

Psychosocial Interventions for Asperger's Disorder

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INTRODUCTION

Although cases of autism may have been reported in the literature more than 100 years ago (1), it was not until 1943 that descriptions of what would become known as autism and Asperger's disorder (AD) were popularized (2). In contrast to Kanner, Asperger (3,4) believed that the syndrome was a personality trait rather than a developmental disorder. AD was added to the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV, 4th Edition) (5,6) to integrate those individuals who could not be diagnosed as "classically" autistic, but who had impairment in social relationships.

Since that time, the solution of adding categories to encompass more subjects has been challenged, with various authors being unable to find clear-cut differences between the various groups (7-12). It has been suggested by some

authors that while some of the disorders classified under PDD (such as fragile X and Rett's) are associated with specific genetic abnormalities and symptoms complexes, it may be more appropriate to consider the disorders of autism, AD, and PDD-Not Otherwise Specified (PDD-NOS), as representing a "spectrum" of social and language impairment. Although the idea may appear clinically persuasive to some, it can be argued that it is far from proven and the spectrum may be no more than a concatenation of symptoms representing a range of genetically influenced defects. However, as a clinician specializing in diagnosing individuals with autism and autistic-like conditions, we have found the concept of a social communication spectrum disorder to be useful, at least until a scientifically more sophisticated model comes along. This, however, begs the question, "A spectrum of what?" In the next section, we will attempt to answer this as well as to touch on other models that may help explain some of the fundamental deficits seen in persons with autism.

THE DEFICITS IN AUTISM SPECTRUM DISORDER

Failure to Develop Social Communication Skills and Knowledge

Infants come into the world with innate behavioral propensities that serve to maximize their interaction with caretakers. Like some higher primates, very young children emit various innate, universal, facial expressions (13,14), and can discriminate their mother's face from that of a stranger (15). "Affect attunement" (16) is a term that characterizes the manner in which an infant and her mother spontaneously interact crossmodally, matching duration, intensity, and rhythm signals. Mothers talk to their infants in "motherese," using exaggerated tone of voice, body language, gestures, and facial expressions to which their infants learn to respond with their own set of nonverbal behaviors. At two to four months of age, 30% of children automatically follow their mother's line of sight to an object, but by 14 months of age, all children do so without verbal prompting or gesture on the part of their mother (17). Faced with an experimental "visual cliff," 12-month-old infants learn to look to their mother's face to determine what they should do (18). If their mothers pose joy or interest, the children will cross; if the mothers pose fear or anger few infants cross.

Persons with autism fail to engage in the nonverbal social communication interactions typically seen in young children (19,20). It is not that autistic children fail to attach to their caretakers or that they avoid proximity. Like normal children and as well as children with Down syndrome, children with autism are clearly attached to their mothers, and they attempt to remain close to them. (21). In the Ainsworth Strange Situation, they seek contact with their mothers as much as normal children matched on age and IQ (22). They do not, however, show attention-sharing behaviors, such as pointing to objects (23), despite being able to distinguish between pictures of objects and various sounds as well as age- and IQ-matched nonautistic subjects (24), nor do they show deficits in perception of faces as stimulus objects (25). They do not seem to recognize the emotional and contextual meaning

of facial expression, gesture, and the nonverbal vocalizations of emotion (24). In comparison to children with "mental handicap" matched on mental age (MA), autistic children fail to use the speaker's direction of gaze to orient themselves to objects (26). In comparison to children with Down syndrome (27), they rarely used emotional gestures, even though they usually could initiate them upon request. Autistic children do not chat, nor do they become proficient at give-and-take conversation, even when they develop language.

The earliest development of social interaction, marked by sending social signals and learning to recognize signals, has been generally called "affective reciprocity," to which is gradually added, starting at six to eight months of age, "joint attention," in which the infant appears to interact with the mother in order to gain a response. Later, in the second year of life, typical children develop a theory of mind, in which they act as if they understand, nonverbally, that the "minds" of other people are different from their own, and that these minds can be sources of important information. Later, by three years of age, children begin to develop two new and diverging sets of skills, which have been called "intuitive psychology" and "intuitive physics" (28). Intuitive psychology denotes understanding that a person's behavior can be driven by inner motives, while intuitive physics is about learning how things work, about facts, and about inanimate objects. Young children learn to guess the motives of others by reading their nonverbal cues within the social context. This ability has also been called "mind-reading," and its absence "mind-blindness." Most children develop equal skills as mind-reading and understanding the world of objects, but occasionally one may see a child with much greater skill in understanding the world of objects than the world of psychological motives. While the concepts of intuitive psychology and intuitive physics are intriguing as explanation for perceived dissociations between social intelligence and factual knowledge, its value must be proven through more extensive research.

Using two popular research instruments, the Autism Diagnostic Interview-Revised (ADI-R) (29) and the Autism Diagnostic Observation Schedule (ADOS) (30) we have endeavored to classify persons with autism, AD, and PDD-NOS along a spectrum of communication disorder. This approach has been clinically useful to us (31,32). The most severely autistic persons have deficits in affective reciprocity, joint attention, and social knowledge; those with moderate social communication deficits tend to have mostly joint attention and social knowledge deficits, while the mildest forms have a lack of social knowledge. Whether this will prove useful to others remains to be seen.

Executive Function Deficits

Although the definition of executive functions may vary between investigators, it generally includes the ability to form abstract concepts, to develop a flexible plan of action aimed at solving problems, and to monitor and self-correct one's responses. Because persons with autism have been thought to have weaknesses

in tasks involving cognitive flexibility, verbal reasoning, and complex social memory, it has been proposed that executive-functioning deficits are a core cognitive deficiency of the syndrome. While some studies have supported executive-functioning deficits in autism (33,34), studies by Liss et al. (35) report that impaired executive-functioning is not unique to autism and may also be found in developmental language disorders. Russell et al. (36) concluded that children with autism are challenged by executive tasks because they are unlikely to encode rules in a verbal form.

