination of the IPPA structure is warranted across other groups of adjudicated adolescents, such as those with general delinquent behaviors (AGDB).

In conclusion, based on the CFA as well as concurrent and divergent validity, we determine that the IPPA is a reliable measure of attachment within this population; however, the study calls into question the adequacy of the definition of attachment in adolescents. The author proposes that based on discrepant factor findings (three-factor fit for parents, two-factor fit for peers) that attachment with peers in adolescence is fundamentally different than attachment with parents in adolescence. With continued refined operational definitions of attachment, item analysis, and scale improvement, attachment measures such as the IPPA may be used to more accurately assess the complex construct of adolescent attachment in a meaningful and clinically relevant manner.

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## Appendix: Tables and Figures

Table 1  
*Demographics of Age and Race among AISBs*

	Sample 1 <i>n</i> = 387		Sample 2 <i>n</i> = 387	
	<i>n</i>	%	<i>n</i>	%
<i>Age</i>				
11-12	3	.7	3	1
13-15	156	40.3	146	37.7
16	75	19.4	93	24.0
17	78	20.2	80	20.7
18-19	75	19.4	64	16.5
20	-	-	1	>1
<i>Race</i>				
Caucasian	220	56.8	214	55.3
African-American	155	40.1	158	40.8
Other	12	3.1	15	3.9

Note. AISB = Adolescents with Illegal Sexual Behaviors

Table 2  
*IPPA Parent Subscale Items*

Subscale	Item Wording	Items
Parent Trust	My parents respect my feelings	PA1
	I feel my parents are successful as parents	PA2
	I wish I have different parents*	PA3
	My parents accept me as I am	PA4
	My parents expect too much from me*	PA10
	When we discuss things, my parents consider my point of view	PA13
	My parents trust my judgment	PA14
	My parents understand me	PA21
	When I am angry about something, my parents try to be understanding	PA23
	I trust my parents	PA24
Parent Communication	I have to rely on myself when I have a problem to solve*	PA5
	I like to get my parents' point of view on things I'm concerned about	PA6
	I feel it's no use letting my feelings show*	PA7
	My parents sense when I'm upset about something	PA8
	My parents have their own problems, so I don't bother them with mine*	PA 15
	My parents help me to understand myself better	PA16
	I tell my parents about my problems and troubles	PA17
	My parents encourage me to talk about my difficulties	PA20
	I can count on my parents when I need to get something off my chest	PA26
	If my parents know something I s bothering me, they ask me about it	PA28
Parent Alienation	Talking over my problems with my parents makes me feel ashamed and foolish*	PA9
	I get upset easily at home*	PA11
	I get upset a lot more than my parents know about*	PA12
	I feel angry with my parents*	PA18
	I don't get much attention at home*	PA19
	I don't know whom I can depend on these days*	PA22
	My parents don't understand what I'm going through these days*	PA25
	I feel that no one understands me*	PA27

Note. IPPA = Inventory of Parental and Peer Attachment. PA = Parent subscales. \* denotes reverse scored items

Table 3  
*IPPA Peer Subscale Items*

Subscale	Item Wording	Items
Peer Trust	I wish I had different friends*	PE5
	My friends understand me	PE6
	My friends accept me as I am	PE8
	My friends listen to what I have to say	PE12
	I feel my friends are good friends	PE13
	My friends are fairly easy to talk to	PE14
	When I'm angry about something, my friends try to be understanding	PE15
	I can count on my friends when I need to get something off my chest	PE19
	I trust my friends	PE20
	My friends respect my feelings	PE21
Peer Communication	I like to get my friends point of view on things I'm concerned about	PE1
	My friends sense when I'm upset about something	PE2
	When we discuss things, my friends consider my point of view	PE3
	My friends encourage me to talk about my difficulties	PE7
	My friends help me to understand myself better	PE16
	My friends are concerned about my well-being	PE17
	I can tell my friends about my problems and troubles	PE 24
	If my friends know something I s bothering me, they ask me about it	PA25
Peer Alienation	Talking over my problems with my parents makes me feel ashamed and foolish*	PE4
	I feel the need to be in touch with my friends more often*	PE9
	My friends don't understand what I'm going through these days*	PE10
	I feel alone or apart when I am with my friends*	PE11
	I feel angry with my friends*	PE18
	I get upset a lot more than my friends know about*	PE22
	It seems as if my friends are irritated with me for no reason*	PE23

