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A spectrum of treatments for Autism Spectrum Disorder

Megan Lawson

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Pepperdine University

Graduate School of Education and Psychology

A SPECTRUM OF TREATMENTS FOR AUTISM SPECTRUM DISORDER

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Psychology

by

Megan Lawson

August, 2018

Louis Cozolino, Ph.D. – Dissertation Chairperson

This clinical dissertation, written by

Megan Lawson

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PSYCHOLOGY

Doctoral Committee:

Louis Cozolino, Ph.D. – Chairperson

Robert deMayo, Ph.D.

Keegan Tangeman, Psy.D.

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DEDICATION

The spectrum is long and wide, and we're all on it. Once you believe this, it becomes easy to see how we're all connected.

—Lisa Genova, 2013

This dissertation is dedicated to all children diagnosed with ASD. Thank you for making the world more colorful, mechanical, and interesting. It would be awfully dull without you. It is additionally dedicated to Cheerful Helpers Child and Family Study Center, where my spark for attachment-based interventions for children with ASD was ignited.

ACKNOWLEDGEMENTS

VITA

EDUCATION

Pepperdine University (APA Accredited) expected 2018
Doctor of Clinical Psychology
Dissertation Title: A Spectrum of Treatments for Autism Spectrum Disorder
Oral defense: Proposal Completed 2015, Final Defense Completed 07/26/2016
Chairperson: Louis Cozolino, Ph.D.
Clinical Competency Exam: Pass with Distinction 05/25/2016

Pepperdine University 2013
Master of Arts in Clinical Psychology
Emphasis: Marriage and Family Therapy

The University of Texas at Austin 2010
Bachelor of Arts in Psychology
Minor in Business

CLINICAL EXPERIENCE

Senior Pediatric Neuropsychology Extern   **July 2016 - May 2017**
Children's Hospital Los Angeles   Los Angeles, California
Children's Center for Cancer and Blood Diseases
• Administer and interpret comprehensive and brief neuropsychological assessment batteries to children and adolescents diagnosed with leukemia, brain tumors and sickle cell disease.
• Help train and support incoming neuropsychology externs.
        Expand report-writing competencies to write integrated neuropsychological reports, including information gathered from clinical interview and review of medical history, interpretation of testing results, and recommendations, while addressing and considering cultural factors that influence the assessment process.
• Continue to increase experience and proficiency in administration of standardized neuropsychological assessment methods.
• Participate in clinical interview and feedback sessions.
• Attend brain tumor board meeting, adolescent medicine rounds, and other hospital-wide lectures.
• Observe consultations in the sickle cell clinic and craniofacial clinic.
• Case consultations with Ashley Whitaker, Ph.D.
• **Neuropsychology Consult Clinic**: Conduct clinical intake interviews and administer brief neuropsychological screening measures to establish preliminary diagnostic impressions for children referred for a variety of cognitive, behavioral, and emotional difficulties in the context of a medical condition. Develop appropriate treatment plans and provide feedback.
• **Sickle Cell Embedded Care Clinic**: Provide neuropsychological screening and monitoring to patients with sickle cell disease, with or without identified cerebral vascular events, during multidisciplinary clinic visits. Develop appropriate treatment plans and recommendations in collaboration with medical team.
Supervisor: Kimberly Kayser, Ph.D.

Psy.D. Student Therapist   **February 2015 - May 2017**
Pepperdine Community Clinic   Los Angeles, California
• Provide individual therapy to adolescent and adult clients in community mental health setting.
• Increase competencies related to working with underserved populations.
• Administer clinical measures to assess client progress and therapeutic alliance.
• Increase clinical intake report writing competencies, including information gathered from intake interview, diagnostic formulation, and treatment plan, while addressing and considering multicultural factors that influence the presenting problem and associated treatment recommendation.
• Improve skills related to implementation of evidence-based practices in the community mental health setting.
• Maintain clinical progress notes for review by supervisor.
Supervisors: Dr. Keegan Tangeman, Psy.D. and Dr. Shelly P. Harrell, Ph.D.

Extern   **February 2015 – July 2016**
STAR of CA   Los Angeles, California
• Conduct comprehensive evaluations for children, adolescents, and adults referred for autism spectrum disorder (ASD), attention deficit-hyperactivity disorder, and learning disability evaluations from underserved populations.
• Administer, score, and interpret standardized measures.
• Conduct structured caregiver/client intakes.
• Provide feedback to caregivers/client.
• Participated in ASD didactics with Quy Neel, Ph.D., BCBA-D, individual supervision, and case presentation.
• Helped train and support incoming externs.
Supervisor: Dr. Keegan Tangeman, Psy.D.

Pediatric Neuropsychology Extern   **July 2015 - June 2016**
Children's Hospital Los Angeles   Los Angeles, California
The Saban Research Institute
• Administered and interpreted comprehensive clinical, research, developmental, and neuropsychological assessment batteries with infants, children, adolescents, and adults diagnosed with central nervous system tumors, sickle cell disease, optic nerve hypoplasia, congenital heart disease, liver disease, perinatal white matter injury, tuberous sclerosis, or Lennox-Gastaut syndrome in addition to testing healthy control subjects.
• Improved report-writing competencies to write integrated research neuropsychological reports, including information from a comprehensive medical chart review, summary and interpretation of results, and recommendations.
• Participated in clinical interviews.
• Increased experience and proficiency in administration, scoring, and interpretation of standardized neuropsychological assessment methods.
• Attended brain cuttings performed by neuropathologist Floyd Gilles, M.D.
• Attended pediatric neuropsychology didactics, adolescent medicine and pediatric grand rounds, and other hospital-wide meetings and lectures.
• Co-facilitated support group for children with craniofacial differences. Provided adaptive ways for children to cope with teasing from peers and increase their self-esteem. Led and supervised by psychologist Alexis Johns, Ph.D.
Supervisor: Sharon O'Neil, Ph.D., MHA

Psy.D. Student Therapist   **September 2013 - June 2016**
Wiseburn School District   Hawthorne, California
• Provided therapeutic services for children in grades Kindergarten through 8th grade, including individual and group therapy, and consultation.
• Attended and participated in case conference to increase skills related to diagnosis and treatment planning.
• Teamed with school psychologist, counselor, principal, and administrative staff to coordinate care and counseling for children.
• Incorporated social skills training, cognitive behavioral therapy, play, and psycho-education to enhance behavioral and social functioning.
• Attended client Individualized Education Program (IEP) meeting when appropriate.
Supervisor: Dr. Keegan Tangeman, Psy.D. and Dr. Shelly P. Harrell, Ph.D.

M.A. Marriage and Family Therapy Trainee   **September 2012 - July 2013**
Cheerful Helpers Child and Family Study Center   Los Angeles, California
• Performed therapeutic work with children diagnosed with autism spectrum disorders, attachment disorders, and/or emotional and behavioral problems.
• Co-facilitated group and family therapeutic intervention in educational environment
• Integrated compatible theories of children's psychological cognitive development with an attention to individual differences and family processes.
• Participated in case conferences and supervision.
• Majority of clinical work received direct observation (8-12 hours weekly) from supervisors.
Supervisor: Shetal Belman, L.C.S.W.

M.A. Marriage and Family Therapy Trainee   **February 2012 - September 2012**
Northbound Treatment Services, Dual Diagnosis Treatment Center   Costa Mesa, California
• Performed therapeutic work in an intensive in-patient, dual diagnosis setting treating clients with addiction, personality disorders, trauma, anxiety, and depression.
• Led groups: Psychoeducation on addiction (women's); Art therapy (women's).
• Co-facilitated groups: Mindfulness (men's).
• Collaborated with therapists and case managers as part of in-patient treatment team.
Supervisor: Dr. Arlene O'Connor, Psy.D.

SUPERVISORY EXPERIENCE

Peer Consultant/ Supervisor   **September 2016 - May 2017**
Pepperdine University- Wiseburn School District Partnership   Los Angeles, CA
• Selected by Director of Clinical Training to provide peer consultation (formerly known as peer supervision) to first-year and second-year doctoral students.
• Help familiarize students with clinic policy and practice, in addition to helping students navigate the greater Wiseburn system.
• Meet weekly with assigned student to provide supplemental supervisory support.
• Guide student in diagnostic formulation, treatment planning, and treatment technique implementation under the supervisor of student's primary supervisor.
• Use of evidence-based practices and supervisor as a frame for providing feedback.
• Review, edit, and audit clinical writing and documentation.
Supervisor: Aaron Aviera, Ph.D.

RESEARCH EXPERIENCE

Research Assistant   **2009**
The University of Texas at Austin   Austin, Texas
• Served as research assistant for Christine Chang-Schneider, Doctoral Candidate under
Dr. William Swann, Ph.D.
• Interviewed women involved in abusive romantic relationships.

Student Research   **2007 - 2008**
Texas Lutheran University   Seguin, Texas
• Conducted student research under Dr. Scott Bailey, Ph.D., on informed consent that was later
presented at the Southwest Psychological Association Conference.

PROFESSIONAL PRESENTATIONS AND OUTREACH

Lawson, M. (2016, September). Neuropsychological Case Conceptualization of Child with
Ependymoma, Status Post Gross Total Resection and Irradiation. Oral presentation for CHLA
neuropsychological externs. Los Angeles, CA.

Lawson, M. & Oppenheim, J**.** (2014, May). Helping your Child Cope with Increasing Academic
and Extracurricular Stress. Oral Presentation for the community of Wiseburn School District.
Hawthorne, CA. [authorship equally shared].

Lawson, M. (2013, September). Somatic Therapy and Mindfulness Techniques in Group
Therapy. Oral Presentation for Pepperdine University M.A. program. Malibu, CA.

Lawson, M. (2012). Cigarette Smoking and Recovery: Folklore vs. Fact. Oral Presentation for
treatment team at Northbound Treatment Services. Costa Mesa, CA.

TEACHING AND OTHER PROFESSIONAL EXPERIENCE

Teaching Assistant   **September 2016 - December 2016**
Pepperdine University   Los Angeles, CA
• Teaching assistant to Louis Cozolino, Ph.D., for doctoral course, "The Cognitive and Affective
Bases of Behavior."
• Assist in grading exams, holding study sessions, individual tutoring, and proctor exams as
needed.
• Scheduled as guest lecturer (12/7/2016) to give a presentation related to Language, Narrative,
and Affect Regulation.

Graduate Assistant   **2013**
Pepperdine University   Malibu, CA
• Assistant to Elizabeth Mancuso, Ph.D., for undergraduate course, "Marriage and Family
Therapy."
• Collaborated on service learning projects for the greater Malibu community.
• Proofread writing prior to publishing.

Intern for State Representative   **2011 - 2012**
Texas State Capitol, State Representative Ryan Guillen   Austin TX
• Provided administrative support and serve as a liaison for the state representative.

- Served as a communicator between the representative and constituents.
- Helped draft documents per request of office staff.
- Attended House and Senate meetings, serving as office representative.
- Researched current laws and helped handle constituent's cases.

Office Intern   **2011**
Clinical Psychologist private practice, Dr. Beth Peters, Ph.D.   Austin, Texas
- Performed administrative duties.
- Participated in case discussions with Dr. Peters, whose area of expertise is working with children with history of sexual abuse.

HONORS

Psi Chi Honor Society   **2011 - present**
Delta Epsilon Iota Honor Society   **2008**

CERTIFICATIONS

Trauma-Focused Cognitive Behavioral Therapy (2014) - National Crime Victims Research and Treatment Center

Trauma-Focused Cognitive Behavioral Therapy for Childhood Traumatic Grief (2016) - National Crime Victims Research and Treatment Center

PROFESSIONAL MEMBERSHIPS

American Psychological Association
Developmental Psychology, Division 7
Society for Clinical Neuropsychology, Division 40
Society of Clinical Child and Adolescent Psychology, Division 53

ABSTRACT

Autism Spectrum Disorder (ASD), a spectrum of neurodevelopmental disorders with varying severity, presents in early childhood as repetitive or stereotyped behaviors affecting social and emotional functioning, is a complex disorder often misunderstood as a single illness, resulting in suboptimal evaluations and overly-general treatment. However, new research suggests more comprehensive evaluations and targeted treatments.

This manual aims to combine the best available research on ASD and attachment to guide practitioners in evaluating and treating children with ASD (a) by clarifying what a comprehensive ASD evaluation looks like, (b) linking assessment results to DSM-5 severity levels, and (c) providing targeted optimal treatment recommendations. Three therapeutic ideals inform this work:

- Therapy works best when there is a good match between therapist, therapy, and client.

- Relationships heal; attachment moves recovery forward in therapy.

- Interventions matter; even severe or unusual conditions respond to therapeutic techniques.

Research points to success due to attachment as a feature of the therapist/client bond and to common factors pertaining to the doctrine and the activities of the chosen therapy. Other research shows the value of the therapist as attachment figure facilitating change in attachment style. Neurobiological research documents brain biology responsible for treatable behavioral traits; further neurobiological research attests to the plasticity of the brain and new neural networks produced by social interaction.

The manual espouses the three therapeutic characteristics and adds that these assumptions apply to children with ASD, too. Attachment theory can beneficially inform assessment and shape treatment recommendations.

Chapter 1: Introduction and Background

The construct of attachment can be understood from an evolutionary standpoint. In humans, the emergence of the social brain improves survival (Cozolino, 2014). As the primate cortex enlarged, social groups grew bigger and more complex. Cooperation amongst these larger groups allowed for increased safety and the designation of tasks between members in order to benefit the whole; for example, one part of the group could hunt while another took care of the young. The further expansion of these groups led to the evolution of language and culture (Cozolino, 2014). Thus, cooperation is imperative to survival in humans and other primates. Cooperation implies that the relationships within the whole are purposeful and deliberate and attachment plays a fundamental role in developing these essential close relationships.

Historically, infants and their mothers traveled in tribes across open country where predators lurked. Those who were most vulnerable to predation were the young, elderly, and disabled. It makes evolutionary sense for effective attachment to increase survival; an infant who cries out in fear in attempt to seek proximity to his/her mother has a better chance of surviving if his/her mother responds quickly. Additionally, survival is enhanced if the infant stops crying once the mother has responded (Bell & Ainsworth, 1972). The responsiveness of the mother is associated with secure attachment. On the contrary, an infant who had an unresponsive mother or who wasn't soothed when rejoined with its mother was more likely to be found and harmed by predators (Bell & Ainsworth, 1972). Ultimately, a secure attachment increased survival for human ancestors.

Unlike many species, the human infant requires intensive nurturing in early life. Whether an infant survives or is not dependent on the quality of caretaking that he/she receives. The caretaker(s) must be able to learn and attend to infant cues of hunger and distress in order to provide nurturance. Once an infant has established a secure relationship to his/her mother, he/she is able to explore and learn about the world. This attachment serves as the foundation

for the social brain (Cozolino, 2014). Attachment behaviors, formulated by the brain as it processes responses from the infant's attachment figure, are geared towards the infant's goal to survive. Throughout development these early interactions influence the infant's attachment schema and future relationships.

Attachment has been defined as an "affective tie between infant and caregiver and to a behavioral system, mediated by feeling, and in interaction with other behavioral systems" (Sroufe & Waters, 1977, p. 185). Attachment occurs in the context of many complex factors; research into the many possibilities is continually expanding.

Development of Attachment Research

Attachment theory was constructed by the work of John Bowlby and Mary Salter Ainsworth. Their individual lines of work led them to merge their pursuit of understanding the impact that early interaction had on personality (Ainsworth & Bowlby, 1991). The result of the mergence was: a) attachment theory, a construct that explains personality development based on ethology and b) a large body of research created to examine and further the theory's tenets (Ainsworth & Bowlby, 1991).

John Bowlby laid the theoretical foundation of attachment theory based on his combined interests in ethology and developmental psychology. After graduating from Cambridge, where he had studied medicine and prior to his graduate training, Bowlby did volunteer work at a residential institution for poorly adjusted children and became greatly influenced by two of the children. One of these children had not experienced a stable parent/caregiver–infant relationship and presented as affectionless while the other was highly anxious and clung to Bowlby. These relationships combined with encouragement from a staff member to whom Bowlby had grown close led to his decision to complete medical training, focusing on child psychiatry and psychotherapy. He was accepted into the British Psychoanalytic Society.

During his psychoanalytic training, Bowlby questioned analysts' focus on fantasy because he believed that real life interactions were of great importance and need not be

dismissed. He was convinced that early parent–child interaction impacted the development of personality in the child, which would in turn influence the interaction this child would eventually have with his/her own children (Ainsworth & Bowlby, 1991). To examine this conviction, Bowlby executed initial research at the London Child Guidance Clinic by comparing juvenile thieves to a control group. He found that "deprivation" or prolonged separation were much more common amongst the thief group, particularly those considered to have affectionless psychopathology (Bowlby, 1944).