Weak Central Coherence in Autism

Many years ago, it was noted that autistic persons were relatively adept at solving block design tests and imbedded figure tasks, doing so with even greater skill than shown by typical controls (37). It was proposed that this superior performance might be due to their use of a local processing strategy coupled with an ability to ignore global cues. Such a strategy might be consistent with their failing to focus on the overall social implications of interpersonal encounters while attending to irrelevant nonsocial cues.

Although it is not encoded in the DSM-IV, it has been proposed that the term "autism" represents the most severe forms of social communication disorder, while "AD" represents a less severe degree of social communication failure.

A CONCEPTUAL FRAMEWORK FOR TREATMENT PLANNING

The purpose of this chapter is to describe psychosocial interventions for individuals with AD that take into account impaired theory of mind, executive function, and central coherence. Before discussing specific interventions, an overview of expectations of therapy is provided as well as a conceptual framework to consider for treatment planning. When counseling families about outcomes from psychosocial treatments, one should help them develop appropriate and helpful expectations. Research shows that while psychosocial interventions are able to facilitate the person's understanding, skill development, and cognitive beliefs, they are not able to make a person "normal." For example, interventions targeted for social skills are reported as extremely important by parents and often a reason for referral (38). The clinician's task is to educate families in the understanding that although social skill differences are lifelong, social skills can be influenced by environmental input. The most important aspect of a therapeutic relationship is to be an informed clinician first, who understands both the state of the science as well as the limited research behind interventions, and second is to be able to translate this information into efficacious therapeutic services.

Although AD is a lifelong disability, many adults with AD lead extremely productive, fulfilling, and successful lives. One would ask: "How can an individual such as this be considered 'disabled' or 'handicapped?'" To help sort out answers to this question, a review of terminology is provided. In 1980, The

World Health Organization (39) adopted an international classification of impairment, disability, and handicap, which is proposed to occur along a continuum. Impairment is defined as "any loss or abnormality of psychological, physiological, or anatomical structure or function." Impairment would relate to the diagnosis of AD on the basis of the disordered development of socialization and restricted repertoire of interests. Disability is "any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being." For example, the person with AD is "disabled" when unable to participate in a role or function typically expected, such as a member of a social club at school. Handicap, on the other hand, is similarly defined as "a disadvantage for a given individual, resulting from impairment or a disability that limits or prevents the fulfillment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual." Emphasized in this definition is the concept of "disadvantage." The person with AD is handicapped when not allowed to participate because of the disadvantage imposed by the attitudes or perceptions from others about AD. For example, if a child is excluded from taking part on a little league baseball team because children with AD are not allowed, then the child is handicapped on the basis of the attitude of others rather than the child's actual skill.

Using the WHO definition of impairment, disability, and handicap as a conceptual framework allows for the analysis of the bidirectional influence of the person and the environment, a consideration that is important for setting expectations and developing interventions. It implies that therapeutic strategies are part of the enhancement of environmental supports, which are designed to offset personal challenges or impairments that may result in disability or even handicap (40). Psychosocial interventions take a two-pronged approach: one aimed at the individual and the other directed toward the environment. Interventions that focus on the individual include psychoeducational and developmental approaches, as well as more standard cognitive behavioral methods to address core features that result from impaired development in theory of mind, executive function, and central coherence. Interventions directed toward the environment include psychoeducational consultation with people (family members, teachers, employers) regarding environmental supports for the individual. The ultimate goal is for the individual to be able to participate as fully as possible and achieve maximum potential. To begin to build environmental supports, clinicians must be cognizant of evidence-based practices.

EVIDENCE-BASED PRACTICES

Evidence-based practices refer to "a body of scientific knowledge about service practices . . . or about the impact of clinical treatments or services" (41, p. 1179) on outcomes. The evidence behind a treatment is determined by demonstrating a relationship between the independent variable (treatment) and the dependent variable (outcome). Described as indicators of quality, robustness, or validity of

scientific evidence (41, p. 1180), evidence-based practice allows for the comparison of treatments on the basis of the degree of scientific rigor. Typically, a narrowly defined and homogeneous target group is used in such treatment studies (42) as well as comparison groups, randomization procedures, and established outcome measures (41). Studies that are employed within the context of highly controlled conditions such as these are often referred to as "efficacy" studies (43), which are concerned with internal validity and ask the question whether a particular treatment works under optimal conditions.

Much to our chagrin, however, results gained from efficacy studies do not always translate directly to clinical practice. And although efficacy studies are necessary for demonstrating whether a treatment works, such studies are insufficient for demonstrating effectiveness (42,44). Treatment effectiveness, in contrast to treatment efficacy, refers to the clinical utility of a treatment and asks how well a treatment will work within the context of service delivery and under different conditions using less homogeneous participants. Effectiveness research involves issues of external validity, such as generalization to a more broadly defined population, and has varying implementation and levels of participation on the basis of real-world conditions (42). Effectiveness studies must be robust enough to take these factors and other less controlled variables into account. Clinicians have to deal with factors that efficacy research ignores and considers as nuisance variables. Examples include practitioner, client, service delivery, organization, and service system characteristics (44).

Although research support for psychosocial interventions is emerging for individuals with AD (45-54), the amount of evidence available to guide treatment selection and implementation is limited (38,47,55), and a gap in the translation of laboratory-based efficacy studies and effectiveness studies specifically in autism spectrum disorder (ASD) is recognized (56,57). Efficacy studies on social skills groups for individuals with ASD, for example, have been reported (58-63); however, data on "effectiveness" of outpatient social skills groups are limited (56,64). To further complicate matters, as with research on individuals with autism, research on AD is also lacking. Therefore, given the relatively weak distinction between AD and high-functioning autism and the shared overlap of impaired social development and restricted interests, information learned from interventions for individuals with high-functioning autism can be applied to AD (55).

