Attachment and Ego Development in Adolescents with Autism Spectrum Disorder (ASD)

Carlin Moxley Haegert

Department of Educational and Counselling Psychology

McGill University, Montreal

August 2017

In partial fulfillment of a Master of Arts in School and Applied Child Psychology

Table of Contents

List of Tables

List of Appendices

Abstract

Seventeen participants between the ages of 11 and 18 with autism spectrum disorder (ASD) completed the Loevinger Sentence Completion Test of Ego Development (WUSCT; Hy & Loevinger, 1996) and the five subscales (i.e., Positive Attachment, Alienation, Insecure Attachment, Egocentricity, and Social Incompetence) of the Bell Relationship Inventory for Adolescents (BRIA; Bell, 2005). Eleven of the participants also completed the Thematic Apperception Test (TAT; Murray, 1943). The Social Cognition and Object Relations Scale-Global (SCORS-G; Stein, Hilsenroth, Slavin-Mulford, & Pinsker, 2011) coding system for the TAT was used to measure participants' *Internal Working Models* (IWMs) of attachment across 8 dimensions (i.e., Complexity, Affect, Relationships, Morals, Causality, Aggression, Self-esteem, and Identity). Three hypotheses were tested: (1) adolescents with ASD would be less secure in their IWMs overall and particularly with respect to the dimensions of Complexity, Affect, Relationships, and Causality; (2) adolescents with ASD would be less developed on the BRIA, especially with respect to the Alienation, Egocentricity and Social Incompetence scales, and (3) adolescents with ASD (a) would be less advanced in their overall ego development and (b) with respect to their ego stage than typically developing adolescent norms. The results revealed that expected overall score differences in IWM security/complexity among adolescents with high functioning ASD relative to the norms of typically developing adolescents were not observed. However, the IWMs of adolescents with ASD were found to be less well developed than typically developing students on the IWM dimensions of Complexity, Affect, Relationships, Morals, and Causality. Unexpectedly, results of the SCORS-G suggested that adolescents with ASD were more advanced with respect to the Identity dimension than typically developing adolescent norms. On the BRIA, the findings indicated that, in comparison to the norms of

typically developing adolescents, the adolescents with ASD viewed themselves as more alienated, more insecure in their attachments, and more socially incompetent. Finally, the adolescents with ASD generally exhibited lower overall levels of ego development than standardized adolescent norms, with the majority falling in the *conformist* stage. In combination, these findings suggest that adolescents with ASD have underdeveloped IWMs and less mature egos in comparison to typically developing adolescent norms.

Résumé

Dix-sept participants âgés de 11 à 18 ans avec des troubles spectre de l'autisme (TSA) ont complété le Loevinger Sentence Completion Test d'Ego Development (WUSCT; Hy & Loevinger, 1996) et les cinq sous-échelles (cest-à-dire Attachement Positif, Aliénation, Attachement d'Insécurité, Égocentrisme, et Incompétence Sociale) de Bell Relation l'Inventaire pour les Adolescents (BRIA; Bell, 2005). Onze de ces participants ont également réalisé le Test d'Aperception Thématique (TAT; Murray, 1943). Le Cognition Sociale et Object Relations échelle Globale (DÉGRAISSE-G; Stein, Hilsenroth, Slavin-Mulford, & Pinsker, 2011), système de codage pour le TAT, a été utilisé pour mesurer des modèles internes opérants (*Internal Working Models)* (IWMs) d'attachement à travers 8 dimensions (i.e., Complexité, Relations, Affect, Moralité, Causalité, Agression, l'Estime de soi, et Identité). Trois hypothèses ont été testées : (1) les adolescents avec des troubles spectre de l'autisme (TSA) seraient moins en sécurité dans leurs IWMs générales et en particulier en ce qui concerne les dimensions de la complexité, l'affect, les relations, et la causalité ; (2) les adolescents avec des troubles spectre de l'autisme (TSA) seraient moins développés sur le BRIA, surtout en ce qui concerne les échelles d'Aliénation, Égocentrisme et Incompétence Sociale, et (3) les adolescents avec des troubles spectre de l'autisme (TSA) (a) seraient moins avancés dans le développement de leur ego globale et (b) à l'égard de leur stade d'ego généralement développé comparé aux normes des adolescents qui se sont développés d'une façon typique. Les résultats ont révélé que des différences de score globale prévu n'ont pas été observé en d'IWM sécurité/complexité chez les adolescents avec des troubles spectre de l'autisme (TSA) de fonctionnement élevé comparé à des normes de développement pour les adolescents qui se sont développé d'une façon typique. Toutefois, l'IWMs des adolescents avec des troubles spectre de l'autisme (TSA) ont été trouvé à être moins

bien développé que les étudiants qui se sont développé d'une façon typique sur les dimensions de l'IWM de Complexité, Affect, Relations, Moralité, et Causalité. Contre toute attente, les résultats du SCORS-G ont suggéré que les adolescents autistes étaient plus avancés en ce qui concerne la dimension identitaire comparée aux adolescents qui se sont développé d'une façon typique. Sur le BRIA, les résultats indiquent que, en comparaison avec les normes qui se sont développé d'une façon typique, les adolescents autistes se considéraient comme plus éloigné, en plus grande insécurité dans leurs attachements et plus socialement incompétent. Enfin, les adolescents avec des troubles envahissant du développement montrent généralement des niveaux inférieurs globaux du développement de l'ego que les adolescents qui se sont développés d'une façon typique, avec la majorité tombant dans l'échelle (stage) conformiste. Dans l'ensemble, ces résultats suggèrent que les adolescents avec des troubles envahissant du développement sont sous-développés dans des modèles internes opérants et ont un ego moins mature en comparaison avec des adolescents avec un développement plus typique.

Acknowledgements

I would like to thank my supervisor, Dr. Jacob A. Burack, for his ample support, opportunities given, numerous lessons, and his teachings about research and writing. I would also like to thank my co-supervisor, Dr. Andrew Bennett for his guidance, lessons, edits, and tremendous helpfulness. In addition, I would like to thank Sarrah Thomas Persechino for her patience and dedication to the accuracy as the other rater in scoring the TAT and the WUSCT. I thank my sister, Kieran Pommier, and my mother, Dr. Linda Moxley Haegert, for their help with translating the abstract from English to French. I would like to thank my father, Dr. David Haegert, for reading over my thesis on numerous occasions for grammar and its understandability. I thank Dr. Dermot Bowler for his guidance and careful comments. Lastly, this thesis is dedicated to the recently deceased Timothy Stanutz survived by his wife, Dr. Sandy Stanutz, and his four children Max, Anna, Bailey, and Luke.

Attachment and Ego Development in Adolescents with Autism Spectrum Disorder (ASD)

The focus of this study is on the internal representations of attachments to others and the ego development of high functioning adolescents with ASD as compared to the norms of typically developing adolescents of the same ages. In childhood and adolescence, one of the major expectations is the development of overall social competence and good social skills (Wentzel, 1991). Being socially competent is related to having good social cognition (Fiske, Cuddy, & Glick, 2006). Social cognition is how we think about all things social, how we interpret other people's actions, and how we adapt our own actions based on the reactions of others (Buron, 2007). Children and adolescents with good social cognition tend to have more intrinsic motivation and goal-directed priorities (Crane & Dahl, 2012). They can be honest, modest, tolerant, helpful, sincere, sentimental, humorous, happy, popular, sociable, good natured, and warm (Fiske, et al., 2006). In addition, good social cognition can lead to better academic achievement and academic learning (Zinnerman, 1989). Conversely, those with poor social cognition are more likely to exhibit high-risk and dangerous behavior (Crane & Dahl, 2012). They are also more likely to be unhappy, vain, finicky, unimaginative, dishonest, squeamish, impulsive, feel insignificant, submissive, superficial, clumsy, wavering, irresponsible, wasteful, and frivolous (Fiske, et al., 2006).