World War II postponed Bowlby's work as he served wartime duties. However, he resumed once the war ended, taking the position of consultant psychiatrist and director for Children and Parents at the Tavistock Clinic. At the clinic, Bowlby experienced resistance from his colleagues, who were working under the psychoanalytic teachings of Melanie Klein. This resulted in his inability to use clinic cases for research (Ainsworth & Bowlby, 1991). This friction motivated him to open his own research unit in 1948. Here he focused on the impact of early maternal separation, as this was an experience that could be documented as either occurring or not occurring.

His research unit split into two assignments while he undertook a third assignment for the World Health Organization (WHO) on his own. The first assignment was a follow-up study on children who had been separated from families, placed in tuberculosis sanatoriums, and then returned home. The second project, conducted by James Robertson, a social worker who was previously affiliated with Anna Freud's Hampstead War nursery, examined child behavior in response to separation in three different settings. The third project, Bowlby's own, examined the effect of maternal deprivation by reviewing literature and traveling to learn about the treatment of children separated from mothers. His project resulted in the WHO publication of *Maternal Care and Mental Health* (Bowlby, 1951).

At the same time that Bowlby was advancing his career, Mary Ainsworth was embarking on her own academic pursuits. Motivated by a desire to better understand herself and her

childhood decision to become a psychologist (O'Connell & Russo, 1983), Ainsworth studied

honors psychology. She became involved in three courses that would lay the framework for her

career. One of these courses, an experimental course conducted by Sperrin N. F. Chant (who

would later supervise her Master's research), sparked her interest in research (O'Connell &

Russo, 1983). Another was a course taught by William A. Blatz that focused on his novel theory

on security as a framework for understanding personality development.

Ainsworth decided to do her dissertation research on Blatz's security theory and later

carried components of it into her contribution to attachment theory. The research for her

dissertation (1940) aimed to assess security in relationship to parents/caregivers and peers

using self-reported paper-and-pencil scales. Each scale determined classifications of security

by measuring dependence and independence relating to their parents/caregivers and their

peers (Bowlby & Ainsworth, 1991). During this pursuit, Ainsworth started to deviate from Blatz's

beliefs. Namely, she disagreed with Blatz's dismissal of unconscious Freudian processes.

Further, she found flaws in the validity of the paper-and-pencil technique, becoming aware that

defensiveness could inflate the scores. Also influencing Ainsworth was a systematic course

taught by Professor Bott. Ainsworth credits Bott for her way of approaching science

methodologically (O'Connell & Russo, 1983).

Like Bowlby, the interruption of the war shifted Ainsworth's career path. Her war-related

work instilled in her an appreciation of projective assessment so she became skilled in using the

Rorschach. She gained assessment experience while resuming research with William Blatz on

security. After marrying, Ainsworth moved to London and took a job as a researcher at the

Tavistock Clinic. Here, Bowlby's research teams were executing the three projects related to

maternal deprivation. Her combined interest in projective assessment and research made her a

suitable choice for the position.

The merging of Ainsworth's and Bowlby's interests and research happened at the

Tavistock Clinic. Ainsworth became involved in all three of the projects and became interested

in Bowlby's WHO report on the effects that maternal separation had on development and in the data analysis of his other research projects. These projects were yielding important results, especially the project involving direct observation. Observations revealed that children's behavioral responses when separated from their mother hinted at a pattern. Specifically, children would initially react with distress and protest, then show sadness, and eventually detach. The detachment was more likely to occur in separations lasting more than one week. Reunion with the mother provoked either a display of anxiety or defensiveness in the child (Robertson & Bowlby, 1952). Bowlby's researcher, James Robertson (1952) made a film entitled *A Two-Year-Old Goes to the Hospital* to illustrate his findings. This film and Robertson gained popularity and led to reform in childcare. Bowlby and Ainsworth supported such reform but were more focused on further research (Ainsworth & Bowlby, 1991).

Bowlby's early theoretical formations were informed by research on ethology and maternal deprivation, including work by Konrad Lorenz, René Spitz, Robert Hinde, and Harry Harlow. Lorenz's ethological research (1935) on imprinting in geese sparked Bowlby's interest. Specifically, it paralleled Bowlby's own research on separation between mother and infant in that presocial birds also engaged in proximity seeking and exhibited distress at separation. Additionally, certain birds formed bonds with the first moving thing that they saw after hatching, suggesting that bonding might not be directly related to feeding (Ainsworth & Bowlby, 1991).

René Spitz's research on maternal and emotional deprivation, and "hospitalism," also influenced Bowlby. Spitz studied children placed in hospitals that were separated from their attachment figure and not held by hospital staff due to precautionary procedures, finding that the separation impacted the infant's development. He found that the negative impact of partial deprivation could be repaired if the attachment figure and child were reunited within five months, whereas "total deprivation" or separations longer than five months resulted in rapid deterioration in the child and even death (Spitz, 1945). Additionally, Spitz observed infant development in foundling homes where he found that children reared in chaotic environmental conditions for

their first year of life suffered psychological damage. Thus, he discovered that infants deprived of love and attention were psychologically damaged and often died (Spitz, 1945).

Harry Harlow, like Spitz, also influenced Bowlby. One of Harlow's renowned projects involved the study of rhesus monkeys who were forced to choose between comfort, a terry cloth surrogate mother, and necessity, a wire surrogate mother holding food (Harlow & Zimmerman, 1959). Results revealed the monkeys' preference for the cloth mother, suggesting the infant need for bodily contact as separate from the need for feeding.

This seminal study sparked Bowlby's interest in ethology, which would ultimately lead him further into researching evolution and systemic theories. Bowlby approved of the approach that ethological research took in its preference of studying the animal in a natural habitat. Specifically, he presumed that humans ought to be studied this way, as evidenced by his writing in 1940, stating "psychoanalysts, like the nurseryman, should study intensively, rigorously, and at first hand the nature of the organism, the properties of the soil and the interaction of the two" (Bowlby, 1940). Bowlby later expanded his work on ethological principles with Robert Hinde, specifically researching the impact of mother–infant separation in the rhesus monkey (Spencer-Booth & Hinde, 1967).

Motivated by his ethological pursuit and drawing from the research of his contemporaries, Bowlby began writing papers that would serve as blueprints for attachment theory. Prevalent pieces of work include "The Nature of the Child's Tie to His Mother" (1958), "Separation Anxiety" (1959), and "Grief and Mourning in Infancy and Early Childhood" (1960). The first proposed the idea that a baby's instincts occurred with the primary aim of bonding to the mother, rejecting psychoanalytic emphasis on need satisfaction as the primary goal and attachment as secondary. Further, he introduced ethological concepts, such as sign stimuli, into child development.

The second paper, also using ethological concepts, described the idea of separation anxiety as the result of an activation of attachment behaviors in the absence of the primary

attachment figure (Bretherton, 1992). Bowlby rejected Freud's negative attitude towards maternal "overaffection" and claimed that separation anxiety occurs in healthy children who have yet to develop self-reliance (Bretherton, 1992). Further, Bowlby proposed that grief occurs in infants when attachment behaviors are activated and the attachment figure is missing. Lastly, he claimed that inconsistency in substitutes for an attachment figure might prevent the infant from developing deep relational bonds (Bretherton, 1992).

Ainsworth left the Tavistock clinic but continued her pursuit of understanding the mother–infant bond in relation to personality development. In 1954, she tested Bowlby's new theoretical combination of ethology and attachment, or attachment theory. Specifically, she observed 28 Ugandan babies with their mothers in their natural environments. She visited each of their homes every two weeks, performing direct observation and interviewing the mother. Findings deviated from the well-accepted Freudian theory of the time and supported attachment theory. She noted that the babies used the mothers as a base from which to explore the world, showing distress upon separation and excitement upon return.

Further, she found variance in attachment styles, classifying the babies into the three following groups: securely attached, insecurely attached, and non-attached (Ainsworth & Bowlby, 1991). The securely attached group showed limited crying unless the mother was either absent or leaving. The insecurely attached group showed excessive crying even in the presence of the mother. Lastly, the non-attached were ignored and left alone when crying. However, Ainsworth would later revisit findings of this non-attached group, noting that because they were younger they might have not yet developed attachment abilities (Ainsworth & Bowlby, 1991).

Following her observations, she created scales that rated maternal behaviors such as availability and responsiveness. Ainsworth would later publish the findings from this study in a book entitled *Infancy in Uganda: Infant Care and the Growth of Love* (Ainsworth, 1967). Ultimately, this seminal study was the first empirical research on attachment theory.

Upon returning from Uganda, Ainsworth received a long-awaited grant to fund her research of American infants to satisfy her interest in the universality of attachment behavior (Mooney, 2009). Ainsworth began the Baltimore project in 1963, studying fifteen infants and mothers. Similar to Uganda, observers visited the infant in home every three weeks until the baby was fifty-four weeks old. Visits were four hours each, accumulating to seventy-two direct observation hours per mother–infant pair. Data from these observations related to the relationship between the infants' security or insecurity and maternal behaviors (Ainsworth & Bowlby, 1991).

Mothers who were consistent and punctual in responding to both infant cries and feeding signals led to securely attached infants who cried little by twelve months of age. Though they were not necessarily held more, secure infants experienced consistent responsiveness from their mothers, who were attuned to attachment-seeking behaviors and responded promptly. Secure infants would cease crying or engaging in the attachment-seeking behavior upon the mother's response and were then able to be placed back down to resume exploration (Ainsworth & Bowlby, 1991; Bell & Ainsworth, 1972).

When infants reached 12 months of age, the mother and infant were studied further in "The Infant Strange Situation," a twenty-minute laboratory assessment of attachment (Ainsworth & Wittig, 1969). The methodology involved situations which lead to the classification of infants' response to the mother's eight different sequences of separation. The eight situations were presented in chronological order to be less stressful occurring first. As the study progressed, these proved to be pertinent situations that demonstrated differences in the infants' attachment behavioral patterns upon separation and reunion, which lead to the classifications of the styles of attachment; secure, avoidant, and anxious.

A total of eight situations observed patterns of behavior as the infant responded to a pre-separation, separation, and reunion with their mothers (Ainsworth, Blehar, Waters, & Wall, 1978). The sequences involved the mother, the infant, and a stranger and lasted from 30

seconds to three minutes each. As the observer introduced the mother and the infant to the room, the first sequence focused on the infant's ease in moving away from the mother to explore toys in the room, the pre-separation phase. The second episode allowed for the mother to be disengaged as the baby explores. In the third episode, the mother, infant, and stranger entered the room. As the mother and infant were comfortable with each other, the stranger conversed with the mother and then approached the infant. While the stranger was interacting with the infant, the mother discreetly exited the room. Being mindful of the increased level of distress the infant endured as the mother separated, Ainsworth and fellow researchers carefully orchestrated to have the stranger remain in the room instead of exiting along with the mother. They anticipated the presence of another person, even a stranger, would alleviate some distress of experiencing the separation the mother.

The fourth situation signified the first separation episode. The focus was on the infant's behavior pattern in response to the mother's separation as the stranger interacted with the infant for a short period of time. The fifth situation signified the first reunion episode, which directed the mother to re-enter the room, reunite, and console the infant. After the mother regulated the infant enough to return to exploring his environment and re-engage in play, she departed a second time to leave the infant alone without her or the stranger. In the seventh episode, only the stranger returned to reunite and console the infant in order to investigate a difference in behavioral response and distress to being alone or with someone, even if it was the stranger. The final situation observed the reunion between the mother and infant as the stranger exited the room without notice.

Ainsworth (Ainsworth et al., 1978) related the behavior patterns from the Infant Strange Situation to the behaviors observed in the first quarter of the natural mother–infant interaction at home. These findings contradicted earlier beliefs that maternal responsiveness would in fact negatively reinforce crying in infants, increasing their dysregulation (Bell & Ainsworth, 1972). Additionally, babies exhibited separation anxiety when separated from their mothers by six

months of age, suggesting that a bond had been formed. Results revealed that securely

attached infants could not only tolerate their mothers' absence, but were happy upon reunion.

Conversely, insecure babies struggled when their mothers left and cried or exhibited anger upon

her return (Ainsworth & Bowlby, 1991). In the Strange Situation procedure, the secure babies

were upset when their mothers left the room, whereas the insecure babies were shut down and

detached. This suggests that additional stress promoted defensiveness in the insecure baby in

the form of detachment (Ainsworth et al., 1978).

While the insecure babies did not experience severe separations, they had mothers who

were inconsistently responsive at home. Additionally, babies who experienced consistent

responsiveness showed a stronger desire to comply with their mother's wishes than the babies

who had the experience of being trained or put onto schedules. This emphasizes the affectional

bond, rather than behavioral training, as an important foundation for future obedience (Stayton,

Hogan, & Ainsworth, 1971). Analyses of the Strange Situation delineated differences between

an insecure and secure infant by further dividing the insecure infants into avoidant or

ambivalent-resistant categories. This suggests that the baby's security is connected to maternal

sensitivity (Ainsworth et al., 1978).

While Ainsworth was executing and analyzing attachment research, Bowlby worked on a

trilogy of papers for his *Attachment and Loss* volumes, revisiting themes from his earlier papers.

The trilogy was made up of three volumes. The first volume, *Attachment,* published in 1969,

included much of Ainsworth's work. This included information from the Uganda studies and the

Strange Situation studies, incorporating Ainsworth's beliefs about the secure base and different

presentations of attachment in different children (Bowlby & Ainsworth, 1991). This volume also

included much of Bowlby's original work, which would, in turn, influence Ainsworth. Namely, he

expanded on attachment theory, describing it in evolutionary and ethological terms.

Bowlby created a control systems approach, where behavior occurs purposefully and in

plurality with other systems. He described how attachment behaviors are activated under

certain conditions and terminated under other conditions. For instance, Bowlby explained that an infant's attachment system is activated when frightened or separated from the mother and will display protest, despair, and detachment unless a reunion with an emotionally available mother occurs, at which point the active status of the system would be terminated. This volume addressed the dynamic nature of the mother–infant bond (Bowlby & Ainsworth, 1991). This volume, *Attachment*, was revised and made into a second edition in 2008.

The second volume, *Separation,* was originally published in 1973. In *Separation,* Bowlby focused on separation anxiety and anxious attachment, especially as it co-existed with feelings of anger. Bowlby elaborated on evolutionary reasons that stimuli incited fear in animals and in humans. For instance, an infant, being genetically disposed to respond to a change in light because it was suggestive of a dangerous environment, would react by seeking attachment and/or escape in an attempt to increase chances of survival (Bowlby, 1973). Bowlby also went into detail about conditions that promote anxious attachment. For instance, an infant who has experienced irregular responsiveness may become anxious and cope with hypervigilance (Bowlby, 1973).

Bowlby linked the formation of a secure attachment to independence, a concept that complimented the idea of the *secure base* (Bowlby & Ainsworth, 1991). Namely, he discussed how an infant's internal working model of self and attachment figure will determine the infant's self-worth and self-reliance (Bretherton 1992). He also discussed the evolving relationship between genes and the environment as it influences personality, a concept based on Conrad Waddington's theory of epigenetics (Bowlby & Ainsworth, 1991).

Bowlby's final volume centered on loss of attachment. He focused on *defensive* exclusion (Bretherton, 1992; Bowlby & Ainsworth, 1991). Bowlby clarified that cognitive processes naturally filter stimuli in order to maximize efficiency. Defensive exclusion dealt with cognitive processes that filter input and exclude knowledge from consciousness because such input and/or knowledge could cause anxiety. Defensive exclusion serves to protect an

individual from discomfort and mental conflict. An attachment system that is severely activated is likely to trigger defensive exclusion, resulting in detached or avoidant behaviors in a child. Bowlby named situations that are likely to induce defensive exclusion. These are: (a) situations that are witnessed by child that the parents/caregivers did not want the child to experience, (b) experiences in which the child finds parental or caregiver behavior intolerable to comprehend, and (c) conditions when the child acted or thought about acting in a way that caused shame (Bretherton, 1992).

Bowlby pointed out that psychic conflict could arise when more than one internal working model exists for the self or attachment figure in a contradictory manner (Bowlby & Ainsworth, 1991). Bowlby also discussed mourning in adults and children, drawing from the work of fellow research member Colin Parkes who described the stages of mourning as numbing, longing and anger, disorganization and despair, and reorganization (Bowlby & Ainsworth, 1991). Bowlby linked loss to depression and discussed ways in which children have particular difficulty reorganizing their lives after suffering loss (Bowlby & Ainsworth, 1991).

Bowlby directed work towards therapists, providing principles for working with clients. Specifically, he recommended that the therapist consider the patient's current problems related to interpersonal relationships. The therapist then should build rapport with the patient, serving as a secure base from which the patient can explore current and past relationships. The therapist should assume that interpersonal conflict will manifest in real life, rather than fantasy, as psychoanalytic theory presumes. The therapist then should invite the client to consider the impact that early relationships are having on current relationships, thus encouraging the client to reevaluate and revise his/her internal working model and expectation of self and others (Bowlby & Ainsworth, 1991). Bowlby believed that this would result in an improvement in patients' current lives (Bowlby, 1988). Bowlby's final piece involved a conceptualization of Charles Darwin using attachment theory. Specifically, Bowlby believed that Darwin's poor health and

psychological symptoms resulted from the loss of his mother in childhood that he never properly mourned (Bowlby, 1991).