PLANNING PSYCHOSOCIAL INTERVENTIONS

Effective psychosocial interventions are individualized for persons with AD as well as adapted. Because of the limited information available to guide treatment selection and implementation, clinicians who are better able to understand the consequences of impaired theory of mind, executive function, and central coherence are better prepared to create, adapt, apply, evaluate, and monitor psychosocial interventions. These skills are important because research indicates

that individuals with AD do not benefit from traditional insight-oriented or talk therapy (55). Further, studies suggest that individuals with AD may not respond to strategies used for individuals with other disorders such as attention deficit hyperactivity disorder (ADHD) (47,65). Instead, evidence does suggest that a more directive approach helps focus the individual on the salient aspects of the targeted skill/concept by breaking down the skill/concept into concrete terms that can be explained visually as well as verbally (45,56). Gresham (66) offers a useful heuristic for the components of social behavior impairments that include social skill deficits, social skill performance deficit, self-control skill deficits, and self-control performance deficits. In addition to behavioral deficits described by Gresham, differences in social cognition and social thinking in persons with AD (55) must be taken into account as well as motivation to learn specific skills. If the person prefers to be solitary, then learning how to get along better with others, how to have conversations, and how to make friends may not be meaningful. Reasons for addressing the targeted skill/concept must be on the basis of the person's interests and motivations and made clear to the person.

Treatment Evaluation

Research suggests that a skill-specific approach is more successful (67) than a more general approach. Therefore, identifying specific skills to target can occur as part of a treatment evaluation. The use of interviews from multiple informants (e.g., parent, child, and teacher), rating scales, and criterion-referenced assessments facilitate goal selection. For social skills, most assessments are standardized and not as helpful in treatment planning or outcome monitoring because they are not broken down to the degree necessary for individuals with AD. Examples of criterion-referenced assessments are available and include the Skillstreaming program (68) and the Treatment and Research Institute for Autism Spectrum Disorders (TRIAD) Social Skills Assessment (TSSA) (69) as examples. Both assessments provide multi-informant rating scales. The TSSA, however, was developed specifically for individuals with ASD and also consists of a multimethod approach. Direct child interactions and parent and teacher report/ratings are included. The direct child interactions involve evaluation of the child's ability to label emotions of self and others and to attribute causes for various emotions; to identify solutions to social problems; to take the perspective of others; and to initiate, respond, and maintain interactions. Skills such as role-playing and using rating scales are also assessed, which is important for treatment strategies. The teacher and parent forms can help evaluate problem behaviors that interfere with friendships, the child's understanding of emotions and perspectives of others, and skills reflecting initiating, maintaining, and responding to others. Research suggests that the multi-informant approach is important because children do not consistently exhibit the same behaviors across environments (70). Examples of parental concerns identified by the TSSA are provided in Table 1. These concerns, which were generated from six parents of children with ASD,

Table 1 An Example of Social Concerns Reported by Parents/Caregivers of Individuals with AD

Conversation skills	Social problem solving/flexibility skills
Have more meaningful relationships	Be more flexible and have less need to have things their own way
Be less blunt during conversations	React less strongly to minor things
Not stand too close to or too far from people during interactions	Be less compulsive about having stuffed objects with them wherever they goes
Be more able (willing) to maintain complex conversations	Have less fear and frustration with people, especially unfamiliar ones
Use socially appropriate behavior during conversations	Be less perfectionist in themselves and others
Stop asking others repeated questions	Be less impulsive
Respond to others in a friendly manner	Stop touching others inappropriately
Spend more time interacting with family, rather than time alone in room	Decrease socially unacceptable behaviors (nose picking, licking hands and arms, etc.)
Learn to talk and listen for equal amounts of time	Decrease compulsive behavior (showering, washing hands)

Abbreviation: AD, Asperger's disorder.

were reported as part of the evaluation and also used to organize the content and outcomes of a social skills group. To establish the group goals, the concerns were analyzed and categorized into two categories: (i) increasing conversational skills and (ii) increasing social problem solving/flexibility skills.

Choosing a Treatment Approach

After a treatment evaluation/assessment and goal selection, it is necessary to establish specific strategies designed for increasing social cognitive understanding, prosocial behaviors, and other skills identified by the assessment. Because of combined effects of disordered development of theory of mind, executive function, and central coherence, therapeutic techniques must be adapted, individualized, and specific to AD to teach complex skills such as social behaviors (48). No specific single treatment approach is, however, effective for all skills and for all individuals. Instead, a combination of therapeutic methods is suggested. Some methods have more research support than others. Fortunately, several examples of treatment approaches are reported in the literature. Interventions vary according to (i) the theoretical underpinnings of the approach (e.g., behavioral, cognitive behavioral, relationship-based), (ii) the delivery of intervention (e.g., direct instruction, peer-mediated instruction), (iii) the context of intervention, (e.g., school, clinic), (iv) the composition of instruction (e.g., individual, group), (v) the instructional strategy (e.g., social stories, video self-modeling, social scripts), (vi) the age of the participants (e.g., preschool, middle school), and (vii) the level of behavior (e.g., micro, molar). For in-depth reviews of therapeutic strategies for social

interventions, see Kransny et al. (56), McConnell (71), Odom et al. (72), and Rogers (57).

Further, standard techniques often applied to other populations, such as didactic instruction, role-plays, and feedback, are effective (59) when also accompanied by specific strategies for individuals with ASD. Emerging support for social skills interventions come from several sources (48,49,51). A caution is that individuals with AD have difficulty generalizing information from a clinical context to home, school, and community settings. Treatment plans, therefore, should include activities that address problems with generalization (48,52,73).