Among those with significant social cognition difficulties, children and adolescents with ASD are thought to be among the most acutely impaired in interpreting other peoples' mental states, in understanding and attributing meaning to social situations, and in identifying context-dependent, socially appropriate behaviors (Kaland, Callesen, Moller-Nielsen, Mortensen, & Smith, 2002; Koning & Magill-Evans, 2001; Loveland, Pearson, Tunal-Kotoski, Ortegon, & Gibbs, 2001; Mazza et al., 2014; Senju, 2013). These social cognitive difficulties likely

contribute to the poorer peer relationships, interpersonal isolation, and social-communication limitations among persons with ASD that become particularly salient during early adolescence (Bird, Leighton, Press, & Heyes, 2007; Hale & Tager-Flushberg, 2005; Kasari, Freeman, Bauminger, & Alkin, 1999; Locke, Ishijima, Kasari, & London, 2010).

Like many other psychological and neurodevelopmental conditions recognized in the DSM-5 (American Psychiatric Association, 2013), ASD is characterized by a pattern of observable symptoms that signify the presence of an underlying impairment (Rutter, 1978). In ASD, these symptoms are manifestations of underlying deficits both in social competence apparent across multiple contexts and in cognitive flexibility and the capacity to demonstrate varied patterns of interests and behaviors. The diagnosis of ASD requires the presence, currently or by history, of at least 5 out of 7 pathognomonic symptoms (for the DSM-5 criteria for ASD, see Appendix A; American Psychiatric Association, 2013).

In considering the etiological factors, which underlie the interpersonal difficulties of ASD, researchers frequently highlight social cognition-based constructs such as *theory of mind*, *mentalizing*, and *reflective function* (e.g., Baron-Cohen, Tager-Flushberg, & Cohen, 2000; Fishman, Keown, & Licoln, 2014; Kriss, Steele, & Steele, 2012). Less frequently considered as causative of impairments in social functioning among individuals with ASD are their IWMs of attachment, such as those proposed by Bowlby (1969, 1973, 1980).

A central hypothesis in Bowlby's attachment theory is that early parent-child relationships are templates or IWMs of all subsequent intimate relationships (Crowell & Treboux, 1995). Bowlby does not imply that there is a critical period in infancy that has implications across the lifespan, but rather that there is a strong tendency for continuity of parent-child interactions that then feedback into the attachment behavior system. Working

models of attachment relationships are cognitive/affective constructs which develop out of multiple behavioral interactions between the infant/child and their parents (Crowell & Treboux, 1995). As noted above, individual differences emerge in the expression of attachment behavior in the context of attachment relationships. At first, patterns of attachment reflect expectations about the caretaker's likely behavior in various situations. Eventually the child abstracts from these expectations a set of postulates about how close relationships operate and how they are used in daily life and in stressful circumstances (Crowell & Treboux, 1995).

These cognitive constructs are called *working* models because they are the basis for action in many situations and because, in principle, they can be revised as a function of new and significant attachment-related experiences. An individual's model of attachment involves beliefs about both the parent and child's role in relationships. In other words, it is a model that represents the obverse sides of the same relationship that cannot be understood without reference to each other even when the models of self and other have become distinct. IWMs are stable constructs, which operate outside awareness, guide behavior in relationships first with parents, and then influence expectations, strategies, and behavior in later relationships, which is why they can be characterized as templates or prototypes of attachment (Crowell & Treboux, 1995).

A better understanding of the IWMs of individuals with ASD would be helpful for several reasons. First, quality of attachment is often considered a critical factor in understanding and treating the poor social-emotional functioning of typically developing children and teens with a variety of externalizing and internalizing difficulties or disorders (Guttmann-Steinmetz & Crowell, 2006; Shemmings & Shemmings, 2011). Second, secure attachment to primary caregivers greatly facilitates the development of adaptive social cognition and mentalizing abilities (Fonagy, 2001; Fonagy, Steele, Moron, Steele, & Higgitt, 1991; Taylor, 2012). Third,

security of attachment and understanding other people's mental processes are related as securely attached children have the confidence to turn their full attention to others and demonstrate greater psychological accessibility. Conversely, insecurely attached children are less able to direct their full attention to others and demonstrate less psychological accessibility and greater defensiveness (Fonagy et al., 1991).

Attachment styles are often assessed with the *Strange Situation Procedure* (SSP; Ainsworth, Blehar, Waters, & Wall, 1978), which was developed to experimentally examine the behavioral markers of Bowlby's theory of IWMs (1969, 1973, 1980). In this procedure, children are separated from their caregivers, and their reactions to their caregivers' departure and return, as well as to the arrival of a stranger are carefully observed. Four different attachment patterns have consistently been identified using the SSP: (1) *Secure*, (2) *Insecure-Avoidant*, (3) *Insecure-Resistant-Ambivalent*, and (4) *Insecure-Disorganized* (Main & Solomon, 1986).

In an early study on attachment among low functioning children with autism using the SSP, Capps, Sigman, and Mundy (1994) found that 60% of the children with autism who they tested were characterized by some form of insecure attachment whereas only 40% demonstrated secure emotional attachments to their primary attachment figure (AF). Moreover, all of the insecurely attached children with autism demonstrated signs of disorganization when their AF returned, including motor stereotypies, gaze aversion, and contradictory approach-avoidance behavior (e.g., concurrently approaching and withdrawing from the AF). The severity of their autism symptoms was associated with greater attachment insecurity, especially for the younger, lower functioning children who were even more likely to be insecurely attached and disorganized. Although noteworthy, the results of the Capps et al. (1994) study must be interpreted cautiously as the SSP may not be as effective a way of examining attachment among

children with ASD, especially if their propensity to fixate attention on certain physical objects interfered with them noticing whether their AF had left the room. In addition, as the participants were low functioning children with ASD, the high rates of insecure attachment might be due to their low intellectual level rather than autism per se. Nevertheless, these findings are consistent with similar studies by Grzadzinski, Luyster, and Spencer (2014) and Rutgers, Bakersmans-Kraneburg, Van Ijizendoorn, and Van Berkelaer-Onnes (2004) who found that, although low functioning children with ASD formed attachments, the secure attachment pattern was significantly underrepresented with a much higher percentage of children exhibiting insecure or disorganized attachments (Naber et al., 2007). Nevertheless, these findings underscore the prevalence of disorganized attachment among children with ASD (Naber et al., 2007). In similar studies, Grzadzinski, Luyster, and Spencer (2014) and Rutgers, Bakersmans-Kraneburg, Van Ijizendoorn, and Van Berkelaer-Onnes (2004) found that, although low functioning children with ASD formed attachments, the secure attachment pattern was significantly underrepresented.

A key challenge in examining attachment patterns among adolescents is that the SSP is only valid for young children (i.e., infants and toddlers). In older children who typically do not manifest overt behavioral reactions to the departure and return of an AF, internal representations of attachment and IWMs must be assessed instead. Two main approaches are used to assess the IWMs of attachment in children and teens – (a) self-report measures and (b) developmentally-based interviews/projective measures (Shemmings & Shemmings, 2011). The Bell Relationship Inventory for Adolescents (BRIA) is a self-report measure (Bell, 2005) used to assess attachment while the SCORS-G coding system for the TAT and the Washington University Sentence Completion Test of ego development (WUSCT; Hy & Loevinger, 1996) are developmentally-based, projective measures (Stein, Hilsenroth, Slavin-Mulford, & Pinsker, 2011).

The Bell Relationship Inventory for Adolescents (BRIA; Bell, 2005) is a self-report measure designed to evaluate attachment to others among typically developing adolescents across five dimensions (i.e., Positive Attachment, Alienation, Insecure Attachment, Egocentricity, and Social Incompetence) that has not previously been administered to adolescents with ASD. In school settings, the BRIA is often employed to determine whether relationship difficulties are contributing to the behavioral, emotional, or other adjustment problems of students. The BRIA can also be used to assess characteristic patterns of attachment, social cognition, and social self-confidence. A similar self-report measure to the BRIA is the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987), which is used to assess a child's perception of the positive/negative aspects of attachment and the cognitive dimensions of relationships with their primary AFs and classmates. In their examination of attachment among children with ASD, Bauminger, Solomon, and Rogers (2009) used the IPPA and found that this group of children reported significantly less trust, open communication, and more alienation than typically developing peers of the same age.