Inspired by Bowlby's trilogy, Ainsworth continued leading attachment research. Her newer research moved from focus on the infant to focus on attachments at different points in the lifespan. Ainsworth's final focus was on broadening attachment theory by examining attachments and bonds outside of the parent/caregiver–child relationship as they effected personality development (Bowlby & Ainsworth, 1991).

Regarding the stability of attachment styles over time, Bowlby theorized that attachment styles continued from one generation to the next (Sette, Coppola, & Cassibba, 2015). Main and colleagues were the first to study the intergenerational transmission of attachment pattern using the Adult Attachment Interview (AAI) for parents and Strange Situation Procedure (SSP) for infants. Results demonstrated that parents classified as "autonomous" were more likely to have securely attached children, dismissive parents were more likely to have avoidance infants, and preoccupied parents were more likely to have ambivalent children (Sette et al., 2015). Other have similarly found that attachment classifications are generally continue across generations (Sette et al., 2015). Therefore, there is data to suggest that attachment patterns transcend generations, and are likely to persist if left untouched.

That being said, attachment styles are not necessarily fixed, and one's attachment style can change in category (from anxious to secure, or secure to avoidant, etc.) or in degree of existing classification. Life experiences can create more or less secure individuals. Ongoing relationships and interactions with securely attached individuals can break the cycle of attachment insecurity (Mikulincer & Shaver, 2007). On the other hand, the experience of stressful life, ongoing unstable relationships, and/or physical health problems can exacerbate attachment-related insecurities. Regarding psychotherapy, a therapist can act as an ongoing secure base by replicating the "good enough" attachment. Mikulincer and Shaver (2007)

describe a stable relationship with an individual as a "corrective emotional experience that gives the client a second chance for building adaptive working models" (p. 415).

Following the initial work of Bowlby and Ainsworth, Mary Main, Alan Sroufe, Inge Bretherton, and Everett Waters made notable contributions to the field of attachment. Specifically, Main developed the Adult Attachment Interview (1984), a measure that assesses the attachment of adolescence and adults. Sroufe conducted longitudinal research examining early mother–infant attachment and the effects on performance of tasks in childhood. Sroufe and colleagues (2005) examined different conditions that shifted child performance in developmental tasks, such as adding support to the primary caregiver. His research connected secure infant attachment to curiosity, emotional regulation, and social relatedness (Sroufe, 2005).

An emerging topic in attachment-related research examines the role of the fathers in attachment. Research suggests that children attach differently to fathers than to mothers, suffering different consequences when the attachment relationship is severed or insecure (Goodsell & Meldrum, 2010). Further, a secure attachment to both mother and father produce a more positive outcome than a secure attachment to only one figure (Goodsell & Meldrum, 2010). Finally, cross-cultural studies on attachment using the Strange Situation have highlighted a need for culturally sensitive and validated measures of attachment (Bretherton, 1992).

Statement of the Problem and Manual-Specific Literature Review

The word "autism" first emerged in the literature in 1911 when a Swiss psychiatrist used it to describe his schizophrenic patients. Until the 1970s, the terms autism, "psychosis" and "childhood schizophrenia" were used interchangeably. In1979, autism and schizophrenia were differentiated in the literature when Eric Schopler published an article explaining the distinction. At this time, more and more interest on the subject arose and old ideas about autism being

caused by "refrigerator mothers" or pathogenic families were abandoned for biological explanations.

The 1980s began the era of interest in brain behaviors of children with autism leading to structural analysis of neural functioning. The 1990s introduced the genetic component, after research revealed higher hereditability of autism in siblings. The autism "spectrum," predicted by authors in the 1960s, became accepted among researchers. Autism first appeared as a separate disorder in the DSM-III (1980). In 1987, the term "autism disorder" replaced autism in the DSM-III R. That volume also broadened diagnostic criteria which were narrowed again in the DSM-IV (1994). The DSM-5 (2013) now includes a broad category of "Autism Spectrum Disorders (ASD)" (Sole-Smith, 2015).

Epidemiological research shows that early estimates of ASD were 4 children out of 10,000. Currently, the prevalence rate as reported by the CDC (2015) is 1 in 68 children. Many people attribute this increase to a combination of factors such as a broader diagnosis and increased public awareness. However, due to limited knowledge about the etiology of ASD and the inability to accurately perform retrospective analysis, one cannot rule out the possibility that autism spectrum disorders could be on the rise.

Diagnostically, ASD is considered a "family of neurodevelopmental disorders" (Wöhr & Scattoni, 2013) that manifests before age three and involves "(A) Persistent deficits in social communication and social interaction across multiple contexts and (B) Restricted, repetitive patterns of behavior, interests, or activities that cause clinically significant impairment in social, occupational, or other important areas of current functioning" (American Psychiatric Association, 2013, p. 50).

The most current research in ASD focuses on genetic studies and examines its complex neurobiology using functional magnetic resonance imaging (fMRI) and Diffusion Tensor Imaging (DTI). Despite earlier attempts to pinpoint specific areas of the brain that get disrupted in ASD individuals, research suggests that the issue is much more complex, implicating multiple areas

of the social brain, along with the connecting neural networks, the cerebellum and the limbic system (Cozolino, 2014). Researchers are interested in further studying specific areas of the brain as they relate to ASD including: white matter, mirror neurons, corpus callosum, fusiform gyrus, right superior parietal lobule (SPL), right precuneus (Brodmann areas 5 and 7, and extending into the intraparietal sulcus) and more (Cozolino, 2014; Travers, Kana, Klinger, Klein, & Klinger, 2015).

Research is also finding connections between symptoms of ASD. For instance, one group is working on publishing a study that found a correlation between executive functioning abilities and motor skills, where an intervention targeted towards motor skills improves executive functioning (Ziats, 2014). This realm of research fuels the use of the Makoto arena and other types of exer-gaming as therapeutic interventions. Another area of research that this group is doing is looking at the connection between sensory sensitivities and social involvement after finding that smell, taste and touch sensitivities were most likely to predict social responsiveness (Ziats, 2014). This could mean that the social deficits seen in ASD might have more to do with sensory aversion. For instance, a child with ASD might avoid social activities because being touched is painful. The bottom line is that ASD is a disorder that, despite being heavily researched, is still largely a mystery.

An ideal evaluation consists of a battery of tests including several components: a parent/caregiver interview, cognitive and developmental testing, speech and language testing, observational assessment, adaptive behavior functioning assessment, sensory and motor testing and measures of executive functioning. This comprehensive evaluation leads to individualized results, which would then inform symptom severity and ultimately inform treatment. However, the time and cost of a comprehensive evaluation is often not practical or covered by insurance. This leads to short evaluations and diagnosis and recommendations based on limited data.

The current go-to treatment for ASD is Applied Behavioral Analysis (ABA) (Brunner & Seung, 2009). While ABA has a strong evidence base in the literature, some have argued that the gains made in ABA are prompt-dependent. Others believe that ABA has a strong evidence base because the nature of the practice is data-driven (Brunner & Seung, 2009). The popularity of ABA is growing with insurance funding for ABA in home treatments. And while this is a good thing for many children, it might not be the ideal situation for all children since it is one specific form of treatment and the disorder involves a broad spectrum of presentation and severity.

An article published in 2006 in the *Journal of Autism and Developmental Disorders* reminded readers that "one intervention procedure may not be appropriate for facilitating language development in all children," and went on to promote the importance of evaluating alternative treatments in order to account for diversity (Grela & McLaughlin, 2006). Additionally, a meta-analytic study reported that Applied Behavioral Interventions did not show a more significant improvement of cognitive functions, language or adaptive behaviors in preschool age children with ASD when compared to other treatments (Speckley & Boyd, 2009). Kasari and colleagues (2014) did an efficacy study comparing intervention outcomes of three treatment groups: ABA served as the control while joint attention intervention and play-based therapy served as the experimental. They found that the joint attention intervention indicated the most long-term gains related to communication and language but that both play-based therapy and joint attention showed significantly more gains than ABA after 30 sessions (Ziats, 2014). Additionally, the most recent National Standards report (2015) concluded that there are 14 interventions that have been established in research as effective, 18 interventions that are emerging in research and 13 interventions that have not yet been established (National Autism Center, 2015). Thus, there are several treatments and treatment combinations that can be used in the treatment of ASD and the process of matching a child to the appropriate therapy can be overwhelming. This process is especially made difficult by barriers such as insurance and

clinicians who do not stay up to date on new treatment options. This is an evolving field and interventions are continually being developed.

One way of thinking about the need to expand ASD treatment recommendations is through an analogy of psychotherapy in general. There are several schools of psychological thought with the main ones being psychodynamic, behavioral, cognitive-behavioral, family systems, humanistic, existential, multicultural and experiential. Under each of these primary groups are several branches with an overall estimate of more than 400 types of therapy (Corsini, 2008). Several efficacy studies aimed to find the best therapeutic approach only find that all seemed to work just fine (Elkins, 2007).

Wampold (2001) reported that it was "contextual factors" found within each of these therapies that determined effectiveness, not the arrangement of techniques. Several meta-analyses have been done since Wampold's original piece on contextual factors and have replicated his initial results. For instance, Cognitive Behavioral Therapy, 12 Step Programs, Relapse Prevention and psychodynamic therapy were all found to be equally effective in treating alcohol abuse (Imel, Wampold, Miller, & Fleming, 2008). Thus, the therapeutic outcome had to depend more upon the presence of common factors (Shapiro & Shapiro, 1982).

The common factors that make therapy work are difficult to separate because the process is complex. However, experts in this area tend to agree that these ingredients make therapy effect: (a) a working alliance; (b) "myth," or rationale for a specific treatment that the therapist believes and communicates to client; (c) "ritual," or the therapeutic actions that are done based on the myth (Duncan, 2010b; Wampold, 2010). The working alliance involves agreement about the treatment goals and ways of reaching such goals.

A potential argument against relating the common factors model to ASD is the assumption that these individuals lack the ability to form attachments as evidenced by atypical social behaviors being part of the criteria. This attachment deficit would then make the therapeutic relationship secondary to the administration of a mechanized treatment. This is a

basic and surface level conclusion, similar to the old assumption that ASD had what Rapin called one "home" in the brain (Rapin, 1999).

Most interventions for children with ASD target techniques and neglect the therapeutic relationship, even though more and more research suggests that the client-therapist relationship is a major determining factor for growth and change (Duncan, 2010a). By labeling individuals with ASD as unable to form the relationships that catalyze change, the foundational principles of neural plasticity and the social brain must be denied. By accepting the implications of neural plasticity and the social brain, the possibility that individuals with ASD can attach to a therapist and in doing so, optimize neural functioning must be accepted.

There have also been several studies on attachment behaviors in children with ASD. One study done by Shapiro, Sherman, Calamari, and Koch (1987) found that 9/15 children displayed secure attachment styles based on the Strange Situation Procedure. A series published by Rogers, Ozonoff and Maslin-Cole (1991) about a study comparing attachment security in children with ASD when compared to other psychiatric diagnoses found that while cognitive, gross motor and language abilities were associated with attachment security, the severity of ASD symptoms did not. Several other studies found similar results and reported evidence that children with ASD differentiate between caregiver and stranger, show proximity seeking behaviors and form secure attachments (Capps, Sigman, Mundy, 1994; Rogers, Ozonoff, & Maslin-Cole,1993; Sigman & Mundy, 1989; Sigman, & Ungerer, 1984). A meta-analysis reported that approximately 50% of children with ASD are securely attached (Rutgers, Bakermans-Kranenburg, Ijzendoorn, & Berckelaer-Onnes, 2004).

This doesn't mean that the current standard of care treatment, or ABA, is wrong. In fact, it probably works if the therapist believes in the myth and communicates it to the client, who in turn performs the ritual with the shared belief that it will create change. This collaboration likely contributes to the formation of a positive therapeutic relationship. However, not all therapists, clients, and parents/caregivers are the same and not everyone buys into the myth that ABA

treatments are the best course of action. In fact, more and more parents/caregivers and individuals are speaking out against ABA. Thus, there is a need for diversity of recommended treatments and there is especially a place for therapies that emphasize the relationship and capitalize on attachment.

Considering attachment theory as it might inform answering the needs of ASD children can yield some surprising insights. Bowlby discusses "experiences in which the child finds parental behavior intolerable to comprehend" as a cause of detached and avoidant behaviors (Bretherton, 1992). Professionals and caregivers working with an ASD child might unwittingly behave in ways intolerable to comprehend when they, for example, turn on lights too bright or create sound too loud for the sensitivities of the child, therefore interrupting or damaging the bond with the child. Thus, even caring, dedicated practitioners and caregivers might find that, in testing, information about the attachment style of the ASD child might point to a need for healing in that area and to ways to protect the attachment bond during interaction.

Bowlby recommended that therapists build rapport with clients as a foundation for healing less-than-optimal internal attachment models. Joint-Attention interventions emphasize communication and attunement between practitioner and/or caregiver and child. Play-based therapy, especially, is rich in opportunities to create ease and rapport. As the bond strengthens, play therapy offers the option of including caregivers, which broadens the reach of the healing effect on attachment to include primary figures other than the practitioner.

Further benefits might be realized by prioritizing the promise for building attachment any potential intervention or treatment holds: research shows that the presence of or contact with an attachment figure can calm distress or minimize discomfort (Coan, Schaefer, & Davidson, 2006; Eisenberger et al., 2011).

The difficulty and discomfort an ASD child faces as he or she masters the challenges of learning new skills or improving function can be lessened by increased attachment to the practitioner/caregiver who participates in the intervention.

Interested practitioners might seek out research and instruction on forming attachment across cultural boundaries and on the effect of cultural similarities and differences in therapeutic alliance. While therapeutic alliance is not the same as attachment and this research has not yet been applied to children with autism, these are similar notions and concerns, and awareness about cultural factors can help spark awareness of one's own profile of cultural identity so as to help negotiate mutual respect with other practitioners, caregivers, and children with ASD.

Chapter 2: Methodology

The purpose of this resource is to organize and simplify the wealth of information on ASD evaluations and interventions into a manual that can be used as a guide when working with children with ASD. This manual will guide the practitioner through the process of selecting measures to make up a comprehensive ASD battery, matching test results to a placement upon the ASD spectrum and recommending treatment based on this placement. A sample form, including visual representations and color-coded categorization for readability and organizational purposes, lists information illustrating a hypothetical placement recommendation (see Appendix A). To improve data collection and involve the family at the earliest stage, another form elicits information from parents and/or caregivers (see Appendix B). As another aid to applying research data to placement decisions, a worksheet with questions that aid in narrowing treatment options is supplied (see Appendix C). This manual reminds the practitioner of the importance of finding a good fit between the child/family/caregivers and the intervention, as the fit will influence the therapeutic relationship, and the therapeutic relationship will influence outcomes. The integration of research on ASD specific interventions and attachment are woven throughout the guide.

Premises of Manual Design

This manual has its foundation in a general study of psychology and its therapeutic function. Three foundational characteristics of therapy inform the underlying assumptions of this manual:

- Therapy works best when there is a good match between therapist, therapy, and client.

- Relationships heal; attachment moves recovery forward in therapy.

- Interventions matter; even severe or unusual conditions respond to therapeutic techniques.

Research reviewed herein points to attachment as a feature of the therapist/client match and to agreement between the therapist and client about certain factors pertaining to the doctrine and the activities of the chosen therapy. Other research speaks to the value of the

therapist as an attachment figure who can facilitate change in attachment style even in adulthood. Neurobiological research documents architecture in the brain responsible for aspects of human suffering treated by therapeutic intervention; further neurobiological research attests to the plasticity of the brain and its propensity to respond to social experience by building new neural networks.

The manual employs the characteristics described above as its first three underlying assumptions and adds one final assertion:

- These assumptions apply to children with ASD, too.

Resource Development

The development of this manual required a review of current existing literature on topics related ASD. Specifically, information was collected from relevant resources in the areas of: ASD screening, evaluation and testing measures; ASD interventions; attachment and ASD; ASD in children; cultural factors in ASD; and family involvement in ASD. Literature was obtained through online databases. Keywords such as *autism, autism spectrum disorder, autism interventions/treatments/therapy, autism evaluation, autism testing/screening/measures,* and *autism AND attachment* were used to identify articles from databases. Database searches using these keywords were conducted frequently over the course of developing this manual. Institutional review was conducted to ensure compliance with protocols to protect human subjects, and a certificate of review issued (see Appendix D).

Inclusion Criteria. The literature that was reviewed included peer-reviewed articles, scholarly books, academic presentations, published expert interviews, online resources, and existing resources for practitioners and families of children with ASD. The focus was on more recent literature but included all relevant findings. Materials related to alternative treatments of ASD, such as biomedical interventions were included in the review. ASD diagnostic tools were thoroughly examined, including manuals, test development and validity. Relevant websites, resources, podcasts and presentations were included in order to better grasp the current studies

being done related to ASD diagnosis and treatment. Additionally, parent blogs and support

groups were examined in order to gain insight into the experiences of a variety of families

affected by ASD. The relevant literature was incorporated into the manual into one of four

sections: *Comprehensive Evaluation, Placement upon the Spectrum of ASD, Match to*

Treatment, and *Following Progress to Inform Treatment.* The manual takes a step-by-step,

linear approach in diagnosis and treatment of ASD.