Several specific interventions for individuals with AD are reported as successful in increasing prosocial and communication skills as well as decreasing problematic or interfering behaviors. The common element of these interventions is the match between the strategy and the learning style of persons with AD as discussed earlier. Visually depicted information is essential for providing more in-depth definitions or task analysis of the skills (i.e., drawings to depict social situations) that enhance concept learning and application. Visual cuing also serves as a prompt to help the person organize his/her thoughts and initiate interactions. Social stories and comic strip conversations (74) are strategies used to help explain perspectives of self and others. Cognitive scripts (75) assist in teaching the person to initiate and maintain conversations independently, while video self-modeling (76) teaches positive behaviors and reduces unwanted behaviors by allowing persons to view themselves in situations where they are performing at a more advanced level than they typically function. Power cards (77) incorporate special interests of the person with AD as part of the teaching and reinforcement of academic, behavior, and social skills. The common element of all these strategies is that they take into account the need for concrete information that is not abstract and is based on visual learning.

Social interventions may also focus on discrete skills/abilities or on a set of comprehensive skills. Specific skills include self-esteem building (78), self-awareness (79), reading nonverbal body cues and language (59), and understanding emotions (80). A more comprehensive approach focuses on basic interaction skills, conversation skills, play and friendship skills, emotional processing skills, and social problem-solving skills (56,81). An example of a 12-week social skills group or individual curriculum is provided in Table 2.

Three studies, which were conducted within the context of an outpatient clinic setting, were reviewed as examples that most mirror clinical practice (58,82,83). Howlin and Yates (82) reported the outcomes of a social skills group held in a hospital setting over one year. Ten males with autism or AD who were aged between 19 and 44 years (mean age 28.4 years) participated. The overall goals of the program were to increase conversational skills and independence in work and living environments. The group met monthly for 2.5 hours and the agenda for the group was developed during the first session. Initiating and maintaining conversations and problem solving were skills addressed throughout the sessions. Various methods were used to collect outcomes, including self and

Table 2 Example of a 12-Week Social Skills Curriculum

Session	General content
1	"Making friends" (why it is important, how to do it) Introduction to "self-monitoring" using problem solving as an example
2	Problem solving (why it is important, the steps involved)
3	Consequences of different solutions
4	Social problem solving including "tattling" and bullying
5	Understanding and expressing emotions (anger, anxiety, and sadness)
6	Social thinking (perspective taking)
7	Compliments and greetings
8	Components that make up conversations
9	Starting and ending conversations
10	Staying on topic during conversations
11	Having conversations: putting it all together
12	Pizza party that incorporates skills

caregiver reports and direct observation. Family members observed improvements in several areas such as conversational and social skills, appearance, self-confidence, independence, decision-making ability, problem-solving skills, and making and keeping friends. The self-report measure also noted improvements. Conversational outcomes were evaluated by coding of videotapes of role-plays. Role-plays consisted of social situations, such as pretending to be at a wedding, and required to introduce oneself to someone and talk to a guest. The other situation consisted of a telephone conversation about an employment opportunity. The coding categories, which were selected on the basis of the skills taught over the year, had good interrater reliability. For conversations during the wedding scenario, a significant change was noted in the percent time initiating or maintaining conversation. For conversations during the telephone scenario, significant changes in percent appropriate responses versus inappropriate utterances were observed.

In the second study, Barry et al. (58) evaluated the effectiveness of a social skills group for elementary-age children with autism in an outpatient psychology department clinic for children with PDDs at a university. Four children aged between six and nine years were recruited. Seven typical peers also were recruited. A licensed psychologist, two graduate students, and one undergraduate research assistant implemented the groups. Several data collection methods were used including standardized and observation tools and parent report. Live coding of greetings, conversation, and play skills was done during five-minute play sessions with a typical peer using a 43-item inventory with good interrater reliability. Weekly phone calls to parents were conducted using the same inventory to assess generalization of skills. Two self-report measures of perception of social support and loneliness were administered. Peer training was also conducted. Treatment consisted of eight two-hour sessions with the children with autism only. Assessment of play skills was included with a typical peer. Parents observed a role-play

and received worksheets. Post measures as well as a six-week follow-up observational assessment were collected. Notable improvement in greeting and play skills were found as well as self-report of increased feelings of social support from peers. Parent report identified improvements in greeting skills only.

In the third example, we provide a description of outcomes of a social skills group program delivered in a naturalistic clinical setting (83). Six boys who were clinically referred rather than research-recruited and aged between 9 and 11 years participated in a 12-week intervention. Each session occurred weekly and lasted 75 minutes. Two licensed psychologists, one with expertise in ASD, implemented the group. The curriculum described in Table 2 was applied, and emphasized conversational skills and problem solving skills. Pre- and posttreatment assessment tools were selected on the basis of their feasibility; ease of administration, scoring, and interpretation in a clinical setting; sensitivity to treatment effects; and social validity. Improvement in conversational skills was assessed using the method described by Howlin and Yates (82). The boys were asked to role-play a five-minute conversation scenario of meeting a new classmate at school. Improvement in problem-solving skills was evaluated by asking the boys to read a scenario involving being teased or bullied and completing questions regarding the situation (e.g., what was the problem; how did each person think and feel; what are some solutions; what is the best solution). In addition to direct child assessment, parental report was also provided regarding their observations of changes in behavior at home and in the community. Generalization of skills into settings outside the clinic was addressed by allowing the parents to observe the group sessions from behind a mirror and completing a rating scale of the quality of their child's engagement. Children were also required to complete homework assignments outside the clinical setting on a weekly basis. A coder unaware of the content of the intervention coded the conversational role-plays and problem solving questionnaires. At follow up, children were reported by their parents to have improved in 75% of skills observed during the session by the parent. On the basis of coding of direct child behavior, improvements in conversation skills were observed for all areas assessed (getting the person's attention, asking a question or making a statement, and ending the conversation) except for staying on the topic. No changes were observed for topic maintenance. For problem-solving skills, all boys were able to accurately identify problems at baseline. The most noted improvement was in the number of solutions generated for problems. Over half of the boys at the end of the group were able to generate multiple solutions to problems. The following information provides more details on implementing the curriculum used in this study.