The Thematic Apperception Test (TAT; Murray, 1943) was chosen to measure IWMs among adolescents with ASD because the TAT when scored using the Social Cognition and Object Relations Scale-Global (SCORS-G; Stein et al., 2011) offers a comprehensive and reliable method for assessing the internal representations of attachment and IWMs among older children, adolescents, and adults. The *Social Cognition and Object Relations Scale* (*SCORS*) was originally developed by Drew Westen (1985, 1991a, 1991b) to examine attachment representations among individuals with borderline and other personality disorders. According to Westen (1991b), social cognition reflects the thought processes involved in understanding the behaviors and the motives of other people. From this perspective, the TAT is a useful instrument

because subjects are required to draw on their internal attachment representations to construct characters and interactions in response to a series of ambiguous interpersonal situations (Cramer, 1999). The SCORS-G of Stein and colleagues (2011) is an update on Westen's original measure and provides a manualized approach for scoring the TAT across eight attachment-relevant dimensions, including (a) complexity of representation of others (Complexity), (b) affective quality of representations (Affect), (c) emotional investment in relationship (Relationships), (d) emotional investment in values and moral standards (Morals), (e) understanding of social causality (Causality), (f) experience and management of aggressive impulses (Aggression), (g) self-esteem, (Self-Esteem), and (h) identity and coherence of self (Identity; Stein et al., 2011).

The SCORS-G is a developmentally-based interview/projective approach that indirectly elicits IWMs (Shemmings & Shemmings, 2011). It is similar to the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996) in that both focus on the coherence, consistency, and completeness of the responses, as well as whether attachment-related elements are described favorably or unfavorably. In the SCORS-G approach, the narratives from the TAT cards are analyzed for their length and complexity, the central themes and their nuances, the depth of the relationships portrayed, the investment in morals and values, the level of organization, and internal consistency, whether the central theme has aggressive content, whether self-esteem markers are present or absent and positive or negative, and whether personal identity is involved in the issues mentioned in the story (Stein et al., 2011). Although, the SCORS-G has not yet been utilized in an investigation of the IWMs of individuals with ASD, in their study of adults with a high functioning form of the disorder, Taylor, Target, and Charman (2008) found that only 15% of their sample were securely attached, whereas 40% were insecure/dismissing and 45% were disorganized in their attachment style.

The limited research on the attachment representations of individuals with ASD is likely due in part to the perceived difficulty in assessing their IWMs and then comparing them to typically developing peers. More specifically, whether children and adolescents with ASD can produce responses on apperception tests that are projective rather than merely descriptive is not well-established (Crucitti et al., 2015; Eurelings-Bontekoe, Zwinkels, Shapp-Jonker, & Edrisi, 2011). For example, when administered the Rorschach Inkblot Method projective test, adults with ASD paid more attention to individual details, describing them concretely, and had difficulty integrating these details to form a global representation of the whole picture (Crucitti et al., 2011). Similarly, when responding on the TAT, adults with ASD missed key elements of the cards, often focused on specific details, which were seen as irrelevant to the overall narrative, and built a narrative around that detail (Eurelings-Botenkoe et al., 2011).

Disorder-related limitations in nuanced social-communication, central coherence, cognitive flexibility, and imagination are thought to restrict the capacity of individuals with ASD to respond to relatively ambiguous stimuli (e.g., an inkblot or a nonspecific picture of a social scene) in a manner that reflects their needs and characteristic manner of interacting with the environment (i.e., projective tests; Eurelings-Bontekoe et al., 2011; Frank, 1939; Ghaziuddin, Leininger, Tsai, 1995). However, initial evidence suggests that individuals with high functioning ASD are able to provide responses containing projective material that is reflective of their representations of self and others (Crucitti et al., 2015; Holaday, Moak, & Shipley, 2001). Moreover, the TAT is a projective test that has established validity as a projective measure of IWMs in adults with ASD (e.g., Eurelings-Bontekoe et al., 2011).

A second narrative/projective test that can be used to assess internal representations of attachment, as well as the related construct of *ego development* is the WUSCT (Loevinger, 1976,

1979). In Loevinger's theory, the ego is a cognitive-affective construct representing the "striving to master, to integrate, to make sense of experience" (Loevinger, 1976, p. 85). Loevinger stresses the ego's synthetic function as essential in that the primary developmental impetus is one of assimilation and integration into a stable, coherent organization. She also stresses the ego's role as a subjective frame of reference that helps to create meaning from intrapersonal and interpersonal experiences (Hauser, 1993; Loevinger, 1976, 1979).

Loevinger (1976, 1979) described four domains as representative and inextricably interwoven aspects of the ego – interpersonal style, conscious preoccupations, character development, and cognitive style (Manners & Durkin, 2001). Interpersonal style represents the attitude toward social relationships and the other person, the understanding of relationships, and the preferred type of relationships. Conscious preoccupations refer to the predominant foci of the person's conscious thoughts and behavior, such as conformity to social rules, responsibility, and independence. Character development incorporates impulse control and moral development while cognitive style represents level of conceptual complexity and cognitive maturity (Manners & Durkin, 2001). According to Loevinger, the ego develops in an invariant, ordered sequence of stages, each of which has an internal coherence and equilibrium, which is more encompassing and more complex than those preceding it. The stages of ego development are: (a) the impulsive, where an individual can be demanding, self-preoccupied, and has little sense of psychological causation; (b) the self-protective, where an individual can be wary, preoccupied about staying out of trouble, and is learning about rules and self-control; (c) the conformist, where an individual can be conventional, rule-bound, and where feelings are understood superficially; (d) the self-aware, where an individual has more but still limited self-awareness, can appreciate numerous possibilities in a situation, and has unoriginal levels of reflection on life issues; (e) the

conscientious, where an individual can be reflective, self-critical, and has self-evaluated standards; and (f) the individualistic ego stages, where an individual has a heightened sense of individuality, is concerned about emotional independence, and values relationships over achievement (Manners & Durkin, 2001). Higher ego stages are consistently associated with better social adaptation (Vaillant, 1993).

In order to examine whether adolescents with ASD differ from typically developing adolescent norms in their IWMs and ego development, this exploratory research involved the assessment of three hypotheses in relation to the norms of typically developing adolescents. Hypothesis 1 was that the adolescents with ASD would demonstrate less developed IWMs as indicated by lower scores on the SCORS-G dimensions of Complexity, Affect, Relationships, and Causality. Hypothesis 2 was that the adolescents with ASD would be less developed on their self-reported attachment on the Alienation, the Egocentricity, and the Social Incompetence scales in comparison to typically developing adolescent norms. Hypothesis 3 was that the adolescents with ASD would be both (a) less mature in their overall ego development (i.e., Total Protocol Rating (TPR) score), and (b) less developed in their ego stage (i.e., Item Sum Score (ISS)).

Method

Participants

Seventeen adolescent males diagnosed with ASD between the ages of 11 and 18 years were recruited from a school board in Montreal, Canada. The sample was from a range of socioeconomic status (SES) background ranging from low to high with most intermediate. All had been diagnosed using the DSM-IV or DSM-IV-TR diagnostic criteria by psychiatrists at the Montreal Children's Hospital. The participants were chosen based on school records of a

diagnosis of ASD, which had been validated by the Ministry of Education, Leisure, and Sport of Quebec (MELS) as certification of the students' special educational needs.

All of the participants scored within the broadly *Average* range or higher on *Full Scale IQ* (M_{FSIQ} = 95.76, SD_{FSIQ} = 16.31) as assessed by the Wechsler Abbreviated Scale of Intelligence (WASI). All 17 of the participants completed the Washington University Completion Test (WUSCT) and the Bell Relationship Inventory for Adolescents (BRIA). Only 11 of the participants completed the Thematic Apperception Test (TAT) as the other 6 participants refused to comply. Parental consent was obtained for all the participants.

Materials

The experimenter/tester audiotaped and then transcribed the TAT responses, while the participants provided in pencil responses to the BRIA and the WUSCT items.