Note. IPPA = Inventory of Parental and Peer Attachment. PE = Peer subscales. \* denotes reverse scored items

Table 4

*Descriptive Statistics of IPPA Items for Sample 1 and Sample 2 (item scale is 1-5)*

Item	Sample 1 (n=375)		Sample 2 (n=375)		Sample 1 (n=375)		Sample 2 (n=375)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
PA1	4.04	1.35	4.04	1.29	PE1	3.38	1.34	3.24	1.39
PA2	4.06	1.36	4.10	1.86	PE2	3.34	1.40	3.34	1.36
PA3	3.30	1.85	3.28	1.86	PE3	3.46	1.31	3.39	1.31
PA4	4.10	1.42	4.10	1.41	PE4	2.28	1.43	2.40	1.41
PA5	3.08	1.51	2.86	1.48	PE5	3.26	1.75	3.11	1.73
PA6	3.78	1.37	3.58	1.40	PE6	3.80	1.30	3.73	1.32
PA7	3.25	1.51	3.15	1.46	PE7	3.37	1.42	3.15	1.45
PA8	3.92	1.38	3.82	1.36	PE8	4.12	1.29	4.11	1.28
PA9	2.34	1.52	2.39	1.50	PE9	3.59	1.35	3.40	1.42
PA10	3.09	1.57	3.13	1.55	PE10	2.66	1.52	2.72	1.53
PA11	2.55	1.51	2.39	1.39	PE11	2.11	1.48	1.96	1.33
PA12	2.89	1.58	2.83	1.55	PE12	3.81	1.28	3.74	1.30
PA13	3.50	1.38	3.56	1.29	PE13	3.96	1.33	3.98	1.29
PA14	3.55	1.32	3.41	1.32	PE14	3.82	1.30	3.83	1.30
PA15	3.24	1.49	3.14	1.49	PE15	3.78	1.28	3.71	1.28
PA16	3.72	1.39	3.66	1.32	PE16	3.51	1.31	3.35	1.32
PA17	3.53	1.46	3.40	1.46	PE17	3.50	1.33	3.44	1.32
PA18	2.11	1.40	2.05	1.30	PE18	2.06	1.35	2.06	1.29
PA19	2.17	1.45	2.21	1.42	PE19	3.61	1.37	3.50	1.42
PA20	3.60	1.44	3.54	1.41	PE20	3.85	1.33	3.77	1.40
PA21	3.83	1.41	3.80	1.42	PE21	3.85	1.29	3.68	1.33
PA22	2.37	1.52	2.48	1.53	PE22	2.94	1.46	2.89	1.45
PA23	3.79	1.41	3.79	1.32	PE23	2.03	1.34	2.02	1.32
PA24	4.13	1.41	4.07	1.43	PE24	3.37	1.35	3.26	1.32
PA25	2.70	1.55	2.61	1.42	PE25	3.75	1.35	3.60	1.35
PA26	3.84	1.47	3.64	1.48					
PA27	2.28	1.39	2.34	1.42					
PA28	3.97	1.41	3.88	1.37					