Consideration of Existing Manuals. A review of similar resources found that the focus

was often placed on either diagnostic measures or treatment options but not both. The manuals

that weigh more heavily on the invention side often include a small section about the importance

of a diagnosis but do not go on to explain what that is and how to know when one has been

completed. The resources that focus more on the diagnostic side are directed more towards the

practitioner and do not continue past the diagnosis. Additionally, most of the more current,

comprehensive resources are based on the DSM-IV. Thus, this manual intends to link the gap

between diagnosis and intervention through the creation of a visual guide matching the

evaluation results to severity levels 1, 2, or 3 based on DSM-5 and then to treatment

recommendations. It will also incorporate individual, family, and cultural factors to account for

diversity. The fundamental principal of the manual is to make the most appropriate treatment

recommendation for a child in order to ensure optimal treatment. It rejects the idea that one

treatment is the best option for every child.

Proposed Structure, Format, and Content. As mentioned, this manual is directed

towards the practitioner and others interested in becoming knowledgeable about the diagnosis

and treatment of children with ASD. The tone is simple and straightforward, using language that

is broken down so that no translation of concepts needs to take place. The manual aims to set

a standard for the treatment recommendations for children with ASD based on comprehensive

evaluations by clarifying the process and the options. To reach this level of clarity, the manual

is organized into four sections: *Comprehensive Evaluation, Placement upon the Spectrum of*

ASD, Match to Treatment, and *Following Progress to Inform Treatment.* Cultural factors and attachment-based principles are woven throughout the manual. A brief introduction, table of contents, and conclusion appear in the manual, as well. A list of suggested resources for use by family, caregivers, and professionals is provided. The completed manual appears in this document in manuscript form (see Appendix E).

Chapter 3: Results

Following the methods described in Chapter 2, a description of the proposed resource is presented through a summary of each major part. There are 5 parts in total, each of which relied on a review of relevant literature. The final proposed content of the manual is available in this document (see Appendix E).

Part 1: Comprehensive Evaluation

Part I is entitled *Comprehensive Evaluation.* The first section focuses on the process of obtaining a diagnosis of ASD. It describes what a comprehensive ASD evaluation looks like and suggests several measures/combinations of measures for practitioners to use when considering ASD. It includes recommendations for ways to fit a comprehensive battery into a limited amount of time in the case that insurance or another barrier makes a longer evaluation impossible. Chapter 1 focuses on test selection, including factors like age, ability and culture. It offers case examples and appropriate batteries to administer in order to obtain a full evaluation. Chapter 2 focuses on the interpretation of the measures. It seeks to make sense of scores as they link to levels 1, 2, or 3 on the ASD spectrum. The language in the manual refers to deficits as weaknesses and highlights strengths.

Part II: Placement upon the Spectrum of ASD

Part II is entitled *Placement upon the Spectrum of ASD.* This section focuses on matching the results from an evaluation to a visual representation of a spectrum split into Levels 1, 2, and 3 based on DSM-5. Chapter 3 links scores on different measures to levels 1, 2, or 3, which represent the severity of multiple symptoms. Chapter 4 goes into more depth about each level, providing some examples for differing combinations. Again, the language used in the manual is strength-based and refers to deficits as weaknesses or areas for growth.

Part III: Match to Treatment

Part III is entitled *Match to Treatment.* This section builds upon the last by offering treatment recommendations based on placement on the spectrum. Chapter 5 provides

treatment recommendations for levels 1, 2, and 3. Chapter 6 accounts for varying symptoms and treatment implications. For instance, a child who is highly intelligent but nonverbal and who also has difficulty with social interaction might get placed into the same level as a child who is highly verbal but has severe sensory issues. The overall severity of symptoms might be similar but the inventions will be different. This chapter targets the variability. Chapter 7 describes alternative treatments (e.g., nutritional supplements, music therapy, etc.) that can be done in adjunct with treatment recommended. It also includes ways to engage the family/caregivers in treatment selection by opening up a dialogue about the options, evidence for, and costs of different interventions. An informed and individualized treatment plan is the end goal of working through the steps of this section.

Part IV: Follow Progress to Inform Treatment

Part IV is entitled *Follow Progress to Inform Treatment*. Since this manual posits that therapy works, the neuroplasticity of the brain changes when attachments are made, and early intervention leads to better prognosis, treatment is continually tracked. Chapter 8 discusses the need for measuring progress in order to continually inform treatment. For instance, if a child moves down in severity on the spectrum, a less involved treatment might be warranted. Continuous monitoring of progress, therapeutic relationship, and family/caregiver's involvement will allow the child to continually get his/her needs met.

Part V: Resources

Part V is entitled *Resources.* The final portion of this manual is a conglomeration of resources. Chapter 9 contains resources for the individual with ASD and their family/caregivers. Chapter 10 contains resources for professionals who work with ASD.

Chapter 4: Discussion

The healing factors that come from a secure attachment have been well documented. However, when considering the treatment of ASD, there are two general camps; the behavioral camp and the attachment camp. This manual seeks to provide clinicians with a more inclusive understanding of the role of each intervention. Specifically, this manual posits that using behavior interventions provide the rote learning required to form a foundation of stable, predictable behaviors. After this foundation exists, treatment can shift to a more attachment-based direction.

Strengths of the Manual

This manual organizes a complex and potentially overwhelming world of information into one place. It is grounded in well-defined research on ASD and attachment theory, while also including behavioral interventions and those that fall somewhere in between. Further, this manual bridges the gap between ASD evaluations and DSM-5 treatment levels. This is something new, as these levels were introduced only when the DSM-5 came out in 2013. It is important and necessary because, since the release of this version of the DSM, thousands of ASD diagnoses have been made, severity levels assigned, and treatment recommendations made. The manual takes cultural factors into consideration and emphasizes the importance of family values on treatment selection, while espousing theoretical positions that encourage treatment professionals to increase both specific cultural competence and practices that increase connection with both child and family. Additionally, by including handouts that can be completed by the professional and caregivers together, the manual establishes a theme of collaboration.

Limitations and Future Directions for the Manual

This manual will need to be revised once new research leads to updates on ASD interventions, diagnosis, ASD testing materials, and other ASD related resources. The manual would also benefit from the inclusion of a formal measurement of family values and attitudes

towards ASD interventions. A glossary of terms at the end of the manual would be helpful in teaching key concepts.

The manual would be useful as an online tool which could be downloaded by professionals, as downloadable PDFs are more accessible and cost-effective than text manuals. If available as an online resource, a forum for professionals could provide a platform for collaboration and connection.

Plan for an Evaluation of the Current Manual

As discussed in the preliminary proposal of this project, the manual should be evaluated by experts in the field before being published and disseminated. Evaluation by a panel of experts for content and format would invite feedback and allow input for directions for further development. This feedback would allow for necessary revisions prior to releasing the manual for use. Before having the manual reviewed by a panel, informed consent procedures would be implemented in addition to institutional board review approval.

Plan for Dissemination

As suggested in the section on future directions of the manual, plans for dissemination include releasing the manual as a downloadable PDF for professionals. By giving advance evaluation copies to agencies that specialize in the evaluation and treatment of ASD, such as STAR of CALIFORNIA located in Culver City, the feasibility this manual as an instrument to be applied in practice could be determined. After this, the manual could be distributed on a larger scale by contacting agencies that are involved in the advancement of autism treatment.

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APPENDIX A

Sample: Placement upon the Spectrum of ASD, Based on DSM-5 Levels

Placement upon the Spectrum of ASD, Based on DSM-5 Levels

Placement Recommendation: F84.0 Autism Spectrum Disorder, Requiring Very Substantial Support (Level 3) in social communication and interaction and Requiring Substantial Support (Level 2) for restricted interests and repetitive behaviors.

This Chart is based on the DSM-5 and has been individualized based on your child.

Your child meets criteria for ASD, and the following specifiers have been assigned.

[   ] = Your child's results.

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 High need	This child has substantial deficits in his/her verbal and nonverbal skills related to social communication that impair his/her ability to engage in social-emotional reciprocity. He/she may not use understandable speech, fail to approach others verbally or nonverbally, and may only react to extremely direct social overtures.	This child demonstrates rigidity and struggles with transitions, or engages in stereotypic behaviors that impair his/her functioning. Extreme distress is noted during transitions.
Level 2 Moderate need	This child has moderate deficits in his/her verbal and nonverbal skills that are observed even with assistance. He/she may rarely initiates interaction and abnormally responds to social overtures. For instance, a child may respond to a prompt by speaking only about a topic he/she finds interesting.	This child's inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts, and demonstrates distress and/or difficulty changing focus or action.
Level 1 Some need	This child lacks social-emotional skills without guidance and may struggle interacting with others. This child may appear less interest in social connection than others or struggle in developing successfully mutually beneficial relationships.	This child struggles with switching between tasks, staying organized, or being flexible to a situation.

Figure 1: Sample chart for presenting ASD placement results to parents/caregivers

Note: This sample represents analysis of a hypothetical client. Levels are congruent with

specifications from the DSM-5 (American Psychiatric Association, 2013).

APPENDIX B

Placement upon the Spectrum of ASD, Strengths and Weaknesses Form

Placement upon the Spectrum of ASD, Strengths and Weaknesses Form

Sample of "Placement upon the Spectrum, Strengths and Weaknesses" form to be filled out with parents after testing→ before providing recommendations.

1. Based on the evaluation, NAME's performance suggests several areas of strengths and weaknesses.

Strengths	Weaknesses

2. Let's prioritize the results from most concerning to least concerning so that I can provide the best recommendation for NAME.

Most concerning   _____
                         _____
                         _____
                         _____
                         _____
                         _____
Least concerning   _____
                         _____

3. Additional notes

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APPENDIX C

Treatment Recommendations Worksheet

Treatment Recommendations Worksheet

Name _____
Community _____
Age _____
ASD Levels _____
Other factors _____
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Step One: List Potential Treatment Recommendations

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Step Two: Reflect on the clinical interview, data collected from the measure, and relevant cultural factors in order to account for values, attachment styles (if measured), beliefs about treatments, and goals. It is okay to reach out and ask for additional data at this point, under the pretext that this is a collaborative process. Another option is to invite the family and/or caregivers in and discuss the different treatment recommendations and get feedback.

Step Three: Revisit Step One and eliminate treatments that do not fit based on Step Two, based on input from the family/caregivers, or based on practical reasons (e.g., insurance will not cover treatment and resources are unavailable).

Step Four: Final list of treatments options

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APPENDIX D

Institutional Review Board Notice of Exemption

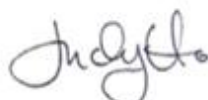Graduate & Professional Schools Institutional Review Board

July 25, 2016

Project Title: A Spectrum of Treatments for Autism Spectrum Disorder
Re: Research Study Not Subject to IRB Review

Dear Ms. Lawson:

Thank you for submitting your application, *A Spectrum of Treatments for Autism Spectrum Disorder*, to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). After thorough review of your documents you have submitted, the GPS IRB has determined that your research is **not** subject to review because as you stated in your application your dissertation *research* study is a "critical review of the literature" and does not involve interaction with human subjects. If your dissertation research study is modified and thus involves interactions with human subjects it is at that time you will be required to submit an IRB application.

Should you have additional questions, please contact the ▇▇▇▇▇▇ Manager of Institutional Review Board (IRB) at ▇▇▇▇▇▇ or via email at ▇▇▇▇▇▇▇▇▇ or Dr. Judy Ho, Faculty Chair of GPS IRB at ▇▇▇▇▇▇▇▇ On behalf of the GPS IRB, I wish you continued success in this scholarly pursuit.

Sincerely,

Judy Ho, Ph. D., ABPP, CFMHE
Chair, Graduate and Professional Schools IRB

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives
       Mr. Brett Leach, Compliance Attorney
       Dr. Lou Cozolino, Faculty Advisor

APPENDIX E

A Spectrum of Treatments for Autism Spectrum Disorder

TABLE OF CONTENTS

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Introduction

If you've met one person with autism, you've met one person with autism.

—Proverb commonly heard in the ASD community

Making Room for Attachment-Based Interventions

Most interventions for children with ASD target techniques and neglect the therapeutic relationship, even though more and more research suggests that the client-therapist relationship is a major determining factor for growth and change (Duncan, 2010a). By labeling individuals with ASD as unable to form the relationships that catalyze change, the foundational principles of neural plasticity and the social brain must be denied. By accepting the implications of neural plasticity and the social brain, the possibility that individuals with ASD can attach to a therapist and in doing so, optimize neural functioning must be accepted.

There have also been several studies on attachment behaviors in children with ASD. One study done by Shapiro et al. (1987) found that 9 out of 15 children displayed secure attachment styles based on the Strange Situation Procedure. A series published by Rogers, Ozonoff, and Maslin-Cole (1991) about a study comparing attachment security in children with ASD when compared to other psychiatric diagnoses found that while cognitive, gross motor and language abilities were associated with attachment security, the severity of ASD symptoms did not. Several other studies found similar results and reported evidence that children with ASD differentiate between caregiver and stranger, show proximity seeking behaviors and form secure attachments (Capps et al.,1994; Rogers, Ozonoff, & Maslin-Cole,1993; Sigman & Mundy, 1989; Sigman, & Ungerer, 1984). A meta-analysis reported that approximately 50% of children with ASD are securely attached (Rutgers et al., 2004).

There is certainly a place for the current go-to treatment known as behavioral interventions in the treatment of ASD, and this manual by no means aims to discount the gains

made in behavioral therapy. This manual does aim to open the doors wider so as to include other interventions—especially those that have roots in attachment principles and emphasize relational components.

Behavioral interventions introduce and instill habits that facilitate ease of interaction among the child, caregivers, and the larger community. A secondary benefit of the growth of predictable cooperative behavior fostered by behavioral interventions is the reduction of stress in the child and those around the child. Further, it creates a baseline of pro-social behavior that serves as a framework of established neural growth in the brain. The power of attachment to significant caregivers and instructors can serve to set a spark to that framework and set it on fire, as Annie Sullivan did with Helen Keller. A powerful point in the "The Miracle Worker" (Coe & Penn, 1962), is when Helen Keller—not someone with autism spectrum disorder, but trapped in sensory deprivation and confusion, nonetheless—suddenly gains insight into what she has previously practiced only as rote behavior motivated by positive and negative reinforcement. The insight follows a symbolic kiss from her compassionate and dedicated caregiver, Sullivan. For Keller, this gesture fulfilled a promise by Sullivan to persist despite all obstacles in helping Keller move beyond rote training into true understanding. Despite her gestures of rebellion, Keller's trust for Sullivan triumphs, and she complies with Sullivan's continued work and wins through to real understanding and a human grasp of language as a symbolic system for understanding the world. Attachment-based interventions can hold a similar promise for ASD children to grow beyond prompts and reinforcement into deeper insight and understanding.

The observant reader will notice the use of "caregiver" in addition to the traditionally-employed term "parent". One benefit of using caregiver and its variants is that such terms accommodate and honor non-biological and/or non-adoptive adults who serve as primary care providers. A deeper benefit is that the term caregiver widens our focus on the child's

environment to include others who qualify as caregivers. This can help to make visible the impact of all potential attachment figures, including siblings and those who care for the child in other than teaching or therapeutic roles. Finally, use of the term caregiver can prompt practitioners to remember to inquire about individuals who do not fall under the umbrella of family but who also make a significant contribution to the child's care and therefore will likely impact the outcome of treatment. Bringing all these individuals onto the treatment team at the earliest opportunity can only benefit the child.

The Story of Autism

> I know of nobody who is purely autistic or purely neurotypical. Even God has some autistic moments, which is why the planets all spin.

—Jerry Newport, 2001

The word "autism" first emerged in the literature in 1911 when a Swiss psychiatrist used it to describe his schizophrenic patients. Until the 1970s, the terms autism, "psychosis" and "childhood schizophrenia" were used interchangeably. In 1979, autism and schizophrenia were differentiated in the literature when Eric Schopler published an article explaining the distinction. At this time, more and more interest on the subject arose and old ideas about autism being caused by refrigerator mothers or pathogenic families were abandoned for biological explanations.

The 1980s began the era of interest in brain behaviors of children with autism leading to structural analysis of neural functioning. The 1990s introduced the genetic component, after research revealed higher hereditability of autism in siblings. What is now called the autism "spectrum," predicted by authors in the 1960s, became accepted among researchers. Autism first appeared as a separate disorder in the DSM-III (1980). In 1987, the term "autism disorder"

replaced autism in the DSM-III R. That volume also broadened diagnostic criteria which were narrowed again in the DSM-IV (1994). The DSM-5 (2013) now includes a broad category of "Autism Spectrum Disorders" (Sole-Smith, 2015).