The Social Cognition and Object Relations Scale-Global Rating Method (SCORS-G; Stein et al., 2011) coding system was used to evaluate the Thematic Apperception Test (TAT; Murray, 1943). The SCORS-G is a reliable and valid method used to rate TAT narratives (see Ackerman, Clemence, Weatherhill, & Hilsenroth, 1999; Ackerman et al., 2000; Ackerman et al., 2001). This coding system captures the cognitive and affective personality characteristics of participants by examining where they ranked across eight dimensions. The eight dimensions on the SCORS-G were rated on a seven-point anchored rating scale, where lower scores (1 to 2) indicated greater pathology, and higher scores (6 to 7) indicated greater psychological health. Two raters scored the TAT, with the following interrater reliabilities – alpha level was .68 for the first rater and was .60 for the second rater. The eight dimensions on the SCORS-G descriptions were: (1) the complexity of representations of the self and others (Complexity), a capacity to integrate positive and negative attributes of the self and others; (2) the affective quality of

representations (Affect), positive or negative emotional expectations in relationship to others; (3) the emotional investment in relationships (Relationships), the level of commitment an individual demonstrated in mutually reciprocal relationships; (4) the emotional investment in values and moral standards (Morals), self-regulated behaviors based on moral standards or ethical conduct; (5) the understanding of social causality (Causality), the ability to understand the appropriate sequence of relationships, interactions, and the motivations behind these relationships; (6) the experience and management of aggressive impulses (Aggression), the ability to control anger and whether it was expressed appropriately with interpersonal interactions; (7) self-esteem (Self-Esteem) examined the level that individuals had appropriate positive feelings about themselves; and (8) the identity and coherence of self (Identity), the capacity to view the self coherently, while maintaining long-term values and goals.

On the Bell Relationship Inventory for Adolescents (BRIA; see Appendix C; Bell, 2005), all of the items entailed true and false questions on 5 different scales. These five scales are (1) the Positive Attachment scale, which consists of 14 items and is used to examine the overall positive feelings of attachments in relationships; (2) the Alienation scale, which is comprised of 13 items and is used to assess basic trust, the level of difficulty with intimacy, and feelings of isolation; (3) the Insecure Attachment scale, which involves 13 items and is used to evaluate the sensitivity to rejection, fear of separation, abandonment, and how vulnerable an individual was to being hurt by others; (4) the Egocentricity scale, which consists of 10 items that are used to assess the lack of empathy and the tendency toward being self-protective, controlling, and exploitative; and (5) the Social Incompetence scale which includes 11 items that are used to evaluate discomfort, shyness, and the difficulty in making friends.

The Washington University Sentence Completion Test (WUSCT; see Appendix D; Hy & Loevinger, 1996), which was used to score ego development (adolescent version; Form 2-77), consists of 32 incomplete sentences (e.g., "When I am criticized . . ." " My mother and I . . ."). A shortened version of the WUSCT, consisting of 18 stems was coded because many of the participants failed to complete all of the items (Foster & Sprinthall, 1992; Novy & Francis, 1992). Two raters coded the responses according to the system described in the manual developed by Hy and Loevinger (1996). The interrater reliability for the WUSCT included an alpha level of .55 for the first rater and an alpha of .76 for the second rater. Eighteen stems of WUSCT were scored to derive the continuous Total Protocol Rating (TPR) and the Item Sum Score (ISS). The TPR represents the total internal functioning of an individual, which is determined by examining the total distribution of the 18 completed stems. Shortening the WUSCT to 18 stems could cause some loss of reliability, but this shortened version does not affect the validity of the measure (Foster & Sprinthall, 1992; Novy & Francis, 1992).

The Item Sum Score (ISS) is used as an index/measure of the ego stage, beginning at E2 (Hy & Loevinger, 1996). The impulsive ego stage (E2) represents impulsive, egocentric, and dependent behaviors as well as a preoccupation with bodily feelings, a cognitive simplicity, a lack of psychological insight, and thinking concretely in black and white categories. The self-protective ego stage (E3) is thought to depict opportunistic and manipulative behaviors that are preoccupied with control as well as a lack of responsibility, including the seeking of immediate gratification with materialistic goals. The conformist ego stage (E4) reflects loyalty, rule respecting, and cooperative behaviors, with a preoccupation about appearance, behaviors, and social acceptance. Generally, these individuals adopt the opinion of the majority of the group and perceive inner emotions simplistically. The self-aware ego stage (E5) indicates helpfulness, well-

adjusted individuals, who are preoccupied about their feelings. Individuals in the self-aware ego stage explain their feelings in relationship to others, and these self-aware individuals have a sense of distinction between themselves and the group, while seeing different possibilities in life. The conscientiousness ego stage (E6) represents self-critical behavior, self-evaluation, intensity, and responsibility, with a preoccupation about motives and understanding others' viewpoints. The individualistic ego stage (E7) indicates tolerance, good relationships with others with mutual reciprocity, self-awareness about developmental roles, inner conflicts, and individual differences.

Procedure

Each participant was tested individually in a small and uncluttered classroom on the following measures in this sequence – the TAT, the BRIA, and the WUSCT.

The TAT cards 1, 2, 4, 7GF, and 8BM were used to measure the IWMs (see Appendix B; Murray, 1943). According to the standard TAT administration protocol, each card was presented one at a time to the 11 adolescent male participants with ASD who were willing to complete this task. These participants were asked to tell a story about each card. The tester/experimenter said, "*I am going to show you some pictures, one at a time, and your task will be to make up a story for each card. In your story, be sure to tell what has led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking, and then give the outcome. Try to tell a complete story with a beginning, middle, and end. Do you understand? Here's the first card*". When the participants were finished with each story, queries were used to prompt for any of the eight elements that had not already been provided (e.g., "*What are the characters feeling?*" or "*How does the story end?*").

All 17 participants completed the paper and pencil BRIA scale (Bell, 2005), which consisted of 14 items on the Positive Attachment scale, 13 items on the Alienation scale, 13

items on the Insecure Attachment scale, 10 items on the Egocentricity scale, and 11 items on the Social Incompetence scale.

The WUSCT (Hy & Loevinger, 1996) was administered to the 17 adolescent participants with ASD. If the participants failed to complete one or more of the 18 WUSCT stems, then a non-response weighting technique was used (Särndal & Lundström, 2005), where the next items for the WUSCT battery of 32 item stems replaced the missing items. For example, stem 19 and/or 20 was used to replace any stems from the first 1-18, which were omitted to ensure that each participant WUSCT score was based on a total of the 18 completed stems.

Design

The current research project was a normative study, where the sample of adolescents with ASD is compared to typically developing adolescent norms. Independent sample t-tests were used for the TAT between adolescents with ASD means and the means for the norms of typically developing adolescents. On the BRIA scales, independent sample t-tests were used to examine the difference between adolescents with ASD means and the means for typically developing adolescent norms. On the WUSCT, the TPR was evaluated with an F-test to compare the continuous score of the adolescent sample with ASD to typically developing adolescent norms. A chi-squared test was used to compare the ISS categories of ego stages for the adolescents with ASD sample to typically developing adolescent norms.

Results

The means for each participant across all 8 dimensions of the TAT were calculated with their composite scores (see Table 1). All of the typically developing adolescent norms for the three hypotheses were chosen to match the age ranges of the participants. To test the first hypothesis, t-tests were calculated using a left-tailed hypothesis, predicting that the IWMs of the

adolescents with ASD would be less developed overall as compared to the norms for typically developing adolescents and specifically on the dimensions of Complexity, Affect, Relationships, and Causality (see Table 2; DeFife, Goldberg, & Westen, 2015). Overall, adolescents with ASD did not display less developed IWMs on the TAT in comparison to the typically developing adolescent norms. However, adolescents with ASD had significantly different complexity of representations of the self and others (Complexity), affective quality of representations (Affect), emotional investment in relationships (Relationships), emotional investment in values and moral standards (Morals), and the understanding of social causality (Causality). No significant differences between adolescents with ASD and typically developing adolescent norms in terms of experience and management of aggressive impulses (Aggression), self-esteem (Self-Esteem), and the identity and coherence of self (Identity) were found. The adolescents with ASD appeared to have higher identity scores than typically developing adolescent norms. A right-tailed hypothesis was calculated to test this prediction – ASD ($M = 5.85$, $SD = 0.76$) and typically developing adolescent norms ($M = 4.87$, $SD = 1.11$), $t(80) = 3.71$, $p < 0.001$ – and the analysis confirmed that the adolescents with ASD scored higher in their identity on the TAT than the norms for typically developing adolescents.

For the second hypothesis, the Bell Relationship Inventory for Adolescents (BRIA) was administered to all 17 adolescent male participants with ASD and compared to the norms for 283 typically developing male adolescents (Bell, 2005). According to the second hypothesis, the predicted results were that adolescents with ASD would be less developed on the Alienation, the Egocentricity, and the Social Incompetence scales in comparison to the typically developing adolescent norms. This prediction was tested using a right-tailed hypothesis (see Table 3). No significant differences were found between positive attachment and egocentricity in adolescents

with ASD and the typically developing adolescent norms. However, the adolescents with ASD felt more alienated, were more likely to be insecurely attached, and reported greater difficulties with social competence in comparison to the norms for typically developing adolescents.