Table 5

*Intercorrelations among IPPA Parent Items for Sample 1*

	pa1	pa2	pa3	pa4	pa5	pa6	pa7	pa8	pa9	pa10	pa11	pa12	pa13	pa14	pa15	pa16	pa17	pa18	pa19	pa20	pa21	pa22	pa23	pa24	pa25	pa26	pa27	pa28	
pa1	1.00																												
pa2	0.76	1.00																											
pa3	-0.13	-0.17	1.00																										
pa4	0.73	0.62	-0.14	1.00																									
pa5	0.06	0.03	0.28	-0.02	1.00																								
pa6	0.65	0.57	-0.08	0.56	0.02	1.00																							
pa7	0.06	0.00	0.39	0.03	0.37	0.01	1.00																						
pa8	0.59	0.54	-0.09	0.57	0.02	0.53	0.02	1.00																					
pa9	-0.28	-0.32	0.11	-0.35	0.03	-0.26	0.09	-0.22	1.00																				
pa10	-0.04	-0.07	0.46	-0.09	0.26	0.01	0.32	-0.02	0.05	1.00																			
pa11	-0.21	-0.23	0.04	-0.31	0.04	-0.21	0.11	-0.17	0.37	0.12	1.00																		
pa12	-0.15	-0.15	0.01	-0.25	0.04	-0.17	0.10	-0.07	0.28	0.02	0.52	1.00																	
pa13	0.60	0.54	-0.13	0.55	-0.01	0.58	-0.03	0.47	-0.25	0.01	-0.20	-0.17	1.00																
pa14	0.63	0.56	-0.11	0.53	-0.02	0.56	-0.01	0.41	-0.29	-0.03	-0.25	-0.21	0.62	1.00															
pa15	-0.03	-0.10	0.27	-0.12	0.35	-0.05	0.38	0.01	0.10	0.35	0.12	0.04	-0.10	-0.06	1.00														
pa16	0.68	0.65	-0.09	0.59	0.06	0.67	0.04	0.51	-0.31	-0.03	-0.25	-0.19	0.65	0.60	-0.08	1.00													
pa17	0.54	0.48	0.00	0.51	0.07	0.63	0.10	0.48	-0.32	0.01	-0.23	-0.23	0.59	0.57	0.02	0.69	1.00												
pa18	-0.47	-0.55	0.16	-0.51	0.08	-0.47	0.10	-0.43	0.42	0.15	0.42	0.33	-0.41	-0.44	0.20	-0.46	-0.42	1.00											
pa19	-0.40	-0.42	0.10	-0.41	0.07	-0.39	0.06	-0.34	0.37	0.10	0.31	0.19	-0.31	-0.33	0.13	-0.42	-0.39	0.53	1.00										
pa20	0.54	0.55	-0.08	0.49	0.07	0.51	0.12	0.50	-0.23	-0.06	-0.26	-0.16	0.56	0.43	-0.05	0.61	0.53	-0.37	-0.34	1.00									
pa21	0.67	0.62	-0.14	0.63	-0.01	0.61	-0.07	0.50	-0.42	-0.11	-0.31	-0.30	0.60	0.60	-0.12	0.70	0.62	-0.62	-0.46	0.54	1.00								
pa22	-0.39	-0.36	0.03	-0.35	0.04	-0.35	0.01	-0.25	0.25	0.03	0.31	0.20	-0.30	-0.30	0.08	-0.41	-0.31	0.43	0.45	-0.33	-0.40	1.00							
pa23	0.64	0.65	-0.10	0.60	0.03	0.57	0.05	0.53	-0.32	-0.10	-0.30	-0.21	0.60	0.57	-0.05	0.70	0.57	-0.53	-0.43	0.56	0.70	-0.34	1.00						
pa24	0.72	0.70	-0.16	0.67	0.05	0.58	-0.04	0.53	-0.40	-0.12	-0.34	-0.24	0.56	0.58	-0.15	0.67	0.53	-0.61	-0.50	0.54	0.77	-0.40	0.73	1.00					
pa25	-0.30	-0.28	-0.01	-0.30	0.10	-0.34	0.04	-0.24	0.25	0.06	0.27	0.24	-0.30	-0.30	0.02	-0.35	-0.39	0.36	0.39	-0.28	-0.36	0.40	-0.30	-0.29	1.00				
pa26	0.55	0.52	-0.09	0.47	0.03	0.58	-0.01	0.41	-0.32	-0.07	-0.27	-0.19	0.51	0.53	-0.06	0.58	0.56	-0.54	-0.41	0.44	0.70	-0.36	0.65	0.68	-0.30	1.00			
pa27	-0.39	-0.38	0.01	-0.36	0.01	-0.41	0.06	-0.31	0.34	0.05	0.27	0.24	-0.37	-0.32	0.07	-0.42	-0.37	0.43	0.43	-0.36	-0.45	0.52	-0.39	-0.41	0.50	-0.36	1.00		
pa28	0.65	0.64	-0.14	0.59	0.02	0.57	-0.01	0.54	-0.40	-0.10	-0.29	-0.17	0.54	0.57	-0.13	0.60	0.53	-0.56	-0.43	0.54	0.70	-0.29	0.73	0.75	-0.25	0.65	-0.35	1.00	