For every skill that is addressed, a general, four-step procedure is useful (Table 3) when introducing a topic. First, a Social Story™ (53,74,84,85) is used to introduce the importance of the skill from another's perspective. Social Stories provide written information that describes situations, other's perspectives about the situation, skills, and responses. Next, a sorting activity that breaks down the skill into its component parts (i.e., a task analysis) or depicts the correct versus

Table 3 Four-Step Procedure for Skills Teaching

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1. Define the skill and explain why it is important
 2. Demonstrate what the skill looks like (the right way vs. the wrong way)
 3. Perform role-plays demonstrating the skill
 4. Provide homework to practice the skills
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incorrect way to perform the skill is implemented. The use of picture cards (e.g., pictures from magazines, hand drawings on 3" × 5" cards) helps individuals develop a concrete depiction of the positive skill being taught (86). Third, role-plays are used for the specific skill and, when possible, based on issues described by the individual or by parents/significant others. Fourth, homework for skill practice is provided. If parents, caregivers, or significant others are not part of the treatment session, either through observation or as part of family therapy, it is necessary that as much information as possible be shared with them. Because of the significant issues in individuals with AD generalizing information from one context to another, it is necessary that plans for generalization, such as homework and family communication about the session, be in place.

To promote active and attentive engagement during the session, it is helpful that visual schedules and self-monitoring/regulation strategies are used (87). A goal is established at the beginning of the session. If needed, a reward is also identified for goal accomplishment (e.g., answer questions, stay calm).

As mentioned previously, structuring the therapeutic relationship requires a more directive approach (45) wherein expectations of the therapy process and goals are clearly established. Often individuals with AD have significant organizational problems and difficulties following through with assignments or homework. Lack of compliance does not necessarily mean resistance. Explicit examples and assistance with scheduling is needed and often teaching problem solving can be used to identify solutions to disorganization. Bloomquist (88) has examples of handouts that can be used to visually guide the process of problem solving. Goal setting should also be explicit. Because of the difficulty individuals with AD have generating solutions to problems, they often have difficulty conceptualizing the benefit of therapy across many areas (e.g., building relationships, dealing with frustration, etc).

Another unique aspect that must be emphasized when applying cognitive behavior therapy to individuals with AD is that more time often needs to be spent on emotion education and learning the relationships between emotions, thoughts, and behaviors. Although not specific to AD, Bloomquist (88) has several visually aided resources on emotion education and helpful and unhelpful thoughts.

ADDRESSING COMORBID PSYCHIATRIC DISORDERS

Individuals with AD are at risk for comorbid psychiatric disorders (89-91), which includes depression, anxiety, obsessive-compulsive disorder, bipolar disorder, and, to a much lesser extent, schizophrenia (89,92-95). Of the comorbid

disorders, depression is reported as the most frequently occurring secondary condition (89).

Emerging research suggests that individuals with AD can benefit from psychosocial interventions, such as cognitive behavioral strategies, to ameliorate anxiety, depression, self-injurious behavior, and obsessive-compulsive disorder (45,50,52,54). The diagnosis of AD cannot be ignored as part of treatment, however, as research also suggests that problems of anxiety or depression may be influenced by the social perceptions and behaviors of individuals with AD (98). Anderson and Morris (45) provided a detailed overview of the strategies to adapt the components of cognitive behavioral therapy for individuals with AD. Modifications include use of visual-based systems as discussed earlier for establishing baseline symptoms and goal monitoring. Such a symptom can be a visual "emotion thermometer." An example of a thermometer that was created by a 10-year-old is provided as part of the case study example later in this chapter (see Figure 1).

FAMILY THERAPY

Family therapy has traditionally meant a clinical intervention, which alters the interaction of family members to benefit a symptomatic member and all other family members. For most, it implies a clinician meeting with all family members and working to understand and alter thoughts, feelings, and behaviors for therapeutic benefit. This restricted definition has given way to a broader, more integrated way of viewing family intervention (99), which now includes psychoeducation, parent management training (100), home services, and the integration of family therapy with psychotherapy and pharmacotherapy (101). There is limited research on family therapy in AD. The multiplicity of ways of intervening with families has precluded studying a specific modality of family therapy.

There is, however, an emerging clinical literature and experience, which gives guidance in working with families (102,103). Some of the literature focuses on the significant management problems when AD is complicated by problematic family dynamics (104). A recent theoretical paper on social attribution processes has implications for family therapy (98). Social attribution processes are the ways in which children assign meaning to life events, a process that leads to the internalization of mental representations or social perception. These processes are likely affected by neurological underpinnings of AD, yet this literature supports that they may also be powerfully shaped by family interaction requiring intervention.

Themes in Family Therapy

Many families deal with issues that are common to families with a child with some chronic medical or psychiatric illness. Any clinician working with a family with a member who has AD needs to be aware of these issues to aid their identification and management.

Sadness

Parents can experience sadness, as well as grief, when they observe their child's deficits. The fact that these deficits can be subtle, yet powerfully impact social relationships, makes it all the more difficult. In describing her son's poor social sense, one parent commented, "It makes me sad to see my son 'not getting it'" and seeing this played out in that "He doesn't want to do things with other kids."

Fatigue and Lack of Patience

When children do not respond to parental limit setting, it tests a parent's patience. One parent said, "I ask nicely, repeatedly, but only when I explode will he do what I want. I wish it didn't get to this."

Guilt

At the core of many parents' frustrations is the feeling, often unspoken, that "I don't want to be around my own kid." It is extremely guilt inducing when caring parents are driven to distraction by their child's behavior and have thoughts such as these.

Confusion Regarding Symptoms

The irrational nature of many symptoms of AD makes it difficult for parents to know when to hold their children accountable for problematic behavior. One father's statement, "It goes in one ear and out the other," was complicated by the fact he felt his son had some control over his behavior but was not sure "where this control ends and the Asperger's begins."