The descriptive statistics, means, standard deviations, and the total mean for the WUSCT were calculated across all 17 participants with ASD (see Table 4). In order to test part (a) of the third hypothesis, which predicted that the adolescents with ASD would display more immature ego development in comparison to the norms for typically developing adolescents, a right tailed-hypothesis was conducted and compared to three sets of typically developing norms in adolescents: 17 Ps with ASD (M = 3.99, SD = 1.00) compared to 70 gifted adolescent norms (M = 5.31, SD = 0.94; Bailey, 2011), $t(85) = -4.94$, $p < .001$, and then to 142 average adolescent norms (M = 4.27, SD = 1.17; Bursik & Martin, 2006), $t(157) = -1.07$, $p > 0.15$. Lastly, a comparison was made between 17 adolescents with ASD and a sample of 92 typically developing adolescent norms at the age of 14 years (M = 3.97, SD = .81; Westenberg & Gjerde, 1989), $t(107) = 0.08$, $p > .53$. The results indicated that egos among the adolescents with ASD were only less developed in comparison to the gifted adolescent norms. The TPR rating of adolescents with ASD (M = 71.88 SD = 6.10) was then compared to the TPR of a 36 item stem WUSCT that had been administered to typically developing adolescents in order to examine their overall ego development (Bursik & Martin, 2006) and was divided by 2 to match the 18 stem shortened version. A one-way ANOVA for the TPR indicated no significant difference between the scores of the adolescents with ASD and the norms of the typically developing adolescents, $F(1, 158) = 3.33$, $p > .05$. Therefore, part (a) of the third hypothesis was not supported. The adolescents with ASD only displayed less developed egos than the norms of the gifted adolescents, while no significant differences were found between the scores of the adolescents

with ASD and with either the average adolescent norms or with the typically developing adolescent norms at the age of 14 years.

To examine part (b) of the third hypothesis, the distribution of the ego stages between the adolescents with ASD and the norms of the typically developing adolescents, the ISS for each ego stage was calculated and compared to the norms of the typically developing adolescents (see Table 5; Bursik & Martin, 2006). A significant difference was found between the distribution of the ego stages of the adolescents with ASD and the typically developing adolescent norms. Two (12%) of the adolescents with ASD were in the self-protective ego stage (E3), whereas the other 15 (88%) were in the conformist ego stage (E4). In contrast, the norms from the typically developing adolescents showed scores with 17% in the impulsive (E2) stage, 22% in the self-protective (E3) stage, 23% in the conformist (E4) stage, 25% in the self-aware (E5) stage, and 13% in the conscientious (E6) stage. Therefore, part (b) of the third hypothesis was supported.

Discussion

The purpose of this study was to examine the Internal Working Models (IWMs) of attachment and the ego development of adolescents with ASD. Given the much greater capacity of adolescents to represent their attachment security/insecurity with language rather than via overt behavior, utilization of the gold standard measure of IWMs, such as the Strange Situation Procedure (SSP), is not a viable approach with this age group (Shemmings & Shemmings, 2011). Without a widely accepted alternative to the SSP for use with teenagers, several alternative measures were employed in this study. Specifically, in order to elicit internal representations of attachment and the construct of ego development, the SCORS-G coding system was used for the Thematic Apperception Test (TAT), a developmentally-based narrative/projective approach, the Bell Relationship Inventory for Adolescents (BRIA; Bell, 2005; Stein et al., 2011), a self-report

measure addressing different facets of attachment, and the Washington University Sentence Completion Test (WUSCT; Loevinger, 1976, 1979), another developmentally-based projective test.

The primary findings based on the SCORS-G-TAT analysis are that this group of adolescent males with ASD differed from the norms of the typically developing adolescents on the complexity of their representations of the self and other (Complexity), the affective quality of these representations (Affect), their emotional investment in relationships (Relationships), and in their understanding of social causality (Causality). These findings indicate that with respect to Complexity, the students with ASD viewed others and themselves in more concrete, simplistic ways than is typical of others their age. With respect to Affect, participants with ASD tended to provide descriptions of relationships that were more negative and critical than expected based on the responses routinely provided by others their age. Their narratives also reflected a lesser investment in relationship reciprocity or mutuality and much greater uncertainty about the causal factors underlying successful or unsuccessful social interactions. In addition, participants appeared to be less developed in their emotional investment in values and morals standards (Morals), which is consistent with evidence of limitations and immaturity in their moral reasoning (see for example, Senland & Higgins-D'Alessandro, 2013).

Unexpectedly, the identity of the students with ASD appeared to be better developed (i.e., they scored higher on this dimension of the SCORS-G), suggesting greater maturity on this dimension than the norms of typically developing adolescents. This surprising finding is not easily explained but might reflect a lesser degree of internal conflict around who they are and who they are expected to be relative to their typically developing peers. Such a state of lesser internal conflict could result from both the greater concreteness in thinking and lesser insight,

which are often characteristic of teens with ASD (Gray, 1996). It could also be the case that a greater capacity to maintain long-term values and goals among adolescents with ASD might not actually reflect a more coherent or developed identity. Instead, it might be associated with cognitive rigidity and akin to what James Marcia (1966) referred to as *identity foreclosure*. Identity foreclosure occurs when people think they know who they are, but they have not actually explored their options yet.

On the BRIA, participants with ASD reported being more insecurely attached, with greater feelings of alienation, isolation, and difficulty with intimacy than indicated by the norms of typically developing adolescents. More specifically, the students with ASD reported feeling less connected to their peers and often finding themselves alone. They also characterized themselves as being shy around others and struggling to express their feelings to others. Indication that these male adolescents with ASD have less secure attachments to others is consistent with evidence using the SSP that the majority of young children with ASD are insecurely attached (Capps et al., 1994) and with evidence from the IPPA that adults with ASD report greater feelings of alienation and disconnection (Bauminger et al., 2009).

On the WUSCT, 88% of the sample of male adolescents with ASD were at the conformist ego stage, where they adopt the view of the majority of the group and strive to be similar to their peers, which underscores the possibility that poorer social-cognition of individuals with ASD might be tied into a simpler understanding of internal emotions (Baron-Cohen et al., 2000). This simpler understanding of internal emotions might explain why they attempt to emulate the actions of others and act similarly to the majority of the group. The level of ego development also seems to influence the interpersonal relationships of participants, especially with respect to their conceptual complexity and conscious preoccupations and

conformity to rules. These adolescent males with ASD appear to adopt the rules displayed in the behavioral patterns of their peers in order to improve their interpersonal relationships. This outcome raises the possibility that the ego development of this sample may begin to plateau at the conformist stage, which is characterized by only a superficial understanding of others and causality, while many typically developing adolescents develop beyond the conformist ego stage and become more aware of the complexities of interpersonal relationships (Manners & Durkin, 2011).

The findings presented here are evidence that this sample of adolescent males with ASD with average or higher IQs as compared to the norms of their typically developing peers, display less developed IWMs in respect to understanding their relationships, their emotional quality and investment in these relationships, their understanding of why others express certain emotions, and how relevant moral standards are to them. In addition, the findings suggest that participants are at-risk for poorer attachment, feelings of loneliness, and experiencing greater difficulty feeling close to others. Even as the adolescent males with ASD display ego development that may be similar in some aspects to typically developing adolescent norms, it appears to reflect conformity to their peers' behaviors, which requires a less nuanced understanding of human relationships.

Limitations

The findings of this study must be considered in relation to several potential limitations. One, the inclusion of only participants with ASD precluded any comparisons between carefully matched groups, although the use of well-established norms for typically developing adolescents allowed for meaningful analyses of the developmental levels of the participants with ASD on each of the measures. Two, the small number of participants is problematic, especially in the

analyses of the TAT, which was completed by only 11 participants. Three, the inclusion of only males in this study prevents any generalization to female adolescents with ASD. Four, the interpretation of projective tests can be subjective, thus the alpha levels ranges differed for the two raters from .60 to .68 on the TAT and from .55 to .78 on the WUSCT.