Note . IPPA = Inventory of Parental and Peer Attachment

Table 6

*Intercorrelations among IPPA Peer Items for Sample 1*

	pe1	pe2	pe3	pe4	pe5	pe6	pe7	pe8	pe9	pe10	pe11	pe12	pe13	pe14	pe15	pe16	pe17	pe18	pe19	pe20	pe21	pe22	pe23	pe24	pe25
pe1	1.00																								
pe2	0.51	1.00																							
pe3	0.52	0.52	1.00																						
pe4	-0.16	-0.08	-0.21	1.00																					
pe5	0.06	0.04	0.00	0.03	1.00																				
pe6	0.40	0.52	0.45	-0.24	-0.06	1.00																			
pe7	0.47	0.50	0.37	-0.17	0.00	0.50	1.00																		
pe8	0.30	0.35	0.41	-0.34	-0.04	0.68	0.35	1.00																	
pe9	0.37	0.37	0.35	-0.10	-0.03	0.51	0.43	0.45	1.00																
pe10	-0.06	-0.12	-0.15	0.40	-0.02	-0.14	-0.06	-0.16	0.00	1.00															
pe11	-0.06	-0.10	-0.12	0.40	0.06	-0.31	-0.07	-0.39	-0.18	0.34	1.00														
pe12	0.39	0.36	0.48	-0.29	-0.02	0.65	0.43	0.69	0.44	-0.13	-0.32	1.00													
pe13	0.36	0.41	0.41	-0.33	-0.02	0.65	0.46	0.73	0.54	-0.21	-0.34	0.65	1.00												
pe14	0.41	0.42	0.42	-0.34	0.01	0.64	0.45	0.65	0.43	-0.20	-0.37	0.66	0.74	1.00											
pe15	0.49	0.53	0.49	-0.29	-0.02	0.63	0.53	0.57	0.49	-0.11	-0.34	0.64	0.64	0.68	1.00										
pe16	0.55	0.52	0.53	-0.26	0.05	0.55	0.58	0.45	0.46	-0.09	-0.10	0.54	0.56	0.55	0.67	1.00									
pe17	0.49	0.50	0.50	-0.23	0.05	0.52	0.53	0.40	0.41	-0.13	-0.21	0.47	0.47	0.54	0.60	0.61	1.00								
pe18	-0.15	-0.12	-0.14	0.46	0.06	-0.39	-0.18	-0.49	-0.22	0.32	0.62	-0.39	-0.47	-0.48	-0.40	-0.23	-0.22	1.00							
pe19	0.44	0.51	0.40	-0.32	0.05	0.60	0.57	0.45	0.43	-0.19	-0.30	0.52	0.58	0.64	0.69	0.64	0.64	-0.37	1.00						
pe20	0.31	0.43	0.36	-0.31	0.03	0.65	0.42	0.58	0.46	-0.19	-0.31	0.55	0.73	0.65	0.62	0.57	0.50	-0.45	0.66	1.00					
pe21	0.33	0.36	0.40	-0.33	-0.08	0.64	0.44	0.61	0.43	-0.17	-0.43	0.60	0.67	0.59	0.64	0.55	0.52	-0.52	0.59	0.66	1.00				
pe22	0.00	0.00	0.00	0.13	-0.11	-0.04	-0.05	0.00	0.07	0.11	0.08	0.04	0.03	0.03	0.08	0.01	-0.04	0.04	0.07	0.01	0.05	1.00			
pe23	-0.13	-0.16	-0.19	0.47	0.09	-0.35	-0.16	-0.48	-0.25	0.28	0.54	-0.38	-0.47	-0.47	-0.35	-0.24	-0.26	0.59	-0.26	-0.39	-0.44	0.18	1.00		
pe24	0.42	0.45	0.42	-0.23	0.03	0.49	0.57	0.31	0.37	-0.16	-0.15	0.43	0.42	0.50	0.48	0.54	0.52	-0.25	0.59	0.53	0.51	-0.02	-0.17	1.00	
pe25	0.43	0.52	0.44	-0.27	-0.09	0.53	0.48	0.44	0.36	-0.15	-0.24	0.54	0.48	0.53	0.65	0.56	0.53	-0.33	0.66	0.48	0.59	0.02	-0.26	0.55	1.00