Currently, the diagnosis of ASD is considered a "family of neurodevelopmental disorders" (Wöhr & Scattoni, 2013) that manifests before age three and involves "(A) Persistent deficits in social communication and social interaction across multiple contexts and (B) Restricted, repetitive patterns of behavior, interests, or activities that cause clinically significant impairment in social, occupational, or other important areas of current functioning" (American Psychiatric Association, 2013).

Current research is finding connections between symptoms of ASD. For instance, one group is working on publishing a study that found a correlation between executive functioning abilities and motor skills, where an intervention targeted towards motor skills improves executive functioning (Ziats, 2014). This realm of research fuels the use of the Makoto arena and other types of exer-gaming as therapeutic interventions. Another area of research that this group is doing is looking at the connection between sensory sensitivities and social involvement after finding that smell, taste and touch sensitivities were most likely to predict social responsiveness (Ziats, 2014). This could mean that the social deficits seen in ASD might have more to do with sensory aversion. For instance, a child with ASD might avoid social activities because being touched is painful. The bottom line is that despite being heavily researched, ASD is still largely a mystery.

Epidemiological research shows that early estimates of ASD were 4 children out of 10,000. Currently, the prevalence rate as reported by the Center for Disease Control and Prevention (2017) is 1 in 68 children. Many people attribute this increase to a combination of

factors such as a broader diagnosis and increased public awareness. However, due to limited knowledge about the etiology of ASD and the inability to accurately perform retrospective analysis, one cannot rule out the possibility that Autism Spectrum Disorders could be on the rise.

Research suggests that the occurrence of ASD does not differ across cultures (Tek & Landa, 2012). However, studies have demonstrated that members of African American, Hispanic, or Asian ethnicities are less likely to be diagnosed early and once they are seen for an evaluation, are more likely to be diagnosed with something other than ASD (Tek & Landa, 2012). It is not unusual for ethnically diverse parents of children with disabilities to view early delays or difficulties in communication and social skills as part of the typical developmental trajectory. And, depending on cultural values, different symptoms related to ASD may be viewed as more or less problematic. For instance, eye gaze is often considered in evaluating and treatment ASD; however, in some Asian cultures, direct eye contact is disrespectful and pointing with the index finder is less common (Tek & Landa, 2012). People from certain cultures, such as Hispanic and Asian cultures, may be less likely to question authority (e.g., a pediatrician failing to consider or screen for developmental problems) and refrain from voicing concerns if not directly asked (Tek & Landa, 2012). Regarding socioeconomics, early detection and intervention for children with ASD are more common in highly educated families (Tek & Landa, 2012).

Neurobiologically, the most current research in ASD focuses on genetic studies and examines its complex neurobiology using functional magnetic resonance imaging (fMRI) and Diffusion Tensor Imaging (DTI). Despite earlier attempts to pinpoint specific areas of the brain that vary in ASD individuals, research suggests that the issue is much more complex, implicating multiple areas of the social brain, along with the connecting neural networks, the

cerebellum and the limbic system (Cozolino, 2014). Researchers are interested in further studying specific areas of the brain as they relate to ASD including: white matter, mirror neurons, corpus callosum, fusiform gyrus, right superior parietal lobule (SPL), right precuneus (Brodmann areas 5 and 7, and extending into the intraparietal sulcus) and more (Cozolino, 2014; Travers, Kana, Klinger, Klein, & Klinger, 2015).

Diagnostically, an ideal evaluation consists of a battery of tests including several components: an ASD screener, parent/caregiver interview, cognitive and developmental testing, speech and language testing, observational assessment, adaptive functioning assessment, sensory and motor testing and measures of executive functioning. This comprehensive evaluation leads to individualized results, which would then inform symptom severity and ultimately inform treatment. However, the time and cost of a comprehensive evaluation is often not practical or covered by insurance. This leads to short evaluations and diagnosis and recommendations based on limited data.

The current go-to treatment for ASD is Applied Behavioral Analysis (ABA) (Brunner & Seung, 2009). While ABA has a strong evidence base in the literature, some have argued that the gains made in ABA are prompt dependent. Others believe that ABA has a strong evidence base because the nature of the practice is data driven (Brunner & Seung, 2009). The popularity of ABA is growing with insurance funding for ABA in home treatments. And while this is a good thing for many children, it might not be the ideal situation for all children since it is one specific form of treatment and the disorder involves a broad spectrum of presentation and severity. An article published in 2006 in the *Journal of Autism and Developmental Disorders* reminded readers that "one intervention procedure may not be appropriate for facilitating language development in all children," and went on to promote the importance of evaluating alternative

treatments in order to account for diversity (Grela & McLaughlin, 2006). Additionally, a meta-analytic study reported that Applied Behavioral Interventions did not show a more significant improvement of cognitive functions, language or adaptive behaviors in preschool age children with ASD when compared to other treatments (Speckley & Boyd, 2009). Kasari and colleagues (2014) did an efficacy study comparing intervention outcomes of three treatment groups: ABA served as the control while Joint Attention intervention and Play-Based therapy served as the experimental. They found that the Joint Attention intervention indicated the most long-term gains related to communication and language but that both Play-Based therapy and Joint Attention showed significantly more gains than ABA after 30 sessions (Ziats, 2014). Additionally, the most recent National Standards report (2015) concluded that there are 14 interventions that have been established in research as effective, 18 interventions that are emerging in research, and 13 interventions that have not yet been established (National Autism Center, 2015). Thus, there are several treatments and treatment combinations that can be used in the treatment of ASD and the process of matching a child to the appropriate therapy can be overwhelming. This process is especially made difficult by barriers such as insurance and clinicians who do not stay up-to-date on new treatment options. This is an evolving field and interventions are continually being developed. This manual will draw attention to the breadth of treatment options that exist.

Comprehensive Evaluation

The tragedy isn't autism— the tragedy is the lack of understanding of autism, lack of

resources, interventions not being met with the person in mind and assumptions being

made about the person.

—Paul Isaacs, 2012

Test Selection

We hear parents ask "Why is testing important? I don't want the child to feel labeled."

Neither do we. The objective of creating a testing battery for a child suspected of having ASD

spectrum disorder is to determine (a) whether or not he/she meet diagnostic criteria to warrant

diagnosis, (b) to gather information about his/her unique strengths and weaknesses, in order to

(c) help formulate a plan of action for making that child's and his/her family's/caregivers' lives

more comfortable and high-functioning. Diagnosis informs treatment (if treatment is warranted),

in addition to helping the family/caregivers access necessary resources. It is not intended to

differentiate a child from "neurotypical" peers and a skilled psychologist will engage the

family/caregivers in a conversation about their expectations and concerns before going into

testing. Ultimately the process is meant to be a collaborative effort that takes into consideration

familial and cultural goals, values, and expectations in addition to beliefs about and access to

intervention.

An ideal comprehensive evaluation in ASD involves data from a variety of sources,

including: a parent/caregiver interview, cognitive/developmental testing, speech/language

testing, observational assessment, adaptive behavioral functioning assessment, sensory and

motor testing, and measures of executive functioning. Specific to ASD testing, a direct

observation of social interaction, social communication, and social play occur. The other measures (e.g., cognitive testing, speech evaluations) provide critical data about a child's strengths and weaknesses that inform the diagnostic process, but do not give enough information to make a diagnosis. For instance, if a child is nonverbal (i.e., he/she does not speak), then that could be misunderstood as ASD, but in itself is not enough to warrant a diagnosis. It also informs the testing battery. Using that same example (i.e., nonverbal child), it would be inappropriate to gauge a child's social responsiveness using conversation, but it would be appropriate to gauge it using social play.

Not all evaluations consist of the aforementioned components (e.g., a parent/caregiver interview, cognitive/developmental testing, speech/language testing, observational assessment, adaptive behavioral functioning assessment, sensory and motor testing, and measures of executive functioning). An entire comprehensive battery is lengthy, expensive, and often unnecessary. Much of the data can be gathered through a review of records and interviews with teachers or other figures in the child's life. Common components of a standard battery include a review of prior records (e.g., academic assessments, speech/occupational therapy/physical therapy reports, medical evaluations, Regional Center evaluations, Individualized Education Program (IEP) documents, and school records), clinical interviews, standardized assessment tools, collateral interviews, and direct observations (Q. Neel, personal communication, March 2015). Here are some good questions to ask yourself when selecting a battery: What question is being asked? What information do I have? What information do I need? And of course, what tests are appropriate for this client (considering age, language abilities, parent language, reading level, etc.)? The approach to testing should depend on the goal of the child, family/caregivers, or individual being testing (Ozonhoff, Goodlin-Jones, & Soloman, 2005). See Table E1 for components of an ASD battery, and see Table E2 for

examples of specific measures that might contribute to each component.

Depending on the case, attachment-based questionnaires can be added to enhance the clinical understanding of the child and parent relationship, which has implications for treatment recommendations (Reynolds, 2015). The American Academy of Pediatrics (AAP) recommends broad-based assessments of behavior and affect when diagnosing children with any social, emotional, or behavioral disorders (Reynolds, 2015). This includes understanding the child's attachment behaviors and relational functioning. The Behavioral Assessment for Children, Parenting Relationship Questionnaire (BASC-3-PRQ) is one option for gathering such data. It is a standardized measure that provides data about the following domains: attachment, communication, discipline practices, involvement, parenting confidence, satisfaction with school, and relational frustration (Reynolds, Kamphaus, & Vannest, 2015). Adding a measure such as this to the comprehensive evaluation will provide rich data about the parent-child relationship and inform treatment (Reynolds, 2015).

Table E1
Components of an ASD Battery

Records Review	Interviews	Standardized Assessment	Collateral Interviews	Observation
Academic assessments, speech/occupational therapy/physical therapy reports, medical evaluations, Regional Center evaluations, Individualized Education Program (IEP) documents, and school records	Clinical interviews with Parent/Caregiver	Cognitive/develop-mental testing cognitive/intellectual testing, speech/language testing, sensory and motor testing, adaptive behavioral functioning assessment		Direct observation of social interaction, social communication, and social play

Table E2
Sample of Measures that Constitute Components of ASD Evaluation

Component	Measure	Age	Time Required
Interview	Autism Diagnostic Interview, Revised (ADI-R)	Above mental age of 2 years	90-150 minutes
Interview	Behavioral Assessment for Children, Structure Developmental History (BASC-3-SDH)	All	60-90 minutes
Cognitive/Developmental	Bayley Scales of Infant and Toddler Development, 3rd Edition (Bayley-3)	1- 42 months	30- 90 minutes
Cognitive/Developmental	Battelle Developmental Inventory, 2nd Edition (BDI-2)	Birth- 7:11 years	60-90 minutes
Cognitive/Intellectual	Stanford-Binet Intelligence Scales, 5th Edition (SB5)	2- 85+ years	Approximately 5 minutes per subtest
Cognitive/Intellectual	Wechsler Intelligence Scales (WISC-V; WAIS-IV; WPPSI-IV; WASI-II)		WISC-V ~ 60 minutes; WAIS-IV, 60-90 minutes; WPPSI-IV, 30-60 minutes
Direct Observation- Autism Specific	Childhood Autism Rating Scale, 2nd Edition (CARS-2)	2 years +	5-10 minutes after data gathered
Direct Observation- Autism Specific	Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2)	12 months- adult *See Table E3*	40-60 minutes
Autism	Social Responsiveness Scale, 2nd Edition (SRS-2)	2.5 years- adult	15-20 minutes
Collateral Information, Autism Specific (Not Standardized)	Childhood Autism Rating Scale, 2nd Edition – Questionnaire for Parents or Caregivers (CARS-2 QPC)	2 years +	Individual ~ 15 minutes
Adaptive Functioning	Vineland Adaptive Behavior Scale, 2nd Edition (VABS-II)	Birth- 90 years	20-60 minutes
Adaptive Functioning	Adaptive Behavior Assessment System, 3rd Edition (ABAS-3)	Birth- 89 years	15-20 minutes
Speech and Language	Clinical Evaluation of Language Fundamentals- 5th Edition	5- 21:11 years	30-45 minutes

11

Component	Measure	Age	Time Required
Speech and Language	Children's Communication Checklist-2nd Edition (CCC-2)	4-16:11 years	5-10 minutes
Speech and Language	Expressive Vocabulary Test, 2nd Edition (EVT-2)	2:6-90+ years	10-20 minutes
Attachment between parent-child	Behavioral Assessment for Children, Parenting Relationship Questionnaire (BASC-3-PRQ)	2-18 years	10–15 minutes
Visual-Motor	Beery-Buktenica Developmental Test of Visual-Motor Integration, 6th Edition (BEERY-VMI)	2- 99:11 years	10–15 minutes each core subtest
Sensory	Sensory Profile 2	Birth–14:11 years	5–20 minutes
Sensory	Sensory Integration and Praxis Tests (SIPT)	4-8:11 years	10 minutes per test, 2 hours full battery
Executive Functioning	Delis-Kaplan Executive Functioning System (D-KEFS)	8-89 years	90 minutes
Executive Functioning	Behavior Rating Inventory of Executive Function (BRIEF)	5-18 years	10-15 minutes

Of these, the ADI-R and the ADOS-2 are considered the gold standard in ASD

evaluation (Weeks, 2013). The ADI-R constitutes the developmental history while the ADOS-2

is a measure requiring direct observation. When possible, the ADOS-2 should be considered as

part of the testing battery. The ADOS-2 is comprised of five modules, depending on the

individual's age and abilities. See Table E3 for a guide in module selection. The modules apply

to individuals in the following categories:

- Toddler: Toddlers who are 12-31 months, without consistent phrase speech
  o   Parent in the room.

- Module 1:Toddlers who are 31 months or older and do not consistently use phrase speech
  o   Parent in the room.

- Module 2: Child or adult who can use phrase speech but is not verbally fluent.
  - Parent in the room.
  - Use phrase speech but expressive language is less than 4 years old.

- Module 3: Verbally fluent children and young adolescents (usually under 16 years)
  - Involves observation of play

- Module 4: Verbally fluent adults and older adolescents
  - Primarily interview and conversation

Table E3

Using the ADOS-2: Cheat Sheet for Selecting Appropriate Module

Age	Verbal Fluency	Verbal Skill	Age & Verbal Fluency
Is the child under 31 months?	Is the child verbally fluent?	Does the child regularly use phrase speech (e.g. Let's Play, I want more, Let's go, More apple please)? Use of mostly single words with only inconsistently use of phrase speech earns a NO answer.	Is the child/adolescent verbally fluent (high functioning or "Aspergers-like") under 16?
YES→ Choose Toddler Module.	YES→ Choose between module 3 & 4; go to question 4.	YES→ Choose Module 2.	YES→Choose Module 3.
NO→ Continue to Verbal Fluency question.	NO→ Choose between Module 1 & 2; go to question 3.	NO→ Choose Module 1.	No→ Module 4 Use for adults or older adolescents where observing play would be inappropriate.

Note: Use this as a guide to select the appropriate module of the ADOS-2.

As mentioned in the introduction, there is a special need for cultural sensitivity around the collaborative process involved in diagnosing ASD and recommending treatments (Tek & Landa, 2012). This begins from the moment that the clinician makes contact with the

family/caregivers, child, or individual. It is important to remember that not all cultures view the

same behaviors as problematic, nor do they feel equally comfortable sharing unsought

information (Tek & Landa, 2012). It is the job of the clinician to consider and adapt the process

to meet the needs of the family and/or caregivers. At times, this might mean asking more in-

depth questions in the interview process or having a candid conversation about the symptoms

of ASD as they related to the families' cultural norms. Often families from underserved

communities have not been educated on ASD, testing, or the resources available (Tek & Landa,

2012). In these cases, spending added time describing the process, the diagnosis, and their

concerns is critical.

And of course, a critical cultural consideration as it relates to testing selection lies in the

psychometric properties of the measure. "Standardized" does not mean sufficient for every

child. It is important to consider the sample that the norms were based on. It is also important

to consider the primary language of the individual being tested and his/her family/caregivers.

When a shared language does not exist between provider and client, the effects have been

found to be detrimental because this can lead to over diagnosis of severe pathology, and

diminished rapport (Flaskerud & Liu, 1991). It is important to test an individual in the language

in which he/she feels most comfortable and competent. However, there are times when the

ethical dilemma arises between providing serves and the individual receiving none. For

instance, if a child relocates from an area where a rare language is spoken and ends up as a

referral, it might be more ethical to do your best job than to let this child go without support. In

cases such as this, outside consultation should be considered. And remember, the family

and/or caregivers are always the expert. Asking them about their concerns, beliefs, and

practices is usually a safe bet. Consider asking questions such as those listed below when

beginning the testing process and selecting tests.

- Do I speak the same language as this individual? (If not, is there a better person to whom I can refer?)

- Which tests have been normed on peers with similar cultural and economic identities?

- What does the literature say about the cultural norms of this individual?

- What does the literature say about the cultural beliefs and meaning of the diagnosis of ASD?