Future Directions

In future research, the TAT, the BRIA, and the WUSCT could be administered to adolescents and their primary attachment figure (AF) to see whether adolescents with ASD and their AF relationships affect their internal representations of attachment and ego development. This research might reveal whether the complexity of AFs' IWMs and their ego development influence their children's IWMs.

References

Ackerman, S., Clemence, A., Weatherhill, R., & Hilbert, M. (1999). Use of the TAT in the assessment of DSM-IV Cluster B personality disorders. *Journal of Personality Assessment, 73*, 422-448. doi:abs/10.1207/S15327752JPA7303_9

Ackerman, S., Hilsenroth, M., Clemence, A., Weatherhill, R., & Fowler, C. (2000). The effects of social cognition and object representations on psychotherapy continuation. *Bulletin of the Menninger Clinic, 64*, 386-408.

Ackerman, S., Hilsenroth, M., Clemence, A., Weatherhill, R., & Fowler, C. (2001). Convergent validity of Rorschach and TAT scales and object relations. *Journal of Personality Assessment, 77*, 295-306. doi:org/10.1207?S15327752JPA7702_11

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Walls, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillside: Lawrence Erlbaum Associates.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*, 427-454. doi:10.1007/BF02202939

Baron-Cohen, S., Tager-Flushberg, H., & Cohen D. J. (Eds.). (2000). *Understanding other minds: Perspectives from developmental cognitive neuroscience*, (2nd ed.). New York, NY: Oxford University Press.

Bauminger, N., Solomon, M., & Rogers, S. J. (2010). Predicting friendship quality in autism spectrum disorders and typical development. *Journal of Autism Developmental Disorders, 40*, 751-761. doi:10.1007/s10803-009-0928-8

Bell, M. D. (2005). *Bell Relationship Inventory for Adolescents* [Manual]. Torrance, CA: Western Psychological Services.

Bird, G., Leighton, J., Press, C., & Heyes, C. (2007). Intact automatic imitation of human and robot actions in autism spectrum disorders. *Proceedings of the Royal Society B Biological Proceedings, 274,* 3027-3031. doi:10.1098/rspb.2007.1019

Bowlby, J. (1969). *Attachment and loss, Vol. 1. Attachment*. London: Hogarth Press and the Institute of Psychoanalysis.

Bowlby, J. (1973). *Attachment and loss, Vol. 2. Separation: Anxiety and anger*. London: Hogarth Press and the Institute of Psychoanalysis.

Bowlby, L. (1980). *Attachment and loss, Vol. 3. Loss: Sadness and depression*. London: Hogarth Press and the Institute of Psychoanalysis.

Buron, K. D. (2007). Social cognition: What is it and what does it tell us about how to teach? *The Autism Advocate, 48,* 28-36.

Bursik, K., & Martin, A. T. (2006). Ego development and adolescent academic achievement. *Journal of Research on Adolescence, 16,* 1-18. doi:10.1111/j.1532-7795.2006.00116.x

Capps, L., Sigman, M., & Mundy, P. (1994). Attachment security in children with autism. *Development and Psychopathology, 6,* 249-261. doi:org.10.1017/S095054579400004569

Cramer, P. (1999). Future directions for the Thematic Apperception Test. *Journal of Personality Assessment, 72,* 74-92. doi:org/10.1207/s15327752jpa7201_5

Crane, E. A., & Dahl, R. E. (2012). Understanding adolescence as a period of social-affective engagement and goal flexibility. *Nature Review Neuroscience, 13,* 636-650. doi:10.1038/nrn3313

Crowell, J. A., & Treboux, D. (1995). A review of attachment measures: Implications for

theory search. *Social Development, 4*, 294-327. doi:10.1111/j.1467-9507.1995.tb00067.x

Crucitti, M., Pagano, D. I., Di Perri, C., Gallo, G., Conti, C., Bruno, A., Muscatello, M., & Zoccali, R. (2015). A Rorschach investigation of autism spectrum disorders in adulthood: Preliminary observations. *Mediterranean Journal of Clinical Psychology MJCP, 3*, 1-9.

Defife, J. A., Goldberg, M., & Westen, D. (2015). Dimensional assessment of self and interpersonal functioning in adolescents: Implications for DSM-5's general definition of personality disorder. *Journal of Personality Disorders, 29*, 248-260. doi:10.1521/pedi_2013_27_085

Eurelings-Bontekoe, E., Zwinkels, K., Shapp-Jonker, H., & Edrisi, M. (2011). Formal characteristics of Thematic Apperception Test narratives of adult patients with an autism spectrum disorder. A preliminary study. *Psychology, 2*, 687-693. doi:10.4236/psych.2011.27105

Fishman, I., Keown, C. L., & Licoln, A. J. (2014). Atypical cross talk between mentalizing and mirror neuron networks in autism spectrum disorder. *JAMA Psychiatry, 71*, 751-760. doi:101001/amapsychiatry

Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2006). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences, 11*, 77-83. doi:10.1016/j.tics.2006.11.005

Fonagy, P. (2001). *Attachment theory and psychoanalysis*. New York, NY: Other Press.

Fonagy, P., Steele, M., Moron, G. S., Steele, H., & Higgitt, H. C. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal, 13*, 200-216. doi:10.1002/1097-0355(199123)12:3<201:AID-IMHJ2280120307>3.0.CO.2-

Foster, V., & Springthall, N. A. (1992). Developmental profiles in young adults choosing abortion. *Adolescence, 27*, 655-673.

Frank, L. W. (1939). Projective methods for the study of personality. *The Journal of Psychology, 8*, 389-414. doi:org/10.1080/00223980.1939.9917671

George, C., Kaplan, N., & Main, M. (1996). *Adult attachment interview (3rd ed.).* Unpublished manuscript, Department of Psychology, University of California, Berkeley.

Ghaziuddin, M., Leininger, L., & Tsai, L. (1995). Brief report: Thought disorder in Asperger syndrome: Comparison with high functioning autism. *Journal of Autism Developmental Disorders, 25*, 311-317. doi:0162-3257/95/0600-0311507.50/0

Guttman-Steimetz, S., & Crowell, J. (2006). Attachment and externalizing disorders: A developmental psychopathology perspective. *Journal of the American Academy of Child & Adolescent Psychiatry, 45*, 440-451. doi:10.1097/01.chi.0000196422.42599.63

Gray, C. (1996). *Higher functioning adolescents and young adults with autism*. Austin, Texas: PRO-ED Inc.

Grzadzinski, R. L., Luyster, R., & Spencer, A. G. (2014). Attachment in young children with autism spectrum disorders: An examination of separation and reunion behaviors with both mothers and fathers. *Autism, 18*, 85-96. doi:10.1177/1362361312467235

Hale, C. M., & Tager-Flusberg, H. (2005). Social communication in children with autism: The relationship between theory of mind discourse development. *Autism, 9*, 157-178. doi:10.1177/ 1362361305051395

Hauser, S. (1993). Loevinger's model and measure of ego development: A critical review II. *Psychological Inquiry, 4*, 23-30. doi:10.1207/s15327965pli0401_4

Holaday, M., Moak, J., & Shipley, M. A. (2001). Rorschach protocols from children and adolescents with Asperger's Disorder. *Journal of Personality Assessment, 76*, 482-495. doi:10.1207/S15327752JPA7603_09

Hy, L., & Loevinger, J. (1996). *Measuring ego development (2nd ed.)*. Mawah, NJ: Erlbaum.

Kaland, N., Callesen, K., Moller-Nielsen, A., Mortensen, E. L., & Smith, C. (2002). Performance of children and adolescents with Asperger syndrome or high-functioning autism on advanced theory of mind tasks. *Journal of Child Psychology and Psychiatry, 43*, 517-528. doi:10.1007/S10803-00704496-8

Kasari, C., Freeman, S., Bauminger, N., & Alkin, M. (1999). Parental perspectives on inclusion: Effects of autism and Down Syndrome. *Journal of Autism and Developmental Disorders, 29*, 297-305. doi:10.1023/A:1022159302571

Koning, C., & Magill-Evans, J. (2001). Validation of the child and adolescent social perception measure. *The Occupational Therapy of Journal of Research, 21*, 41-67. doi:10.1177/153944920102100104

Kriss, A., Steele, H., & Steele, M. (2012). Measuring attachment and reflective functioning in early adolescence: An introduction to the friends and family interview. *Research in Psychotherapy: Psychopathology, Process and Outcome, 15*, 87-95. doi:10.7411/RP.2012.09

Locke, J., Ishijima, E. H., Kasari, C., & London, N. (2010). Loneliness, friendship quality and the social networks of adolescents with high-function autism in an inclusive school setting. *Journal of Research in Special Education Needs, 10*, 74-81. doi:10.1111/j.1471-3802.2010.0118.x

Loevinger, J. (1976). *Ego development*. San Francisco: Jossey-Bass.