Note . IPPA = Inventory of Parental and Peer Attachment

Table 7  
*PCA Peer Eigenvectors for Sample 1 and Sample 2*

	<i>Sample 1</i>			<i>Sample 2</i>		
	PC 1	PC 2	PC 3	PC 1	PC 2	PC 3
pe1	.574	.382	-.231	.602	.312	-.274
pe2	.618	.376	-.181	.608	.385	-.255
pe3	.605	.267	-.177	.667	.174	-.108
pe4	-.431	.489	.345	-.289	.634	.215
pe5	-.017	.128	-.396	.039	.219	.075
pe6	.801	.021	.145	.774	.067	.021
pe7	.647	.346	-.129	.606	.353	-.328
pe8	.744	-.235	.259	.700	-.192	.309
pe9	.602	.165	.252	.655	.165	.163
pe10	-.253	.423	.484	-.163	.474	.580
pe11	-.434	.646	.041	-.350	.601	.114
pe12	.767	-.046	.189	.772	-.051	.153
pe13	.815	-.132	.211	.787	-.163	.205
pe14	.816	-.102	.100	.753	-.043	.099
pe15	.834	.095	.091	.744	.021	.050
pe16	.758	.306	-.089	.730	.220	-.031
pe17	.715	.246	-.180	.705	.213	-.023
pe18	-.545	.614	-.025	-.487	.540	-.156
pe19	.799	.132	-.070	.733	.028	-.131
pe20	.785	-.069	.112	.783	-.088	.090
pe21	.793	-.144	.163	.788	-.143	.157
pe22	-.002	.177	.580	.036	.193	.682
pe23	-.511	.595	.054	-.332	.602	-.045
pe24	.662	.240	-.200	.618	.254	-.318
pe25	.729	.143	-.050	.635	.028	.119
R <sup>2</sup>	42.4%	10.0%	5.0%	38.3%	9.7%	6.0%

Note. PCA = Principal Components Analysis

Table 8  
*CFA Factor Loadings for Parent Items in Sample 1*  
*Sample 1* *Sample 2*

	<i>Trust</i>			
	Std.	Unstd.	Std.	Unstd.
PA1	0.81	1.00	0.75	1.00
PA2	0.78	0.97	0.80	1.01
PA4	0.76	0.99	0.75	1.05
PA13	0.71	0.90	0.60	0.79
PA14	0.71	0.85	0.65	0.90
PA21	0.85	1.10	0.81	1.19
PA23	0.82	1.07	0.84	1.13
PA24	0.88	1.11	0.79	1.21
<i>Communication</i>				
PA6	0.76	1.00	0.72	1.00
PA8	0.64	0.86	0.71	0.98
PA15	0.13	1.10	0.78	1.06
PA16	0.83	1.00	0.59	0.87
PA17	0.73	0.95	0.59	0.85
PA20	0.67	1.07	0.74	1.10
PA26	0.76	1.12	0.76	1.10
PA28	0.82	0.17	0.08	0.12
<i>Alienation</i>				
PA9	0.53	1.00	0.61	1.00
PA11	0.49	0.90	0.60	0.89
PA12	0.38	0.72	0.42	0.71
PA18	0.75	1.30	0.69	0.99
PA19	0.68	1.19	0.68	1.04
PA22	0.63	1.11	0.58	0.97
PA25	0.57	0.98	0.43	0.68
PA27	0.65	1.05	0.77	1.20