Let's do a case example. Let's pretend that a referral came for an evaluation of a 2-years-and-6-months-old Latino boy named Joseph. Before meeting him, you are given some basic background information. His parent's primary language is Spanish, although they speak conversational English and he has not yet started speaking aside from three words (mama, no, and papa). His pediatrician referred him for an ASD evaluation because of the speech delay, and because he failed the ASD screening, per the Modified Checklist for Autism in Toddlers, Revised (M-CHAT-R/F) administered at a routine appointment. His parents want to know if they should stop speaking Spanish at home because they were told that bilingual homes are associated with speech delays. The family's insurance has agreed to cover eight hours of testing, in addition to the interview and feedback sessions. Where should you begin in the process of testing?

First of all, you want to think about the referral question. In this case, "Does Joseph qualify for the diagnosis of ASD?" is the primary question. "Should the family/caregivers consider speaking monolingual English in the home?" is a secondary question. Even before contacting the family/caregivers to set up the parent interview, it is important to consider the

data provided, especially as it relates to the literature. You know that he is Latino; his parents' primary language is Spanish, that he has not started speaking aside from three words, and that he failed an ASD screener at a routine medical exam. A quick review of the literature will reveal that only 29% of primary care providers offer the M-CHAT in Spanish and that the failure rate is almost double in Spanish speaking populations, likely due to minor translation and cultural differences that impact interpretation of questions (Kimple, Bartelt, Wysocki, & Steiner, 2014). Additionally, you would consider the family's and/or caregivers' understanding of the prevalent idea that bilingual homes produce children with speech delays. Despite the myth that children raised in bilingual homes develop speech later, you need to keep in mind that no empirical evidence supports such a notion (King & Fogle, 2006; Sloan-Peña & Gallardo, 2015). Therefore, you will not be recommending the elimination of Spanish-speaking in the home and this is something that can be addressed early on. Finally, you want to consider your ability to interact well with the family/caregivers and this child. If you are bilingual, then you are probably a good fit. If you speak little Spanish, you will need to proceed with caution.

For the sake of the example, let's say that you do speak Spanish and English and you are prepared to set up the parent/caregiver interview. At this interview, you will be gathering historical data about Joseph and his family/caregivers. You will elicit the family's level of concern, in addition to asking questions that help you understand the acculturation level of the family in order to gather information about the family's and/or caregivers' attitude towards assessment and psychology (Sloan-Peña & Gallardo, 2015). For this family and/or caregivers, it might be appropriate to engage in small talk prior to the interview to ease their level of comfort, and to include all members of the family who care for the child (Sloan-Peña & Gallardo, 2015). Providing psychoeducation about the assessment process, in addition to carefully dispelling myths (e.g., bilingualism and speech delays), and affirming fears can be done as it

becomes relevant. This is where good psychotherapy skills are critical even though you are not providing therapy.

In selecting a structured interview measure, such as the ADI-R or the BASC-SDH, you are going to refer to the manuals and consider which measure is the best for Joseph's age, identity, and ability. The ADI-R is regarded as the gold standard but is less sensitive to picking up symptoms before the age of 3 years and 6 months, so it might not be the most appropriate measure for this case (Ozonoff et al., 2005). The BASC-SDH is suitable for all ages and takes less time, suggesting that it might be better for this case. Critical components of the interview include reviewing communication (not just language), social development, behavior development, and medical/psychiatric history (Ozonoff et al., 2005). Using a culturally informed approach, you will gather the background data in addition to reviewing any previous reports or treatments that the family/caregivers has sought.

Once the interview has been completed, you will arrange a time for the family/caregivers to bring the child in for testing. You might want to give them helpful ways of explaining the evaluation in a developmentally appropriate way. Giving the child a narrative of what to expect can ease the anxiety that comes with a change in routine and a doctor's visit. An example of one narrative is, "You will be going to a talking doctor today. You will get to play with some toys and do some different games. There will be no pokes and we will be there with you." This is recommended even for children who are not using words, because a child's ability to speak is not always the same as their ability to understand language (Maljaars, Noens, Scholte, & Van, 2012). The job of the clinician in between the interview and the first testing session is to create a comprehensive battery to answer the referral question. It is always a good idea to try to keep testing within the expected time frame negotiated with the family. For instance, if Joseph's family/caregivers reported financial strain and can barely meet their twenty-dollar co-pay, billing

only the authorized hours is important. The other option, if necessary, is to advocate for the

family/caregivers and explain to insurance why additional testing could be needed. For the sake

of example, let's stay within the authorized eight hours. Regarding test selection, you want to

think about what information is available to you without adding additional testing. If Joseph has

been in speech therapy with a bilingual therapist for a year, getting permission to speak with

and obtain the evaluations of the speech therapist will give more data than adding in a language

measure. If he also had testing through a school district or a Regional center, you will want

permission to review those reports. An appropriate battery for Joseph could be: ADOS-2,

Module 1; BDI-II; and VABS-II (Sloan-Peña & Gallardo, 2015). The BASC- 3-PRQ should also

be administered to give insight into the parent-child attachment bond, which could inform

treatment recommendations. This battery can be completed in a manageable time frame and

allow time for scoring, interpretation, and report writing in the allotted eight hours. The battery

selected for Joseph will not be appropriate for every case. Table E4 provides some other

examples of batteries. Remember, these are examples and each case should be considered

independently.

Table E4
Sample Testing Batteries

Information	Previous Reports Provided	Hours Authorized	Sample Battery
Niko: 6 year old, African American male, monolingual English	504 Plan, occupational therapy evaluations	12 hours	ADI-R; ADOS-2; WISC-V; ABAS-III; BRIEF; WASI-II
Erik: 16 year old, Asian American male, fluent English, some Mandarin	IEP, Regional Center, speech therapy	Unlimited	ADI-R; ADOS-2; SRS-2; WAIS-IV; Beery-VMI; BRIEF
Poppy: 4 year old, Caucasian female, nonverbal	None	12 hours	CARS-2 ST; CARS-2 QPC; BASC- 3-PRQ; ABAS-III; Bayley-3; Sensory Profile 2

Note: This sample represents analysis of hypothetical cases.

Interpretation of Measures

Now that we have the data, let's make sense of it. Remember the question being asked: "Is this ASD?" Assuming that a battery has been appropriately selected, the family/caregivers provided relevant historical and cultural information, and you have your results, the next step lies in interpretation. Ultimately, a diagnosis of ASD can be made if the data supports it. Remember, diagnosis informs treatment and opens up a world of resources for those who might benefit. See Table E4 for DSM-5 Severity Level descriptions (American Psychiatric Association, 2013). Results from intellectual/developmental testing relate to criteria E. The interview, which provided data about the early developmental period, provides information relating to criteria C. The adaptive behavior measures will relate to criteria D. Information from the measures will also provide the data needed to accurately code specifiers. For instance, if a child's scores on measures of speech and language fall in ranges that warrant the classification of "with accompanying language impairment," that specifier would be added to the diagnosis (American Psychiatric Association, 2013). This means that language is an area of weakness in this child, which may or may not be a good target for intervention, based on the goals of the family's/caregivers' and/or individual's goals and values. The examiner should look to each test's manual for scoring and interpretation information. Several tests, such as the VABS-II, have separate norms for children diagnosed with ASD and/or other neurodevelopmental disorders. Additionally, reviewing the DSM-5 diagnostic criteria is important prior to interpreting the data because no measure is strong enough on its own to make a diagnosis. The complete list of DSM-5 Criteria can be found at the Autism Speaks website at www.autismspeaks.org.

Table E4
Severity levels for autism spectrum disorder

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 Requiring very substantial support	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action
Level 2 Requiring substantial support	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and who has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.

20   (continued)

Severity level	Social communication	Restricted, repetitive behaviors
Level 1 Requiring support	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to-and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful.	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

Let's freshen up with a crash course on psychometrics. Although it is important to read each test manual before using it on a client, some basic psychometric properties apply to psychodiagnostic testing. When describing the process or presenting scores to parents, it is recommended that individually oriented statements are made (Sattler, 2008). An example of an individually oriented statement would be: "This test will look at Poppy's abilities related to social communication, and will give us some quantitative data based on what we know about child development. The goal is to look for her strengths and weaknesses so that we can find a way to best help." It can also be helpful to show parents a normal distribution chart and explain the basics of testing.

In general, it is important to know that psychometrics tests are a standard way of measuring an aspect of cognition, behavior, personality, or emotion. These tests are administered using precise instructions by trained professionals in order to eliminate the impact of subjectivity. The results that an individual receives (e.g., the scores) are compared with a

representative sample of the population. Some tests measure ability to provide right vs. wrong answers, whereas others, like the ASD measures, are designed to evaluate typical behavior of an individual. The tests produce raw scores that get translated into standard scores. The T-score (transformed score) is often used to compare an individual's score to the normal distribution. Scores can often also be translated into percentiles, or age equivalents. The tests described below, including the SRS-2 and CARS-2 use T-scores, whereas the ADOS-2 uses cutoff scores and comparison scores.

Let's start by discussing the Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2). After administering and scoring the ADOS-2, a score is calculated by adding up the numbers coded for specific responses. This score translates to an "ADOS-2 Classification" of "autism," "autism spectrum," or "non spectrum" based on a cut off score (Lord et al., 2012b). This score alone does not evidence diagnosis and is only considered as one piece of the puzzle of data. This is especially true since the ADOS-2 was published in 2012, and DSM-5 was published in 2013, suggesting that the ADOS-2 was designed based on older criteria for ASD. That being said, the ADOS-2 does provide data related to observation of symptoms related to ASD, classifies it into standardized norms, and allows for further analysis of symptom severity. On Modules 1-3, social affect comprises the first section of scores and restricted and repetitive behavior comprises the second category, which aligns nicely with the DSM-5. The total of these scores is translated into an ADOS-2 classification and ADOS-2 Comparison Score (Lord et al., 2012b). For modules 1-3, if the cutoff is met and the ADOS-2 classification is autism or autism spectrum, the comparison score can be calculated using the table provided in the ADOS-2 manual (Lord et al., 2012b). The comparison score will either be "high," "moderate," "low," or "minimal-to-no-evidence." While this score cannot directly link to levels 1, 2, or 3 per DSM-5, it can give you a general idea of an individual's overall level of ASD-related symptoms. A

comparison score of 8-10 falls in the "high level of ASD-related symptoms" and will likely be

associated with a specifier of a higher level, such as level 2 or 3. A comparison score of 1-2

translates to "minimal-to-no evidence of ASD-related symptoms" and will likely not be

associated with the specifier of a higher level. By looking at the comparison score on modules

1-3, the examiner is using quantitative data to aid in diagnosis. It is also always important to go

back and look at the two categories of scores (e.g. social affect and restricted, repetitive

behavior) that comprise the overall total score because it is possible that one category is much

higher than the other. In this case, it is important to compare scores back to the DSM-5

diagnosis. An individual who has a social affect (SA) score of 12 and a restricted, repetitive

behavior (RRB) score of 0 will still obtain an overall total that exceeds the ADOS-2 autism

spectrum cut-off but a diagnosis of ASD is probably not going to be made because weaknesses

in both areas are required for diagnosis. Another possibility is that the overall score yields an

ADOS-2 classification of autism or autism spectrum, and the comparison score yields a "high

evidence for ASD symptoms," but there is moderate variability in the domains of SA and RRB.

For instance, if the individuals score on RRB is twice as high as the score on SA, then this child

is likely someone who has less difficulty navigating social communication than they do with

restricted behaviors. This will create variability in the ultimate diagnosis where Level 1, 2, or 3

will be assigned separately to Social Communication and Restricted, Repetitive Behavior. It is

important to remember that DSM-5 Levels are always assigned separately to these two

domains, and it is possible that a child will have specifiers of Level 3 "Requiring Very Substantial

Support" regarding Restricted, Repetitive behaviors and Level 1 "Requiring support" regarding

Social Communication (American Psychiatric Association, 2013). Looking at the raw data,

combined with clinical judgment will ultimately dictate the assignment of levels. However, the

ADOS-2 comparison scores, and raw data will provide quantitative evidence for consideration.

The ADOS-2 Toddler module and module 4 are different in that they do not provide a comparison score linked to level of ASD symptoms. The ADOS-2 Toddler module provides a similar description entitled "range of concern," which falls into one of three dimensions: "moderate-to-severe," "mild-to-moderate," or "little-to-no concern." (Lord, Luyster, Gotham, & Guthrie, 2012). Again, these ranges can provide quantitative data and can be used in addition to the raw data to inform DSM-5 level assignment. The toddler module also separates scores by SA and RRB (Lord et al., 2012a). This aligns with the DSM-5 criteria A and B.

The ADOS-2, module 4 produces scores under 4 categories: Communication, Reciprocal Social Interaction, Imagination/Creativity, and Stereotyped Behaviors and Restricted Interests. Scores get translated into ADOS-2 Classification of autism, autism spectrum or non-spectrum but no further analysis is provided (Lord et al., 2012b). Therefore, with module 4, the raw data must be compared to the DSM-5 criteria in order to assign a specified Level of 1, 2, or 3 for Social Communication and Restricted, repetitive behaviors. In general, the Communication and Reciprocal Social Interaction raw data will correspond with DSM-5 criteria A, whereas the Stereotyped Behaviors and Restricted Interests will correspond with DSM-5 Criteria B.

Next, let's talk about the Childhood Autism Rating Scale, Second Edition (CARS-2). Administration and scoring of the CARS-2 Standard or CARS-2 High functioning will yield T-scores (refer back to the crash course on psychometrics if needed), which can be translated into descriptive ranges. The CARS-2 manual describes the interpretive categories of ASD symptomology associated with the T-scores as: "extreme level," "very high level," "high level", "average level," "low level," "very low level," and "minimal-to-no ASD-related symptoms

compared to those with ASD." These descriptions are based on comparison to those with ASD
and not to the general population (Schopler, Van Bourgondien, Wellman, & Love, 2010). Like
the ADOS-2 Total Score, or the SRS-2 Total Score, this T-score provides a quantitative piece of
data. In order to determine Social communication and restrictive, repetitive behavior level
specification per DSM-5, the examiner must refer back to raw data scores. See Table E5 for
items of reference relating to Social Communication and Restrictive, repetitive behaviors
(Schopler et al., 2010). Scores on these items should be considered in addition to clinical
judgment when specifying DSM-5 level 1, 2, or 3 for each domain.

Table E5
CARS-2 Items related to DSM-5 Social Communication and Restricted, repetitive behaviors

Test Version	Social Communication	Restrictive, repetitive behaviors
CARS2-ST items	Relating to People Imitation Emotional Response Object Use Adaptation to Change Visual Response Listening Response Verbal Communication Nonverbal Communication	Emotional Response Body Use Object Use Adaptation to Change Visual Response Listening Response Taste, Smell, and Touch Response and Use Fear or Nervousness Verbal Communication Activity Level
CARS2-HF items	Social-Emotional Understanding Emotional Expression and Regulation of Emotions Relating to People Visual Response Listening Response Thinking/Cognitive Integration Skills	Expression and Regulation of Emotions Body Use Object Use in Play Adaptation to Change/Restricted Interests Visual Response Listening Response Taste, Smell, and Touch Response and Use Fear or Anxiety Thinking/Cognitive Integration Skills

Note: List items from CARS2 (Schopler, et al., 2010).

Finally, let's talk about The Social Responsiveness Scale, 2nd Edition (SRS-2). After

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administration and scoring of the SRS-2, the examiner is provided with several T-scores (refer back to the crash course on psychometrics if needed). The SRS-2 provides a Total Score, which can be analyzed into ranges of "within normal limits", "mild," "moderate," and "severe." Like the ADOS-2, this is good quantitative evidence, however, further analysis of the data is required to translate it to DSM-5 criteria, especially as it relates to Levels 1, 2, or 3. The SRS-2 provides an additional scale entitled "DSM-5 Compatible Scales," which provides quantitative data related to Social Communication, or SC, and Restricted, Repetitive behaviors, or RRB (Constantino & Gruber, 2012; Frazier et al., 2012). These T-scores can also be translated into ranges, which can then be used, in addition to clinical judgment to inform DSM-5 Level specification. For instance, if the RRB T-score translates to the severe range, it is likely that the DSM-5 specifier for Restrictive, repetitive behaviors will be Level 3.

Placement upon the Spectrum of ASD

The good and bad in a person, their potential for success or failure, their aptitudes and

deficits – they are mutually conditional, arising from the same source. Our therapeutic

goal must be to teach the person how to bear their difficulties. Not to eliminate them for

him, but to train the person to cope with special challenges with special strategies; to

make the person aware not that they are ill, but that they are responsible for their lives.

(Hans Aspergers, 1938)

If we are to achieve a richer culture, rich in contrasting values, we must recognize the

whole gamut of human potentialities, and so weave a less arbitrary social fabric, one in

which each human gift will find a fitting place.