Loevinger, J. (1979). Construct validity of the sentence completion test of ego development. *Applied Psychological Measurement, 3,* 281-311. doi:10.1177/014662167900300301

Loveland, K. A., Pearson, D. A., Tunal-Kotoski, B., Ortegon, J., & Gibbs, M. C. (2001). Judgments of social appropriateness by children and adolescents with autism. *Journal of Autism and Developmental Disorders, 31,* 367-376. doi:10.1023/A:1010608518060

Main, M., & Solomon, J. (1986). Discovery of an insecure disorganized/disoriented attachment pattern: Procedures, findings and implications for the classification of behavior. In T. B. Brazelton & M. Yogman (Eds.), *Affective development in infancy* (pp. 95-124). Norwood: Ablex.

Manners, J., & Durkin K. (2001). A critical review of the validity of ego development theory and its measurement. *Journal of Personality Assessment, 77*, 541–567. doi:org/10.1207/S15327752JPA7703_2

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology, 3*, 551-558. doi:org/10.1037/h0023281

Mazza, M., Pino, M. C., Mariano, M., Tempesta, D., Ferrara, M., De Beradis, D., Maseda, F., & Valenti, M. (2014). Affective and cognitive empathy in adolescent with Autism Spectrum Disorder. *Frontiers in Human Neuroscience, 8,* 1-6. doi:10.3389/fnhum.2014.00791

Murray, H. (1943). *Manual for the Thematic Apperception Test*. Cambridge, MA: Harvard University Press.

Naber, F. B. A., Swinkels, S. H. N., Buitelaar, J. K., Dietz, C., Van Daalen, E., Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., & Van Engeland, H. (2007). Attachment in toddlers with autism and other developmental disorders. *Journal of Autism and Developmental Disorders, 37*, 1123-1138. doi:10.1007/s10803-006-0255-2

Novy, D. M., & Francis, D. J. (1992). Psychometric properties of the Washington University Sentence Completion Test. *Educational and Psychological Measurement, 52,* 1029-1039. doi:10.1177/0013164492052004027

Rutgers, A. H., Bakersman-Kranenburg, M. J., Van Ijzendoorn, M. H., & Van Berkelaer-Onnes, I. A. (2004). Autism and attachment: A meta-analytic review. *Journal of Child Psychology and Psychiatry, 45,* 1123-1134. doi:10.1111/j.1469.7610.2004.t01-1-00305

Rutter, M. (1978). Diagnosis and definition of childhood autism. *Journal of Autism and Childhood Schizophrenia, 8,* 139-161. doi:10.1007/BF01537863

Särndal, C. E., & Lundström, S. (2005). *Estimation in surveys with nonresponse*. West Sussex, England: John Wiley & Sons.

Senju, A. (2013). Atypical development of spontaneous social cognition in autism spectrum disorders. *Brain & Development, 13,* 96-101. doi:org/10.1016j.braindev. 2012.08.002

Senland, A. K., & Higgins-D'Alessandro, A. (2013). Moral reasoning and empathy in autism spectrum disorder: Implications for moral education. *Journal of Moral Education, 42,* 209-223. doi:org.10.1080/03057240.2012.752721

Shemmings, D., & Shemmings, Y. (2011). *Understanding disorganized attachment: Theory and practice for working with children and adults*. London, UK. Jessica Kingsley Publishers.

Stein, M. B., Hilsenforth, M. J., Slavin-Mulford, J., & Pinsker, J. (2011). *Social cognition and object relations scale: Global rating method (SCORS-G; 4th ed).* Unpublished manuscript, Massachusetts General Hospital and Harvard Medical School, Boston, MA.

Taylor, E. L., Target, M., & Charman, T. (2008). Attachment in adults with high-functioning autism. *Attachment & Human Development, 10,* 143-163. doi:10.1080/14616730802113687

Taylor, C. (2012). *Empathic care for children with disorganized attachments: A model for mentalizing, attachment, and trauma-informed care*. London, UK: Jessica Kingsley

Vaillant, G. E. (1993). *The wisdom of the ego*. Cambridge, MA. Harvard University Press.

Wentzel, K. R. (1991). Social competence at school: Relationship between social responsibility and academic achievement. *Review of Educational Research, 61,* 1-24. doi:10.3102/00346543061001001

Westen, D. (1985). Social Cognition and Object Relations Scale. Original manual to use for training. *Ann Arbor: Department of Psychology, University of Michigan*.

Westen, D. (1991a). Social cognition and object relations. *Psychological Bulletin, 109,* 429-455. doi:org/10.1037/0033-2909.109.4.429

Westen, D. (1991b). Clinical assessment of object relations using the TAT. *Journal of Personality Assessment, 56,* 56-74. doi:org/10.1207/s15327752jpa5601_6

Westenberg, P. M., & Gjerde, P. F. (1999). Ego development during the transition form adolescence to young adulthood: A 9-year longitudinal study. *Journal of Research in Personality, 33,* 233-252. doi:org/10.1006/jrpe.1999.2248

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81,* 329-339. doi:0022-0663/89/$00.75

Table 1

Means and SDs for each Participant across all Eight Dimensions of the Thematic Apperception Test (TAT) and their Composite Score

	505	506	507	508	509	510	511	512	513	514	515
Complexity	2.60 (.55)	2.40 (.89)	2.20 (.45)	3.20 (1.10)	2.80 (.45)	4.40 (.89)	2.40 (.55)	3.00 (.00)	3.40 (.89)	3.00 (.71)	4.20 (1.10)
Affect	2.20 (1.30)	3.80 (.45)	3.40 (1.14)	3.60 (1.52)	3.80 (.84)	4.80 (1.10)	3.20 (1.30)	3.60 (.89)	3.40 (.55)	2.80 (.45)	4.20 (.84)
Relationship	2.40 (1.14)	3.20 (1.30)	3.80 (1.00)	3.20 (1.10)	3.00 (.00)	4.60 (1.14)	2.20 (.84)	3.60 (.89)	3.20 (.45)	3.80 (1.10)	4.60 (.89)
Morals	3.80 (.84)	4.00 (.00)	3.80 (.45)	3.60 (.55)	3.60 (.55)	4.80 (.45)	3.60 (.55)	4.20 (.45)	3.00 (.00)	4.00 (.71)	5.00 (.00)
Causality	3.00 (.00)	2.80 (1.43)	2.40 (1.52)	3.60 (1.34)	1.80 (.84)	4.60 (.89)	2.40 (.89)	3.40 (1.14)	3.40 (.89)	3.80 (.84)	4.40 (.89)
Aggression	3.80 (.45)	4.00 (.00)	4.00 (.00)	4.60 (1.52)	4.40 (.89)	3.80 (.45)	3.40 (1.34)	3.80 (.45)	4.00 (.00)	4.00 (.00)	4.00 (.00)
Self-esteem	3.00 (1.23)	4.40 (.89)	4.20 (1.10)	4.60 (1.52)	4.40 (.89)	5.00 (1.41)	3.80 (.45)	4.00 (.71)	5.00 (1.00	3.80 (.84)	4.40 (.89)
Identity	6.20 (.84)	5.20 (1.48)	5.60 (.89)	6.20 (.45)	5.80 (.45	6.60 (.55)	5.60 (.55)	5.60 (.55)	5.60 (.55)	6.00 (.71)	6.00 (.00)

(Scale ranges from 1 to 7)

Table 2

The Thematic Apperception Test (TAT) Means, SDs, t-scores (t), Degrees of Freedom (df), and Cohen's d (d) for Adolescents with ASD and typically developing Adolescents