Note. CFA = Confirmatory Factor Analysis

Table 9

*Intercorrelations among IPPA Parent Items for Sample 2*

	pa1	pa2	pa3	pa4	pa5	pa6	pa7	pa8	pa9	pa10	pa11	pa12	pa13	pa14	pa15	pa16	pa17	pa18	pa19	pa20	pa21	pa22	pa23	pa24	pa25	pa26	pa27	pa28	
pa1	1.00																												
pa2	0.68	1.00																											
pa3	-0.04	-0.11	1.00																										
pa4	0.64	0.67	-0.09	1.00																									
pa5	-0.07	-0.07	0.27	-0.02	1.00																								
pa6	0.52	0.54	-0.01	0.46	-0.01	1.00																							
pa7	0.00	0.02	0.27	0.06	0.41	0.00	1.00																						
pa8	0.50	0.53	-0.15	0.52	-0.03	0.52	-0.05	1.00																					
pa9	-0.26	-0.31	0.12	-0.27	-0.01	-0.20	-0.05	-0.20	1.00																				
pa10	-0.06	-0.12	0.40	-0.12	0.27	-0.05	0.32	-0.11	0.02	1.00																			
pa11	-0.24	-0.27	0.12	-0.25	0.04	-0.17	-0.03	-0.08	0.31	0.09	1.00																		
pa12	-0.13	-0.08	0.09	-0.07	0.06	-0.11	0.05	0.00	0.30	0.04	0.52	1.00																	
pa13	0.49	0.47	0.03	0.43	0.08	0.51	0.06	0.43	-0.20	0.01	-0.07	-0.06	1.00																
pa14	0.57	0.48	-0.01	0.50	0.00	0.51	0.01	0.43	-0.21	-0.09	-0.17	-0.08	0.56	1.00															
pa15	-0.04	-0.04	0.34	0.01	0.32	-0.02	0.35	-0.10	0.03	0.32	0.02	0.11	0.01	-0.04	1.00														
pa16	0.60	0.51	0.03	0.53	-0.02	0.57	0.00	0.53	-0.29	-0.07	-0.18	-0.16	0.53	0.60	-0.07	1.00													
pa17	0.49	0.44	0.01	0.42	0.01	0.53	0.03	0.43	-0.29	-0.01	-0.19	-0.21	0.46	0.54	-0.01	0.61	1.00												
pa18	-0.45	-0.51	0.18	-0.48	-0.01	-0.33	-0.01	-0.35	0.34	0.07	0.43	0.18	-0.26	-0.34	0.03	-0.36	-0.34	1.00											
pa19	-0.33	-0.36	0.20	-0.42	-0.01	-0.29	-0.01	-0.28	0.38	0.07	0.31	0.21	-0.21	-0.24	-0.02	-0.27	-0.31	0.42	1.00										
pa20	0.35	0.39	-0.08	0.38	0.04	0.48	-0.05	0.39	-0.14	-0.05	-0.20	-0.06	0.38	0.39	-0.06	0.43	0.37	-0.31	-0.22	1.00									
pa21	0.59	0.52	-0.13	0.60	-0.08	0.52	-0.02	0.47	-0.35	-0.07	-0.32	-0.19	0.47	0.55	-0.07	0.63	0.56	-0.48	-0.39	0.39	1.00								
pa22	-0.28	-0.30	0.15	-0.29	0.11	-0.28	0.01	-0.23	0.29	0.10	0.31	0.29	-0.26	-0.31	0.12	-0.34	-0.33	0.34	0.34	-0.29	-0.32	1.00							
pa23	0.57	0.56	-0.10	0.58	-0.03	0.56	-0.03	0.60	-0.27	-0.09	-0.25	-0.09	0.53	0.55	-0.05	0.65	0.51	-0.48	-0.33	0.51	0.66	-0.33	1.00						
pa24	0.61	0.71	-0.18	0.66	-0.11	0.47	-0.03	0.53	-0.34	-0.12	-0.29	-0.11	0.43	0.45	-0.05	0.49	0.42	-0.53	-0.43	0.38	0.67	-0.32	0.61	1.00					
pa25	-0.26	-0.22	0.10	-0.17	0.01	-0.22	0.05	-0.12	0.22	0.13	0.20	0.26	-0.31	-0.29	0.08	-0.30	-0.31	0.20	0.23	-0.13	-0.33	0.36	-0.22	-0.18	1.00				
pa26	0.51	0.54	-0.11	0.48	-0.09	0.54	-0.04	0.46	-0.32	-0.09	-0.28	-0.24	0.50	0.44	-0.05	0.55	0.54	-0.44	-0.34	0.43	0.64	-0.32	0.63	0.63	-0.25	1.00			
pa27	-0.40	-0.36	0.15	-0.36	0.11	-0.28	0.03	-0.24	0.33	0.13	0.43	0.35	-0.25	-0.37	0.08	-0.37	-0.37	0.38	0.41	-0.23	-0.40	0.56	-0.29	-0.38	0.43	-0.35	1.00		
pa28	0.57	0.61	-0.08	0.59	-0.05	0.46	-0.05	0.54	-0.34	-0.06	-0.26	-0.10	0.46	0.43	-0.04	0.54	0.47	-0.48	-0.38	0.41	0.62	-0.24	0.66	0.65	-0.15	0.62	-0.28	1.00	