Sibling Embarrassment

Siblings are frequently embarrassed by the child's behavior. They are reluctant to have friends around when their sibling with AD is present. Actions such as indiscriminate touching others, perseveration, and poor social sense (e.g., talking within 12 inches of an individual's face) are examples of embarrassment-inducing behaviors.

Acceptance of the Difference

Many parents and families have a constant struggle regarding acceptance of AD. Once they have accepted that their child's behavior is different, these families still must expect some behavioral compliance and responsivity to parental expectations.

MODELS OF FAMILY INTERVENTION

The psychoeducational model, used widely with other major mental illnesses, is the commonest model of family intervention in AD. In this model, parents are supported in dealing with the disorder, given information on treatment, and offered approaches to manage the disorder.

The Anderson family had six children. David, aged 10 years, presented for psychiatric treatment after being diagnosed with a learning disorder and ADHD. Further evaluation revealed that he met criteria for AD. His problems included physical aggression with siblings, perseveration, and the need for sameness in his environment. At home, he was oppositional and aggressive, while at school he withdrew from others. His lack of affective variability led his family to call him "the judge" because he always seemed stern and foreboding. The Andersons' other five children had remarkably good social adaptation. The parents, the father an educator and the mother a nurse, had been married for 19 years. They responded well to instruction in behavioral modification techniques, yet often expressed their frustration over David's inability to "make connections." Family intervention offered support, help to arrange for a respite from parenting David, and educating the other children about his deficits.

Yet, clinical families are often not as well functioning as the Andersons and symptoms of AD induce stress in those less sturdy. Eric Rolland was a 12-year-old, first-born son diagnosed with AD as a three-year-old. One of the first symptoms the family noticed was that he would panic when he would see an exit sign in any building, requiring his parents to remove him from the room. His sister, three years younger, had excellent social skills and commented to her parents that "Eric should have friends over more often." When Eric was seven, his parents amicably divorced; afterward they continued to share a great deal of time with him. His obsessive behaviors, such as always insisting on visiting the same fast food restaurant, drained the family of patience. The family enjoyed humor and father stated, "We laugh as a family but we can't laugh with Eric. He doesn't understand laughter. He thinks every time we laugh, we are laughing at him. He doesn't get it." Mother, on her part, tried to help him with his homework but experienced that "all Eric wants to do is for me to give him the answers."

The Blade family had very different stresses induced by AD. Sam was the second of four children, diagnosed with AD at the age of eight. Marked family conflict, particularly aggressive competition between Sam and his two-year-older brother Mark, led to clinical consultation when Sam was 13. This conflict worsened when his father had to travel frequently for his job. Mother then spent extra time with Sam to facilitate his needs, and this alienated the other children. Father ultimately quit his job and took a salary decrease. He came to see that he needed to support his wife in monitoring many aspects of Sam's care, including multiple school changes and attending school conferences.

The directional influence is not only in the direction of the effect of symptoms on the family. Families do not cause AD, as was once thought with autism, but most assuredly problematic family function can exacerbate the symptoms of AD. Managing a child with AD and dealing with intense family conflict is a potent combination, with the stress of each potentiating the other.

In the Rolland family, an important marital factor leading to parental divorce was Mr. Rolland's lackadaisical attitude toward employment. Eric's

mother, who was a hard working insurance agent, angered that his father, an artist, was often unemployed. While good natured and caring toward his son, Mr. Rolland did not financially provide for his family. At times the mother said, "It's like raising three kids." Eric's social attribution was such that he expected his mother to take care of things, just as mother took care of the family during father's frequent unemployment. When Eric was rigid, uncompromising, and resisting mother's request for responsibility, she wondered whether "this was Asperger's disorder" or Eric merely "acting like his father."

The Blade family had significant structural problems. Mr. Blade's absence led Mrs. Blade, a somewhat passive woman, to be indulgent with her children. She had difficulty setting limits, and both Mark and Sam became entitled. Their conflicts led to physical conflict and Mark's entitlement and lack of empathy were associated with critical comments regarding Sam's behavior. When 15-year-old Sam would touch his mother, hug her, and say, "I love you mommy," Mark would mock his immaturity. When the father quit his job and became more involved with the family, his inadequacy and impulsive anger further exacerbated the problematic interactions between his sons.

Therapeutic interventions in these families included directing Mr. Rolland to become more active in family life. He was encouraged to support Eric's mother in expecting more accountability from Eric for his behavior. He ultimately became gainfully employed. Mr. Blade, on the other hand, left his traveling job and was home more often. He became more assertive, took charge of some of his son's behavior, and attempted to be a peacemaker, taking the pressure off Mrs. Blade. Marital work ensued; Sam's mother desired more intimacy and support from her husband from whom she felt estranged, "as a single mother for all those years."

In assessing family dynamics, it is difficult to know when to intervene in interactions deemed problematic or when to educate a family about symptoms of AD. Children with AD who present with social alienation, obsessions, resistance to change, and rages are not easy to parent. Stress in the family may be a response to troubling symptoms and this should be initially assumed. Yet, a careful family evaluation may reveal areas where family distress and functioning leads to a worsening of symptoms. How to determine whether a family is responding to disorder or predisposing to a disorder is a complex evaluation, fully discussed elsewhere (105,106). Some areas that help this delineation include an assessment of parents' knowledge of developmental norms, parental support of each other, success outside the parenting world, and stability of the other children.

CASE STUDIES

Given the frameworks offered thus far for individual, group, and family therapy, case studies are offered, including specific details of therapeutic strategies introduced earlier.

Case Study 1

Bob was diagnosed with AD at the age of seven years by an experienced developmental pediatrician in the area of ASD. Bob had fluent language and average intellectual abilities. He was referred for outpatient therapy for behavioral and social difficulties.

Treatment Assessment

The Collaborative Model for Promoting Competence and Success (COMPASS) framework (40) was used to guide the treatment assessment/planning process (see Table 4). COMPASS is a process approach that assists in identifying inherent strengths and weaknesses as well as environmental supports and challenges that compound or have an impact upon the individual's ability to be resilient in his or her environment. The COMPASS assessment revealed the following information for Bob.