	Diagnosis		*t*	*df*	*d*
	ASD	Typical			
	N = 11	*N* = 71			
Complexity	3.05 (0.97)	4.56 (1.07)	-4.74***	80	-1.48
Affect	3.53 (1.12)	4.63 (1.10)	-3.04**	80	-0.99
Relationships	3.35 (1.14)	4.28 (1.26)	-2.48*	80	-0.77
Morals	3.95 (0.71)	4.70 (1.12)	-2.98**	80	-0.80
Causality	3.24 (1.28)	4.14 (1.16)	-2.20*	80	-0.74
Aggression	3.98 (0.68)	4.31 (1.23)	-1.31	80	-0.33
Self-esteem	4.24 (0.42)	4.23 (.91)	0.06	80	0.10
Identity	5.85 (0.76)	4.87 (1.11)	3.70	80	1.03
Composite	3.90 (1.27)	4.47 (.73)	-1.97	80	-0.55

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

Table 3

The Bell Relationship Inventory for Adolescents (BRIA) Means, SDs, t-scores (t), Degrees of Freedom (df) and Cohen's d (d) for Adolescents with ASD and typically developing Adolescents

	Diagnosis		*t*	*df*	*d*
	ASD	Typical			
	N = 17	*N* = 283			
Positive Attachment	4.82 (7.7)	50.7 (9.1)	-1.28	288	0.30
Alienation	60.2 (8.2)	51.2 (9.5)	4.35***	288	1.01
Insecure Attachment	53.0 (9.5)	48.4 (10.0)	1.93*	288	0.47
Egocentricity	47.6 (8.9)	51.1 (9.4)	-1.57	288	0.38
Social Incompetence	59.5 (8.7)	49.2 (9.9)	4.70***	288	1.05

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

Table 4

Means and SDs for the Washington University Sentence Completion Test (WUSCT)

Ego Development Scale

Ps	Means and SDs
499	4.11 (.68)
500	4.44 (1.10)
501	4.61 (.85)
502	4.17 (.92)
503	4.28 (.46)
504	3.94 (1.11)
505	4.11 (.76)
506	3.72 (1.13)
507	3.72 (.96)
508	3.44 (.98)
509	3.83 (.77)
510	3.33 (1.33)
511	4.33 (1.37)
512	3.72 (.96)
513	4.00 (.91)
514	4.11 (.90)
515	4.00 (1.01)
Total Mean	3.99 (1.00)

Table 5

Distribution of Participants by Ego Stage and Diagnosis

	Diagnosis (%)		
	ASD	Typical	Total
Ego Stage	*N* = 17	*N* = 64	
Impulsive (E2)	0 (0)	11 (17)	11 (13)
Self-Protective (E3)	2 (12)	14 (22)	16 (20)
Conformist (E4)	15 (88)	15 (23)	30 (37)
Self-Aware (E5)	0 (0)	16 (25)	16 (20)
Conscientious (E6)	0 (0)	8 (13)	8 (10)
Individualistic (E7)	0 (0)	0 (0)	0 (0)
Total	17 (100)	64 (100)	81 (100)

Note. $\chi^2 = 25.22$, $p < .001$

Appendix A

Diagnostic Criteria for the Diagnostic and Statistical Manual-5th Edition (DSM-5) for autism spectrum disorder (ASD)

According to the DSM-5, the essential features of the autism spectrum disorder (ASD) are the presences of persistent deficits in social communication, and social interaction across multiple contexts and restricted repetitive patterns of behaviors and interests, or activities. These impairments are reflected by the presence, currently or by history, of at least 5 out of 7 pathognomonic symptoms which include: (1) deficits in social-emotional reciprocity, (2) deficits in nonverbal communicative behaviors and social interaction, (3) deficits in developing, maintaining, and understanding relationships, (4) stereotyped or repetitive motor movements, use of objects, or speech, (5) insistence on sameness, inflexible adherence to routines, or ritualized patterns or verbal and nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, the need to take the same route or to eat the same food every day), (6) highly restricted, fixated interests that are abnormal in intensity or focus, and (7) hyper- or hypo- reactivity to sensory input or unusual interests in sensory aspects of the environment (American Psychiatric Association, 2013).

Appendix B

Thematic Apperception Test (TAT) - Cards 1, 2, 4, 7GF, and 8BM

Card 1

Card 2

Card 4

Card 7GF

Card 8BM

Appendix C

The Bell Relationship Inventory for Adolescents (BRIA)

1. I have a friend who likes me and will always help me. (T/F)

2. If someone doesn't like me, I will always try harder to be nice to that person. (T/F)

3. I'd like to live alone far away from people. (T/F)

4. There are times when I don't talk to my friends for weeks. (T/F)

5. I usually end up hurting my closest friends. (T/F)

6. My family treats me as if I'm a baby. (T/F)

7. When my family and I don't agree, I can't settle things so that nobody gets mad. (T/F)

8. I always feel hurt if someone criticizes me. (T/F)

9. Having power over other people is a secret pleasure of mine. (T/F)

10. I'll do anything to get my way. (T/F)

11. I feel hurt and unwanted when a person I like isn't paying attention to me. (T/F)

12. If a good friend hurts me, I may hate myself for letting it happen. (T/F)

13. It is hard for me to get close to anyone. (T/F)

14. I am happy with the amount of affection in my life. (T/F)

15. If I love someone I want to be with them, no matter how mean they are to me. (T/F)

16. I have no effect on anyone. (T/F)

17. People don't give me the credit I deserve. (T/F)

18. I've been hurt a lot in life. (T/F)

19. I have a friend I can tell my most private feelings to and who tells me theirs. (T/F)

20. I want to be so close with someone that we feel like one person. (T/F)

21. When I have a close friend, I feel unhappy when I'm not with them at all. (T/F)

22. People often make me feel humiliated or foolish. (T/F)

23. I let other people decide what I should do. (T/F)

24. I am usually sorry that I trusted someone. (T/F)

25. When I am angry with someone close to me, I am able to talk with them about it after awhile. (T/F)

26. The best way to get others to do what I want is to trick them into it. (T/F)

27. I often feel nervous around girls. (T/F)

28. I worry that I will be left out of things. (T/F)

29. I feel that I have to please everyone or else they may reject me. (T/F)

30. I avoid talking with the people I know from school. (T/F)

31. It bothers me a lot if someone I like doesn't like me anymore. (T/F)

32. Making friends is easy for me. (T/F)

33. I don't know how to meet or talk with girls. (T/F)

34. I feel hurt or angry when someone close to me won't do what I want. (T/F)

35. It is my fate to lead a lonely life. (T/F)

36. People are never honest with each other. (T/F)

37. I put a lot into relationships and get a lot back. (T/F)

38. I feel shy when I talk with a boy or girl I don't know. (T/F)

39. I like it when someone needs me more than I need them because then I can make them do what I want. (T/F)

40. A good mother should always please her children. (T/F)

41. At times I get so angry with a friend that I hit, kick, or break something. (T/F)

42. My parents know the kind of person I really am. (T/F)

43. My parents like it when I'm proud of myself. (T/F)

44. No one will ever want to marry me. (T/F)

45. I am a loner. (T/F)

46. I feel lonely and empty when I'm by myself. (T/F)

47. At times, I do things that are wrong just to please someone else. (T/F)

48. I'm a completely different person when I'm with different people. (T/F)

49. Adults never tell me the truth. (T/F)

50. Important people in my life hurt me so much that I may never get over it. (T/F)

Appendix D

The 32 item stems of the Washington University Sentence Completion Test (WUSCT)

SCT-Y (Male)

Directions: Please complete the following sentences.

1. When a child will not join in-group activities_____

2. Raising children_____

3. When I am criticized_____

4. If I were in charge_____

5. Being with other people_____

6. The thing I like most about myself is_____

7. My mother and I_____

8. What gets me into trouble is_____

9. Education_____

10. When people are helpless_____

11. When I am afraid_____

12. A good father_____

13. My biggest fear_____

14. I feel sorry_____

15. When they avoided me_____

16. Rules are_____

17. Crime and delinquency could be halted if_____

18. Men are lucky because_____

19. I can’t stand people who_____

20. At times I worry about_____

21. I am_____

22. A boy feels good when_____

23. My main problem is_____

24. Good friends_____

25. The worst thing about being a man_____

26. A good mother_____

27. When I am with a girl_____

28. Sometimes I wished that_____

29. My father_____

30. If I can't get what I want_____

31. My conscience bothers me if_____

32. If I felt proud I_____