(Margaret Mead, 1935, p. 322)

Pinpointing Strengths and Weaknesses and Translating to DSM-5 Severity Levels

With a good understanding of ASD and the testing measures associated with it, you can

begin to interpret the data and map out the individual's strengths and weaknesses. You should

be able to answer criteria C, D, and E based on the interview, your interaction with the

individual, and his/her scores on standardized measures of adaptive behaviors and intellectual

or developmental functioning. The direct observation measures, such as the ADOS-2, the

CARS-2, and/or the SRS-2, will provide you more detail related to Criteria A and B. Further

analysis of the results on these measures will aid in translating symptom severity to the Levels

per DSM-5.

The DSM-5 specifiers, or Levels 1, 2, or 3 for Social Communication or Restricted and Repetitive Behaviors, were designed to provide data beyond the clinical diagnosis of ASD (American Psychiatric Association, 2013). The levels are to be used in conjunction with the individual and/or the family's and/or caregivers' treatment priorities and are not to be used to determine eligibility for services without that component. For instance, assigning the specifier of Level 1, Social Communication and Level 1, Restricted and Repetitive Behaviors gives additional information about this individual's presentation of ASD. This, combined with the goals of the client, can inform treatment recommendations. A child who was assigned Level 3, Social Communication and Level 3, Restricted and Repetitive Behaviors will likely need more support in order to achieve goals than a child assigned Level 1 for each domain. Although the DSM-5 and the ASD testing measures often use the language of "deficits" and/or "severity level," it can be helpful to think about it in terms of areas of strength and weakness, which might feel less pathological. Once the Level has been assigned, the clinician can color-code the template entitled "Placement upon the Spectrum of ASD" (see Appendix A), which can be reviewed with the parents, family/caregivers, or individual.

Chapter 2 reviewed three useful ASD diagnostic measures (the ADOS-2, the CARS-2, and the SRS-2) and described the basics of interpreting the results provided by each measure. That chapter also provided information about how to go about transforming that data into placement upon the spectrum.

Other test results (e.g. the intelligence, speech and language, sensory and motor), in addition to clinical observations, should also be considered and discussed—especially as it relates to areas of strength. For instance, if an individual performed in the superior range on perceptual reasoning, that area should be highlighted as a strength—even though it does not necessarily rule in or rule out ASD. It is important to highlight the strengths in an individual, so

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that he/she (or his/her parents) can build self-confidence and take a break from the debilitating

cycle of the mindset of a disability (Armstrong, 2010). Highlighting the strengths can also

inspire the development of those skills. In an interview with the New York Times, Temple

Grandin was quoted saying "Some guy with high-functioning Asperger's developed the first

stone spear; it wasn't developed by the social ones yakking around the campfire" (Armstrong,

2010, p. 53). The task for the examiner in shedding light on the strengths, while gently

negotiating which weaknesses might benefit from intervention, is to create a platform for

success and not to eliminate diversity. See Appendix B for a worksheet to aid family/caregivers.

Clinical examples

If a diagnosis of ASD is made, 9 potential combinations of Levels exist relating to Social

Communication and Restricted, Repetitive Behavior. Chapters 2 and 3 described the steps

taken to assign the Levels; this chapter's examples of different presentations of different

combinations of levels in order to give a basic snapshot of how this might look clinically.

Let's start with this example. A 14-year-old boy, named Jacob, diagnosed with ASD,

Level 1— Social Communication and Level 1— Restricted and Repetitive Behaviors. He was

evaluated using the ADOS-2, module 3, ADI-R, WISC-V, BASC- 3 PRQ, and the BRIEF. His

parent's primary concern was that he does not seem able to conform to classroom rules, gets

into trouble for talking out of turn, and makes comments that offend others without

understanding how such comments are inappropriate. Behavioral Observations noted a

generally flat affect, limited eye contact, excessive talking, and limited interest into others'

experiences. He has a reportedly close relationship with his parents, which was evidenced by

the results from the BASC-3- PRQ. His scores on the ADOS-2 yielded a classification of autism

spectrum with the severity rating of low evidence of symptoms. On the BRIEF, clinical concern

was noted on the following domains: Monitor (i.e., interpersonal awareness), and Shift (i.e., the ability to move freely from one activity to another). His performance on the WISC-V yielded a FSIQ in the low average range- and he had relative strengths on the Matrix Reasoning and Similarities subtests, and relative weakness on the Coding subtest. Of note, this profile is not uncommon in individuals diagnosed with ASD (Oliveras-Rentas, Kenworthy, Roberson, Martin, & Wallace, 2012). Ultimately, his scores, history, and presentation suggest that he has mild difficulties relating to his ASD that cause him to struggle navigating society, and that minimal support will help him function more comfortably.

Now, let's do another example. An 11-year-old girl named Jana, diagnosed with ASD, Level 3- Social Communication and Level 3- Restricted and Repetitive Behaviors. She was evaluated using the CARS2-ST, BASC-3 PRQ, and VABS-II. Her parents reported primary concerns regarding her behavior, which can be very violent towards herself and others. They also reported concern relating to her obsession with YouTube videos about beanie babies, which is the only activity she will participate in without becoming dysresgulated. She has an IEP and is placed in special education, under the eligibility of Autism. Her parents reported that they are having a very difficult time parenting her, and that it is negatively impacting their marriage. Scores on the BASC-3 PRQ suggest clinical concern in the domains of Parent Confidence and Relational Frustration. Her scores on the VABS-II suggested difficulty regarding adaptive behaviors. Scores on the CARS-ST translate to interpretive categories of extreme level of ASD symptoms. Ultimately, her scores, history, and presentation suggest that she has several difficulties related to her ASD, and will likely need very substantial support.

Let's do one last example. A 6-year-old boy, named Josh, diagnosed with ASD, Level 3- Social Communication and Level 1- Restricted and Repetitive Behaviors. He was evaluated

using the SRS-2, BASC-3 PRQ, ABAS-III and Sensory Profile 2. His caregivers are concerned

about his lack of interest in others and his inability to share affection with loved ones. On the

SRS-2, his DSM-5 compatible scores were severe related to Social Communication, and mild

related to Restricted and Repetitive Behaviors. On the Sensory Profile 2, his scores ranged

from average to above average. On the ABAS-III, his scores were very well below average on

the following domains: Social, Communication, and Leisure. The domains of Attachment and

Communication were significant below average on the BASC-3 PRQ. Behavioral observations

corroborated caregivers report and the data as he was unresponsive to social initiation, and

displayed no initiation unless he needed to have a need met.

Match to Treatment

Life fully lived is…not about counting the losses and the lost expectations, but rather swimming, with as much grace as can be mustered, in the joy of all of it.

—Leisa Hammett, 2015

Treatment Options

On World Autism Day (April 12) in 2015, the National Autism Center released a large scale up-to-date (2007-2012) summary of empirically supported literature on ASD interventions based on the findings of an expert panel and the use of Scientific Merit Rating Scale (SMRS) software (National Autism Center, 2015). It was released in the form of an online report, entitled the National Standards Project, Phase 2 and it separates interventions into one of three categories: established, emerging, or unestablished interventions (National Autism Center, 2015). In addition, the report describes the skills that each intervention has been shown to increase and the behaviors that the interventions have been shown to decrease. The categories of skills that can increase include: academic, communication, higher cognitive functions, interpersonal, learning readiness, motor skills, personal responsibility, placement, play, and self-regulation, whereas the categories of behaviors that can decrease include: general symptoms, problem behaviors, Restricted, Repetitive, Nonfunctional Patterns of Behavior, Interests, or Activity, and Sensory or Emotional Regulation (National Autism Center, 2015). To the professional: be careful when using terms such as "behaviors decreased" because different families and cultures have different beliefs about what is important. For instance, in the Navajo population, literature describes the importance of focusing on strengths rather than the reduction or improvement of behaviors (National Autism Center, 2011).

Interventions that classified as established met the highest scientific criteria and have

higher treatment outcomes based on peer reviewed literature, thus they are established as effective treatment options (National Autism Center, 2015). For children and adults age 22 and younger, there are 14 established interventions. These include: Behavioral Interventions, Cognitive Behavioral Interventions, Comprehensive Behavioral Activation for Children, Language Training, Modeling, Natural Teaching Strategies, Parent Training, Peer Training Package, Pivotal Response Training Package, Schedules, Scripting, Self-management, Social Skills Package, and Story-Based Intervention (National Autism Center, 2015). See table E6 for brief descriptions of each treatment.

Interventions classified as emerging met some criteria and have one or more peer reviewed studies documenting successful outcomes, however, the number of such studies was not enough to fulfill the criteria needed to be considered established (National Autism Center, 2015). For children and adults age 22 and younger, there are 18 emerging interventions. These include: Augmentative and Alternative Communication Devices, Developmental Relationship-based Treatment, Exercise, Exposure Package, Functional Communication Training, Imitation-based Intervention, Initiation Training, Language Training (Production & Understanding), Massage Therapy, Multi-component Package, Music Therapy, Picture Exchange Communication System, Reductive Package, Sign Instruction, Social Communication Intervention, Structured Teaching, Technology-based Intervention, and Theory of Mind Training (National Autism Center, 2015). See table E7 for brief descriptions of each treatment.

Interventions classified as unestablished had little or no empirically supported evidence that met the criteria proposed by the guidelines (National Autism Center, 2015). Thus, there is a possibility that these are unestablished because the nature of the intervention is not data driven, and therefore, makes research difficult (Brunner & Seung, 2009). Another explanation is that literature on these interventions is published exclusively in non-peer-reviewed journals, or the

interventions have not yet been scientifically examined (National Autism Center, 2015). It does

not mean that these are harmful treatments, and, in 2009, when the first National Standards

report was published, there were no findings of harmful treatments related to ASD (National

Autism Center, 2009). Based on the phase 2 report, these interventions are considered

unestablished: Animal-Assisted Therapy, Auditory Integration Training, Concept Mapping,

DIR/Floortime, Facilitated Communication, Gluten-Free/Casein-Free Diet, Movement-Based

Interventions, SENSE Theatre Intervention, Sensory Intervention Package, Shock Therapy,

Social Behavioral Learning Strategy, Social Cognition Intervention, and Social Thinking

Intervention (National Autism Center, 2015). It is important to note that since the first report,

interventions that were in one category have moved up in credibility; therefore, it is critical to

stay updated on the literature of treatment, as it is possible that in the near future a whole new

set of established interventions will emerge. See table E8 for brief descriptions of each

treatment.

Table E6

Established Interventions based on the National Standards Report (National Autism Center,

2015)

Intervention	Age	Brief Description and Treatment	Behaviors Decreased	Skills Increased
Behavioral Interventions	3-21 years	Joint Attention, Chaining, Differential Observing Response, Forward Chaining, Imitation Training, Reinforcement Schedule, Response Interruption and Redirection, Repeated Practice, Standard Echoic Training, Extinction + Reinforcement, Function-based Intervention + Prompts, Sign Extinction + Differential Reinforcement of Alternative Behavior (DRA), Stimulus Fading + Positive Reinforcement, Choice + Task Interpersonal + Positive Reinforcement, Discrete-trial Training + Natural Consequences + Error Correction, Prompting + Natural Consequences + Activity Interpersonal, Preteaching + Prompting + Positive Reinforcement, Combined Task Direction + Contingent Reinforcement + Physical Prompts + Stimulus Fading, Modeling + Prompting + Reinforcement + Redirection + Abolishing Operation Component, Prompt Delay + Auditory Scripts + Manual Prompts + Behavior Rehearsal + Tokens, Reinforcement Pairing + Habit Reversal + GaitSpot Squeakers + Differential Reinforcement of Incompatible Behavior, Video modeling + DRA + Escape Extinction + Stimulus Fading + Photo Prompting, Video modeling + Highlighting + Prompting/Fading + Reinforcement, Video Modeling + Photo Prompts + Contact Desensitization + Shaping + Differential Reinforcement of Other Behavior (DRO) + Escape Extinction, and Writing Task Analysis + Social Scripts + Prompting + Self-Monitoring + Fading	Problem behaviors, and Restricted, Repetitive, Nonfunctional Patterns of Behavior, Interests, or Activity	Cognitive functions, motor skills, academic, interpersonal, learning readiness, personal responsibility, play, self-regulation, communication

35   (continued)

Intervention	Age	Brief Description and Treatment	Behaviors Decreased	Skills Increased
Cognitive Behavioral Intervention Package	6-14 years	Manualized CBT programs for ASD that involve CBT components (e.g. psychoeducation, cognitive restructuring, intensity rating, homework assignments, parent sessions). Treatments: Coping Cat, and Exploring Feelings	Problem behaviors and sensory or emotion regulation	Higher cognitive functions, interpersonal, personal responsibility, placement
Comprehensive Behavioral Treatment for Young Children	0-9 years	Intensive therapeutic services (i.e., 25-40 hours per week for 2-3 years) based on principles of ABA. Also known as: Applied Behavioral Analysis or Early Intensive Behavioral Intervention.	General Symptoms, and Problem Behaviors	Play, Academic Readiness, , Higher Cognitive Functions, Interpersonal, Personal Responsibility, Motor Skills, Communication
Language Training (Production)	3-9 years	A variety of strategies used to elicit language from a child with ASD (e.g., modeling, music, reinforcement of verbal response).		Interpersonal, Play, Communication
Modeling	3-18 years	Demonstration of a behavior in order for child/adolescent to imitate it. Treatments: Live modeling, and Video Modeling.	Problem Behaviors, Sensory or Emotional Regulation	Higher Cognitive Functions, Academic, Interpersonal, Personal Responsibility, Play, Communication
Naturalistic Teaching Strategies	0-9 years	A combination of strategies used to teach child in their natural environment, primarily child-directed. Treatments: Focused Stimulation, Incidental Teaching, Milieu Teaching, Embedded Teaching, Responsive Education, and Prelinguistic Milieu Teaching		Interpersonal, Play, Learning Readiness, Communication

Intervention	Age	Brief Description and Treatment	Behaviors Decreased	Skills Increased
Parent Training Package	0-18 years	Parents act as therapist and receive training to implement with the child/adolescent. Treatments: Group Training, Support Groups with Psychoeducation, Training Manuals.	General symptoms, Problem Behaviors, and Restricted, Repetitive, Nonfunctional Patterns of Behavior, Interests, or Activity	Interpersonal, Play
Peer Training Package	3-14 years	Training peers how to initiate and interact with child with ASD. Treatments: Project LEAP, Peer Networks, Circle of Friends, Buddy Skills Package, Integrated Play Groups, Peer Initiation Training, and Peer-Mediated Social Interaction Training	Restricted, Repetitive, Nonfunctional Patterns of Behavior, Interests, or Activity	Learning Readiness, Interpersonal, Communication
Peer Training Package	3-14 years	Training peers how to initiate and interact with child with ASD. Treatments: Project LEAP, Peer Networks, Circle of Friends, Buddy Skills Package, Integrated Play Groups, Peer Initiation Training, and Peer-Mediated Social Interaction Training	Restricted, Repetitive, Nonfunctional Patterns of Behavior, Interests, or Activity	Learning Readiness, Interpersonal, Communication
Pivotal Response Treatment (PRT)	3-9 years	Similar to Naturalistic Teaching Strategies, PRT occurs in the natural environment. Interventions focus on key teaching opportunities in a natural setting, targeting the pivotal areas (e.g., motivation, self-management). Treatments: Pivotal Response Teaching, Natural Language Paradigm.		Play, Interpersonal, Learning Readiness, Communication
Schedules	3-9 years	Identification of activities and scheduling them in order. Strategies (e.g., pictures on a board) can be used.		Self-Regulation
Scripting	3-14 years	Providing guidance (scripts) for language use in certain situations by creation of script and repeated practice.		Play, Interpersonal, Communication

Intervention	Age	Brief Description and Treatment	Behaviors Decreased	Skills Increased
Self-Management	15-21 years	Teaching individuals with ASD to perform self-evaluations during an activity.	Restricted, Repetitive, Nonfunctional Patterns of Behavior, Interests, or Activity	Academic, Interpersonal, Self-Regulation, Communication
Social Skills Package	3-18 years	Teaching abilities such as appropriate eye contact, gestures, reciprocal information, and initiation/concluding an interaction. Targets include problem solving skills, turn-taking, personal space, etc.	General Symptoms, Problem Behaviors, Restricted, Repetitive, Nonfunctional Patterns of Behavior, Interests, or Activity, and Sensory or Emotional Regulation	Learning Readiness, Placement, Play, Interpersonal, Communication
Story-Based Intervention	3-14 years	Using stories (pictures/words) to identify a target behavior and describe expected outcome. Treatments: Social Stories	Problem Behaviors	Learning Readiness, Interpersonal, Self-Regulation, Communication
Behavioral Interventions	22+	Interventions that involve antecedents, consequences, and other alterations of the environment. Treatments: Prompting, Extinction, Differential Reinforcement of Incompatible Behavior DRI), Choice, Functional Communication Training, Prompting + Error Correction, Prompting + Blocking, Escape Extinction + Sensory Extinction, DRA + Extinction, DRI + Response Interruption, Prompting + Blocking + DRA, DRI + Reprimand + Overcorrection, Rapport Building +Choice Making + Embedding + Functional Communication Training	Problem Behaviors	Personal Responsibility, Self-Regulation, Communication

Table E7

Emerging Interventions Based on the National Standards Report (National Autism Center, 2015)

Intervention	Age	Treatments
Augmentative and Alternative Communication Devices	16 years and under (Still, Rehfeldt, Whelan, May, & Dymond, 2014)	Use of high or low technological devices for communication (e.g. pictures, symbols, smart phone technology, speech generation technology)
Developmental Relationship-based Treatment	Under 22, otherwise unspecified	Treatment grounded in theories of development, based on assumptions that the child is an active learner, and learning takes place in the context of a social environment. The relationship is emphasized and therapy often involves teaching parents to respond. Treatments: Denver Model, DIR, Relationship Development Intervention, Responsive Teaching
Exercise	Under 22, otherwise unspecified	Physical Exercise, including aerobic exercise, exer-games, jogging, roller-skating, hydrotherapy exercises, cycling, weight training, and more (Srinivasan, Pescatello, & Bhat, 2014)
Exposure Package	Under 22, otherwise unspecified	Treatment that involves exposing the individual to a feared stimulus. Can be used in conjunction with other treatment modalities.
Functional Communication Training	Under 22, otherwise unspecified	Treatment that assumes behavioral problems are a form of communication, and intervenes by determining what a child wants to say, teach them to say it, and reinforce attempts. (Durand, & Moskowitz, 2015)
Imitation-based Interaction	Under 22, otherwise unspecified	Treatment involves adult imitation of child's behavior.
Initiation Training	Under 22, otherwise unspecified	Directly teaching a child to initiate interaction with a peer.
Language Training	Under 22, otherwise unspecified	Primary goal of increasing speech production and understanding communication, using strategies like echoing relevant words, structured discourse, position object training, and other strategies.
Massage Therapy	Under 22, otherwise unspecified	Deep Tissue Stimulation.
Picture Exchange Communication System (PECS)	Under 22, otherwise unspecified	A manualized treatment program that teaches children to use a picture exchange-based communication system. It is commonly used in nonverbal children and has several stages (Flippin, Reszka, & Watson, 2010).