Table 4 Description of Bob's Challenges and Supports

Personal challenges	Personal strengths
Behavioral <ul style="list-style-type: none"> • Accepting "no" • Accepting correction • Frustration tolerance • Transitions/changes in routine 	<ul style="list-style-type: none"> • Very interested in rocks • Knowledgeable about rock types and formations • Affectionate • Wants to hang out with peers and have friends • Likes going to the park • Listening to music • Reading • Computers
Social <ul style="list-style-type: none"> • Initiating • Responding to social bids • Maintaining interactions • Repetitive interests that dominate conversations • Reciprocity 	
Emotional <ul style="list-style-type: none"> • Worries excessively • Obsessive preoccupations 	
Sensory <ul style="list-style-type: none"> • Sensitivities to sound and textures 	
Environmental challenges <ul style="list-style-type: none"> • Consistency between people and places • Noisy environments • Adequate knowledge and information regarding Asperger disorder with faculty at school • Kids who tease 	Environmental strengths <ul style="list-style-type: none"> • Is praised verbally • Positive supports used to shape behavior • Has a place where he can be alone and uninterrupted • Mom is a strong advocate • 60 min of speech therapy a week

Background Information

Parent/teacher priorities. Bob's mom, Mrs. Morris, reported that her major concerns regarding Bob were difficulties in recognizing and expressing his feelings appropriately; social difficulties with regard to initiating and interacting with peers were also reported. Proximity to others was a major issue as Bob often intruded on others' personal space by hugging others inappropriately and appearing to be unaware that he was causing significant discomfort to his communicative partners.

His teacher, Mrs. Simpson reported that her major concerns were Bob's inability to read the body language of his peers and respond appropriately. Bob appeared to be quite desperate in wanting to be accepted by his peers, but was often intrusive, insistent, and oblivious to subtle hints of rejection. In his attempts to be accepted, he often imitated actions of others whom he believed to be popular, often resulting in trouble. Certain classmates took advantage of this vulnerability, teasing him, and setting him up.

Both his parent and his teacher agreed that Bob had difficulty managing and expressing his feelings, which resulted in him having several outbursts a week. Small incidents seemed to set him off leading to full-blown outbursts.

Child Assessment

The TSSA (69) was administered to gain specific information on Bob's affective understanding, social cognitive understanding (perspective taking and problem solving skills), and behavioral skills of initiating, maintaining, and terminating interactions as well as responding to social bids.

Assessment of affective understanding and perspective taking. Bob was shown several pictures of children's faces and given various pictorial scenarios that contained a problem involving two or more people. When shown the pictures, Bob was able to accurately identify the emotions on the children's faces and relate a time when he might have experienced the emotion. When asked what would make a significant other (Mom, Dad, or brother) experience the similar emotion, responses were often tied in with his own behavior; for example, he replied, "Dad is happy when I do well in school." When shown pictures of problem situations, Bob was able to identify most problems and given an accurate account of what thoughts and feelings the characters involved might be experiencing. Generating solutions to the problems appeared to be more of a challenge; for example, if someone younger is being teased, the solution was for the victim to retaliate in a manner that would further escalate the problem situation. Overall, Bob's perspective-taking and problem-solving skills appeared to be limited.

Assessment of preferred activities. This task involved presenting Bob with a list of "things to do" and "places to go" and asking him how much he liked each one (i.e., not at all, a little, a lot). Overall, Bob reported he liked to play board

games, sports, build things with Legos, play on the computer, play Nintendo/videogames, and go to the park. He preferred to do all activities with other kids, indicating motivation for social skills instruction.

Assessment of role-play skills. Role-play skills were evaluated to see if he understood how to do a role-play which is helpful for treatment purposes, as well as to see how well he initiates and responds to others. Bob interacted with the examiner in role-plays that dealt with possible daily interactions. During the role-plays, Bob often avoided greetings going straight to the point; eye contact and direction of facial expressions were not always consistently directed to others. Conversations tended to be on his terms, and he showed very little interest in his partner's interests and themes.

Treatment Goals

The COMPASS evaluation combined with the TSSA revealed two major areas of concern: (i) awareness of internal/extrinsic triggers and appropriate expression of his emotions and (ii) initiating appropriately with peers and adults.

Treatment Plan

Increasing understanding and expression of emotions. A social story (74) (www.thegrayscenter.org) was used to explain to Bob the importance of expressing emotions appropriately and staying calm. The story started by explaining that it was okay to experience feelings. It clearly indicated what some appropriate alternatives were when Bob got upset, such as breathing and counting or taking a break. The story also described the benefits of staying calm and expressing feelings in appropriate ways such as being able to do better at home and school and being able to make friends easier. The benefits were clearly motivating for Bob as making friends was important to him.

The next step involved construction of an "anger thermometer" (107). An anger thermometer helped Bob in quantifying his emotions and grading it along a continuum visually. It also helped him identify his body responses to various levels of emotion. Becoming aware of his triggers helped him to monitor his responses more effectively. Bob also wrote down what he could do at different levels on his thermometer to calm down. An example of his thermometer (Fig. 1) shows the strategies Bob could adopt given the triggers or stressors in his environment. He was given a number of scripts that would give him the words to use when in the situation such as "I need help" or "I need a break." Next, 3" x 5" cards were used to depict activities, thoughts, and responses. He sorted the activities on the basis of what was helpful and what was unhelpful as well as what would be a more appropriate alternative/replacement behavior. This activity helped him identify thoughts that triggered a body response and precipitated an action. A visual graphic was also used to show him the relationship between these different concepts (Fig. 2). These activities enhanced Bob's