Note . IPPA = Inventory of Parental and Peer Attachment

Table 10  
*CFA Factor Loadings for Peer Items in Sample 1 and 2*  
*Sample 1*                      *Sample 2*

	<i>Trust/Support</i>			
	Std.	Unstd.	Std.	Unstd.
PE1	0.53	1.00	0.57	1.00
PE2	0.58	1.13	0.57	0.97
PE3	0.58	1.05	0.61	1.02
PE6	0.80	1.45	0.75	1.26
PE7	0.64	1.26	0.60	1.10
PE8	0.75	1.35	0.70	1.13
PE9	0.58	1.10	0.62	1.12
PE12	0.77	1.37	0.75	1.23
PE13	0.80	1.49	0.77	1.25
PE14	0.79	1.43	0.72	1.18
PE15	0.81	1.46	0.74	1.20
PE16	0.73	1.33	0.72	1.21
PE17	0.67	1.24	0.68	1.13
PE19	0.76	1.45	0.70	1.26
PE20	0.76	1.01	0.77	1.35
PE21	0.77	1.39	0.78	1.31
PE24	0.61	1.16	0.58	0.98
PE25	0.70	1.30	0.61	1.03

  

	<i>Alienation</i>			
PE4	0.61	1.00	0.57	1.00
PE5	0.08	0.16	0.06	0.14
PE11	0.67	1.13	0.70	1.14
PE18	0.77	1.20	0.75	1.20
PE23	0.77	1.18	0.55	0.89

Note. CFA = Confirmatory Factor Analysis

Table 11

*Intercorrelations among IPPA Peer Items for Sample 2*

	pe1	pe2	pe3	pe4	pe5	pe6	pe7	pe8	pe9	pe10	pe11	pe12	pe13	pe14	pe15	pe16	pe17	pe18	pe19	pe20	pe21	pe22	pe23	pe24	pe25
pe1	1.00																								
pe2	0.58	1.00																							
pe3	0.56	0.59	1.00																						
pe4	-0.06	0.01	-0.16	1.00																					
pe5	0.09	0.08	0.10	0.06	1.00																				
pe6	0.46	0.50	0.59	-0.17	0.03	1.00																			
pe7	0.49	0.48	0.43	-0.04	0.04	0.45	1.00																		
pe8	0.31	0.30	0.42	-0.22	0.03	0.60	0.28	1.00																	
pe9	0.38	0.39	0.41	-0.08	0.06	0.47	0.42	0.44	1.00																
pe10	-0.04	-0.04	-0.08	0.41	0.08	-0.05	-0.11	-0.03	0.02	1.00															
pe11	-0.11	-0.10	-0.14	0.41	0.05	-0.25	-0.05	-0.33	-0.16	0.29	1.00														
pe12	0.40	0.39	0.52	-0.24	0.01	0.59	0.39	0.58	0.51	-0.08	-0.21	1.00													
pe13	0.36	0.37	0.42	-0.22	-0.02	0.56	0.34	0.63	0.48	-0.12	-0.30	0.63	1.00												
pe14	0.38	0.37	0.42	-0.20	-0.03	0.53	0.42	0.55	0.46	-0.11	-0.26	0.57	0.68	1.00											
pe15	0.36	0.41	0.40	-0.17	0.04	0.55	0.45	0.51	0.38	-0.09	-0.26	0.58	0.55	0.61	1.00										
pe16	0.43	0.46	0.42	-0.09	0.06	0.58	0.52	0.44	0.51	-0.05	-0.09	0.56	0.52	0.51	0.57	1.00									
pe17	0.42	0.48	0.47	-0.10	0.07	0.56	0.51	0.43	0.46	-0.07	-0.10	0.45	0.50	0.49	0.51	0.51	1.00								
pe18	-0.13	-0.07	-0.22	0.42	0.04	-0.32	-0.09	-0.41	-0.27	0.19	0.44	-0.34	-0.46	-0.37	-0.27	-0.24	-0.26	1.00							
pe19	0.42	0.42	0.43	-0.22	-0.03	0.49	0.45	0.38	0.44	-0.19	-0.24	0.50	0.52	0.54	0.53	0.52	0.48	-0.35	1.00						
pe20	0.41	0.40	0.46	-0.17	0.04	0.55	0.40	0.57	0.49	-0.13	-0.26	0.58	0.73	0.56	0.56	0.53	0.51	-0.39	0.54	1.00					
pe21	0.36	0.33	0.45	-0.26	0.01	0.57	0.35	0.58	0.46	-0.13	-0.27	0.56	0.66	0.55	0.58	0.54	0.53	-0.46	0.58	0.71	1.00				
pe22	-0.03	-0.02	0.05	0.10	0.07	0.00	-0.07	0.08	0.16	0.27	0.10	0.06	0.05	0.07	0.05	0.00	0.07	-0.02	0.02	-0.03	0.07	1.00			
pe23	-0.08	-0.03	-0.20	0.35	0.06	-0.22	0.01	-0.34	-0.14	0.23	0.40	-0.33	-0.30	-0.21	-0.22	-0.10	-0.11	0.38	-0.13	-0.32	-0.32	0.11	1.00		
pe24	0.45	0.43	0.36	-0.10	0.04	0.42	0.51	0.24	0.42	-0.09	-0.13	0.37	0.37	0.44	0.45	0.49	0.48	-0.15	0.56	0.39	0.44	-0.09	-0.03	1.00	
pe25	0.32	0.38	0.35	-0.17	-0.01	0.38	0.34	0.37	0.41	-0.03	-0.17	0.53	0.44	0.42	0.46	0.44	0.42	-0.36	0.54	0.39	0.51	0.13	-0.17	0.41	1.00