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Intervention	Age	Treatments
Reductive Package	Under 22, otherwise unspecified	Treatment designed to reduce problem behaviors in absence of increasing alternative behaviors. Treatment examples: Water mist and Behavior Chair Interruption.
Sign Instruction	Under 22, otherwise unspecified	Direct teaching of sign language as a mean of communication.
Social Communication Intervention	Under 22, otherwise unspecified	Treatment targeting a combination of social communication and the inability to read social cues. Treatments under this category: Social Pragmatic Interventions, Joint Attention Symbolic Play Engagement and Regulation (Chang, Shire, Shis, Gelfand, & Kasari, 2016).
Structured Teaching	Under 22, otherwise unspecified	Based on neuropsychological characteristics of those with ASD, treatment involves arranging physical setting, using predictable schedules, and individualized teaching. Other treatments names: Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH).
Technology-based Intervention	Under 22, otherwise unspecified	Treatment involving presentation of materials using technology as a medium. Treatments: The Emotion Trainer Computer Program, robots, or Personal Digital Assistants (PDA).
Theory of Mind Training	Under 22, otherwise unspecified	Treatment designed to help those with ASD recognize and identify the mental states of others.
Vocational Training Package	22 +	Education of a trade to an individual.

Table E8
Unestablished Interventions Based on the National Standards Report (National Autism Center,

2015)

Intervention	**Age**	**Treatments**
Animal-assisted Therapy	Under 22, otherwise unspecified	Interaction with animals to facilitate therapeutic change.

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Intervention	Age	Treatments
DIR-Floor Time	Under 22, otherwise unspecified	Therapy involving play, following the child's natural emotional interests and encouraging greater mastery of capacities. (Differs from DIR model)
Auditory Integration Training	Under 22, otherwise unspecified	Treatment involves presenting modulated sounds via headphones in attempt to rewire sensitivity to sound and hearing distortions.
Facilitated Communication	Under 22, otherwise unspecified	Facilitator supports the arm or hand of person with ASD, and helps them use pictures or a keyboard to communicate.
Gluten-free/Casein-free Diet	Under 22, otherwise unspecified	Elimination of naturally occurring proteins gluten and casein.
Movement-based Intervention	Under 22, otherwise unspecified	Interventions that involve physical movement (e.g., dance therapy)
SENSE Theatre Intervention	Under 22, otherwise unspecified	Theatre techniques involving peers, play, and performance.
Sensory Intervention Package	Under 22, otherwise unspecified	Establishment of an environment that stimulates all senses in order to treat over-or under stimulation of environment.
Shock Therapy	Under 22, otherwise unspecified	Electric shocks aimed at behavioral modification.
Social Behavioral Learning Strategy	Under 22, otherwise unspecified	Treatment that aims to help an individual read social cues and respond with appropriate social skills. Treatments: Stop-Observe-Deliberate-Act (SODA) (Bock, 2007)
Social Cognition Intervention	Under 22, otherwise unspecified	Interventions based on Social Cognitive Theory.
Social Thinking Intervention	Under 22, otherwise unspecified	Intervention based on Social Thinking Theory, combining individual learning strategies with the demands of the community in which he/she is placed. Treatments: Social Thinking Vocabulary
Cognitive Behavioral Intervention Package	22 +	Therapy based on assumption that behavior is mediated by cognition. Individuals are taught to examine thoughts and emotions.
Modeling	22 +	Demonstration of a behavior in order for an adult to learn it.
Music Therapy	22 +	Teaching skills through use of music.

To reiterate the point stated earlier, the categories are based on the methodology of the National Standards Project, which involved the number of peer reviewed studies associated with it and the rating on a scientific merit rating scale. There are children and caregivers who have reported benefits from treatments that fall under emerging, or even unestablished interventions. Therefore, these categories are not meant as a translation of good, neutral, and bad. Some of the interventions listed on unestablished are comprised of several components that were categorized as emerging or established, so the fact that the particular intervention is in that category should be taken with caution. Others, like shock therapy, have more associated risk and controversy. Additionally, the benefits have been primarily noted in severe depression in adults, and not in autism spectrum disorder in children. Therefore, very careful consideration should be taken when looking at this intervention. (National Alliance on Mental Illness, 2016)

If an individual under 22 is assigned to ASD, Level 3 for SC and RRB, meaning that the individual requires very substantial support in both domains, treatment is likely to be more involved (assuming that targets of treatment are to improve both domains of functioning). Primary treatments that fall under the established category and demonstrate improvement in both domains, that might be appropriate for the individual include, but are not limited to: Behavioral Interventions, Cognitive Behavioral Intervention Packages, Comprehensive Behavioral Treatment for Young Children (i.e., ABA), and Parent Training. Many of these interventions involve many (25 plus) hours of therapy per week and have received some criticism for appearing like animal training. Other interventions that are described as established might also be appropriate (refer to table E6) on their own, or in conjunction with other treatments. At this level (3), this manual proposes starting with an established intervention. There will be cases where recommending interventions from the emerging (refer to table E7) or unestablished treatment (refer to table E8) list will be warranted and this can be

decided using professional, and caregiver judgment. In cases where the child is socially motivated, and the parents have a good understanding of their child's unique way of communicating and displaying attachment motivated gestures, it might be appropriate to start with an attachment-based, relationship-focused treatment, such as Developmental Relationship-based Treatment.

If an individual under 22 is assigned to ASD, Level 2 for SC and RRB, meaning that the individual requires substantial support in both domains, treatment is likely to be involved but may be less intensive than treatments for a child requiring more support (e.g., a child assigned Level 3). The treatment recommendation may be any from the established list that fit the child's age and abilities, and may be the same as a child assigned Level 3. This must be determined on a case-by-case basis, involving the caregivers and professional. Treatment recommendations may also come from the emerging list. This manual recommends shifting more into attachment-based treatments as the child is able to engage in these types of treatment. Therefore, a treatment like Developmental Relationship-based Treatment, or the Peer Training Package, or others that involve social learning and relationships are recommended.

If an individual under 22 is assigned to ASD, Level 1 for SC and RRB, meaning that the individual requires support in both domains, treatment is likely to be less involved and less intensive than treatments for a child requiring more support (e.g., a child assigned Level 2 or 3). At this point, shifting treatment away from the intensive, behavioral packages might be warrant. However, some parents may still want to start there, in order to establish behavioral stability, before shifting into more attachment-based treatments. Another recommendation that might come in at this level, and depending on the case, is no treatment at all. There is a growing area of interest in the field of neurodiversity that regards the diversity of human brains as enriching

and necessary for society (Armstrong, 2010). Armstrong (2010) proposes that the world needs "systemizers" and other people on the spectrum to share their gifts rather than conforming to"neurotypical." He also explains that this does not excuse anyone from social responsibility, and that interventions are often helpful ways of growing an individual's potential. Understand, he is a proponent of DIR and other child-centered approaches that focus more on the therapeutic relationship and the child's interest (Armstrong, 2010).

The interventions listed in the tables above provide a good starting point for making a recommendation as it provides a comprehensive list. However, it is inappropriate and overwhelming to provide that many treatment recommendations and it is the job of the professional to weed out inappropriate interventions. Some obvious reasons that might make an intervention inappropriate include age, resources, and ability. For instance, recommending a Self-Management Intervention to a 2-year old would be inappropriate based on age, and ability. Recommending the SENSE Theatre Intervention to a child in a rural community is probably inappropriate because it is likely not provided. Therefore, the professional uses clinical judgment (and common sense) to create a basic recommendation list.

Reintegrating caregiver values

When your values are clear to you, making decisions becomes easier.

—Roy E. Disney

Once a list of potential treatments has been compiled, it is critical to re-examine caregiver values and goals in order to narrow down the list to the best potential matches. Even the most established interventions are not expected to work with every child and caregiver values are important determinants to the effectiveness of the treatment (National Autism Center,

2015). This links back to the common factors model of psychotherapeutic healing that finds the

contextual factors within any given therapy as the necessary components of healing and change

(Wampold, 2001). Experts on the common factors model agree that these ingredients make

therapy effect: (a) a working alliance; (b) myth, or rationale for a specific treatment that the

therapist believes and communicates to client; (c) ritual, or the therapeutic actions that are done

based on the myth (Duncan, 2010b; Frank & Frank, 1991; Wampold, 2010). The working

alliance involves agreement about the treatment goals and ways of reaching such goals.

Applying this to treatment recommendations of ASD, it is critical to involve the caregivers and

understand their values, beliefs, and goals. At this point, a formal assessment of

family/caregiver values is not included in the manual and instead relies upon a solid clinical

interview, a review of literature relevant to the individual's cultural and contextual identity. To

address this need, a worksheet with questions that aid in narrowing treatment options is

supplied (see Appendix C).

Alternative and Additional Treatments, Engaging the Caregivers, and the Conversation

about Treatment Options

Tolerance is the best religion.

—Victor Hugo

There are several treatments that have been used as alternative or adjunctive

treatments, some of which rely on empirical support, and most of which rely on anecdotal or

media report (Schreck, Russell, & Vargas, 2013). Biomedical interventions can be effective in

treating symptoms, however, due to the side effects of psychopharmacological treatments, it is

important to involve a psychiatrist in the selection of medication (National Autism Center, 2011).

Therapies that are considered alternative or adjunctive, which have not been firmly rooted in

science (aside from those listed in table E8) include, but are not limited to: nutritional therapies (e.g., Omega-3 Fatty acids), EEG Biofeedback, chelation therapy, and secretin therapy (Schreck et al., 2013). When caregivers bring up these treatments, it is important to validate effort and inform them on the current literature. Ultimately, a caregiver will select the treatment and it is the professional's duty to give them the best, honest, and accurate information available at a given time. If that means informing the family/caregivers that there have been reports of harm from a specific treatment, then informing them is indicated. Another consideration relating to alternative treatments is cultural beliefs. For instance, techniques employed in some ASD interventions, such as token economies, are not common in non-Western cultures, and therefore may not feel as natural as a complementary or traditional treatment (Sloan-Peña & Gallardo, 2015). In some cases, it might be helpful to consult with an expert on cultural issues.

When providing a diagnosis and comprehensive evaluation, several treatment recommendations will be made beyond intervention options. For instance, the American Academy of Medical Genetics states that it is standard practice and medically necessary for individuals with ASD to undergo Comparative Genomic Hybridization (CGH) microarray testing and analysis (National Medical Policy 501, 2016). Therefore, a recommendation might be made for such testing. Another example would be recommending that the caregiver seek a formal IEP through the school district. A list of common recommendations appears below, but is by no means a complete list of options. When writing recommendations for an individual, it is important to consider his/her unique needs.

Common recommendations in ASD include providing or improving

- caregiver psychoeducation,
- occupational therapy,
- speech therapy,
- assistive technology ,

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- academic accommodations (e.g., IEP, 504 Plan, Educational Therapist),
- psychiatric evaluation (especially when co-morbid diagnoses are present)
- sleep hygiene,
- consistency across settings,
- Comparative Genomic Hybridization (CGH) microarray testing and analysis, and
- maintenance of general medical appointments.

When discussing intervention options and additional treatment recommendations, good therapeutic skills are required. Just as it is critical to receive appropriate training before administering a test, or performing psychotherapy, it is also critical to have sufficient training in negotiating the tasks of delivering results to caregivers (Bartolo, 2002). Some families might feel relief given a diagnosis and options, while others may not. Qualitative research has documented different caregiver reactions, stating that some caregiver's feel as if it was delivered too bluntly. Bartolo (2002) describes a number of ways in which the task can be negotiated, one of which will be described here. The hopeful-formulation frame involves focusing on the child's strengths and positive achievements, providing results of problems in soft terminology, and give recommendations using hopeful terminology, asking for feedback and input. An example of how this might sound might be, "Mr. and Mrs. Jaxon, Jill was such a delight to get to know and she has so many areas of strength including X, and Z. She is also clearly very interested in having the two of you join her in her world, as evidenced by X, Y, Z. Some areas that I noted that were somewhat concerning were X, Y, and Z. So, while there are so many notable strengths that will really help her out, there is also enough evidence to appropriately described her as within the autism spectrum. Let me tell you what the literature says about interventions that might be good options. I have put a lot of consideration into the next steps, especially as they relate to capitalizing on her strong qualities. Let's work together so we can find the best match." This is a brief example, and time should be allowed for caregivers to respond throughout. Additionally, depending on the cultural practices of

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caregivers, delivering results might need to be done differently. For some cultures, it might be important to invite extended family, and/or all caregivers to participate. In others, a more direct and scientific approach might be comforting. This is where it boils down to clinical judgment and doing a good job in the beginning building rapport and learning which might be best. Also of note, the reaction of the caregivers might not have to do with the way that the message was delivered and instead be a reaction to the news. Caretakers do not sign up for care giving expecting this conversation and keeping that in mind might allow for increased empathy and cooperation on the side of the professional.

Following Progress to Inform Treatment

The brain is a far more open system than we ever imagined, and nature has gone very

far to help us perceive and take in the world around us. It has given us a brain that

survives in a changing world by changing itself.

(Doidge, 2007, p. 47)

The relationship between attachment and neural plasticity helps underline the

importance of following progress. Neural plasticity refers to the brain's potential to reorganize,

create new neural pathways, adapt, and heal based on new experiences and relationships.

Because we live in a social world, neural plasticity occurs when attachments are made. When

these attachments are secure (e.g., like Bowlby's secure base), the brain is more free to

optimize its learning potential (Cozolino, 2014). Translating this to children with ASD,

interventions that capitalize on the attachment (i.e., those that this manual deems as the

ultimate goal) between child and therapist and/or caregiver or peers, allow for optimization of

learning. However, because relationships and healing take time, it is important that progress is

tracked. The assumption is that relationships heal, and that the ultimate goal of therapy is to

provide that secure base from which a child can optimize learning and grow into his/her identity.

The goal is not the complete elimination of symptoms or conformity to the norm. By tracking

progress, changes in treatment recommendations can be made. For instance, the hope and

belief is that a child who has been involved in Comprehensive Behavioral Treatment 40 hours

per week will not need this level of treatment indefinitely. By tracking and engaging everyone

involved in the child's care, adjustments can be made to treatment.

Resources

If you have knowledge, let others light their candles in it.

—Margaret Fuller

Perhaps due to the growing awareness, or the growing online social network, the world of ASD has an extensive amount of resources for caregivers, professionals, and individuals on the spectrum. Each resource has strengths and limitations (including this one), but those on the following list were deemed useful.

Resources for individuals or caregivers

- http://www.nationalautismcenter.org/resources/

- https://www.autismspeaks.org/what-autism/diagnosis/dsm-5-diagnostic-criteria

- https://www.autismspeaks.org/family-services/tool-kits/100-day-kithttps://www.autismspeaks.org

- http://www.autism-society.org

- http://www.autism.com

- http://autismsciencefoundation.org

- http://www.asha.org

- http://www.neurodiversity.com

- http://the-art-of-autism.com

   Additional resources for the professional

- http://www.nationalautismcenter.org/resources/

- http://www.autism-insar.org

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