Note . IPPA = Inventory of Parental and Peer Attachment

Table 12

*IPPA Parent Factor Correlations for Sample 2*

	Trust	Communication	Alienation
MACIBORD	-0.03	-0.01	0.04
MACICONF	0.09	0.11	-0.25***
MACIDEPR	0.03	0.07	-0.01
MACIOPPO	-0.08	-0.09	0.04
PBIFACAR	0.01	0.21**	-0.20**
PBIFAOVE	-0.03	-0.01	0.00
PBIMOCAR	0.20***	0.25***	-0.24
PBIMOOVE	-0.25***	-0.20**	0.30***
PEERTOT	-0.01	0.50***	-0.59***
GRALEV	-0.01	0.00	0.08
LIKEPEER	-0.04	-0.05	0.06
AGE	-.10**	-0.10*	0.02

Note. IPPA= Inventory of Parent and Peer Attachment; MACIBORD= MACI Borderline Tendency Scale; MACICONF= MACI Conformity Scale; MACIDEPR= MACI Depressive Depressive Affect; MACIOPPO= MACI Oppositional Scale; PBIFACAR= PBI Father Care; PBIFAOVE= PBI Father Overprotection; PBIMOCAR= PBI Mother Care; PBIMOOVE= PBI Mother Overprotection; PEERTOT= Peer Relations Total; GRALEV= Grade Level; LIKEPEER= Get along with classmates; AGE= Age



Table 13  
*IPPA Peer Factor Correlations for Sample 2*

	Trust/Communication	Alienation
MACIBORD	0.08	0.06
MACICONF	0.14	-0.11
MACIDEPR	-0.07	0.20 <sup>***</sup>
MACIOPPO	0.09	-0.13 <sup>*</sup>
PBIFACAR	0.43 <sup>***</sup>	-0.32 <sup>***</sup>
PBIFAOVE	0.04	0.30 <sup>***</sup>
PBIMOCAR	-0.05	-0.16
PBIMOOVE	-0.02	-0.14
PEERTOT	-0.12	-0.42 <sup>***</sup>
GRALEV	0.04	-0.20 <sup>**</sup>
LIKEPEER	0.06	-0.02
AGE	-0.01	-0.05

Note. IPPA= Inventory of Parent and Peer Attachment; MACIBORD= MACI Borderline Tendency Scale; MACICONF= MACI Conformity Scale; MACIDEPR= MACI Depressive Depressive Affect; MACIOPPO= MACI Oppositional Scale; PBIFACAR= PBI Father Care; PBIFAOVE= PBI Father Overprotection; PBIMOCAR= PBI Mother Care; PBIMOOVE= PBI Mother Overprotection; PEERTOT= Peer Relations Total; GRALEV= Grade Level; LIKEPEER= Get along with classmates; AGE= Age