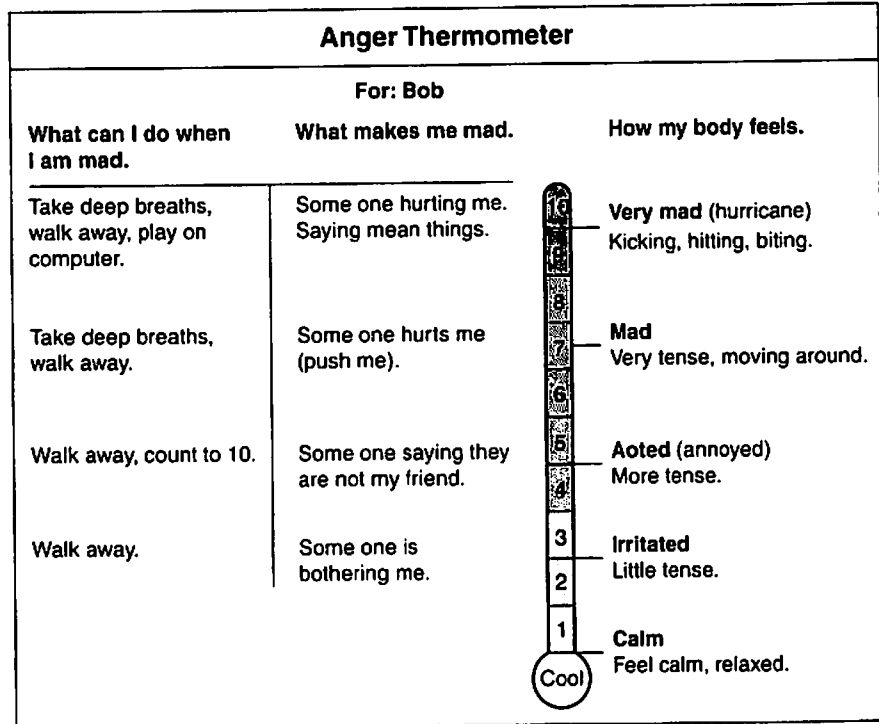


Figure 1 Bob's anger thermometer.

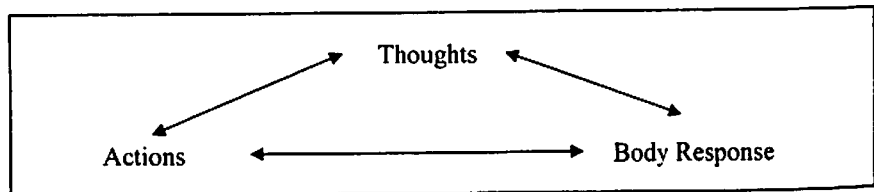


Figure 2 Visual graphic used to demonstrate relationships between thoughts, actions, and responses.

awareness of body responses to triggers and provided a visual cue that helped him visualize his thermometer and choose the appropriate response. Once he realized that thoughts played a major role in how he felt and acted, Bob also participated in activities that helped him identify unhelpful thoughts that triggered certain exaggerated or inappropriate actions. With the help of his therapist, Bob wrote down some typical unhelpful thoughts that he routinely experienced. A common example was "he did it on purpose" which was often retaliated by hitting back. A counter or "helpful" thought was then identified—"this was an

accident." Role-play demonstrations helped Bob understand the significance of "helpful" thoughts and their impact on his behavior. Sorting activities that involved sorting "helpful" thoughts from "unhelpful" thoughts helped increase his awareness of thoughts as triggers.

A self-monitoring system was introduced where at regular intervals a parent or teacher checked with Bob if he was calm. The absence of inappropriate reactive responses led to tokens that could be exchanged for a reward. The reinforcements encouraged Bob to respond in a calm manner rather than a reactive manner.

Increasing initiating appropriately. The first step involved explaining through the use of a social story why initiating appropriately was important. The benefits discussed were creating a good impression that would help lead to making more friends. Bob then matched scripts with a variety of adults and peers he knew in his environment. For example, he could greet a classmate with a "Hi" and his teacher with a "Good morning." Other scripts that could be used for initiating in a number of different contexts were also discussed and taught, such as asking to join his classmates at play, asking another classmate to join in his play, offering to share toys or snacks, and offering to help when needed. Visuals incorporating the appropriate body language were used to emphasize eye contact, facial expressions, posture, and proximity to others. The Social Skills Picture book (108) was a resource that was used to give Bob step-by-step instructions on how to successfully initiate within the different contexts.

Several opportunities to practice using role-plays first with a therapist and then other peers within a group setting gave him more confidence to practice in real-world settings. Each role-play was followed by feedback. Bob also had the opportunity to view video recordings of his attempts to initiate where he could observe and discuss how his behavior impacted on others. Right and wrong ways were also role-played to demonstrate the impact each had on making connections with peers. Different scenarios were also modeled for Bob when an attempt to initiate play with another peer was rejected, such as asking someone else.

Bob's teacher continued to have concerns about his proximity to others during greetings. He still greeted his teachers and certain other adults in school with a big hug. A "social circles" visual was used to address this problem. Bob drew his own "social circle." In the middle of the page was his name followed by concentric circles, each circle with a different color. The first concentric circle consisted of "family" which he color coded in blue. He could greet all the people in the blue circle with a hug. The next concentric circle was green, this circle consisted of "best friends;" he could sit next them or pat them on the back. The third concentric circle was yellow, which comprised other classmates and teachers. Bob could greet the folks in yellow with a smile, nod, "high five" or "good morning" but needed to be at arms length from them. The visual depiction clearly indicated whom he could have close proximity with and whom he could not. Teachers and others in his environment were instructed to redirect Bob to the visual social circle if he responded otherwise.

Verbal praise and other material rewards were used to encourage appropriate responses. All therapy sessions were observed by Bob's parents. They played a major role in helping Bob carry over his treatment plan to naturalistic settings, giving him opportunities to practice in real-life settings and making sure his teachers were aware of the strategies in place so that they could help implement them and reinforce accordingly.

Follow-Up

A six-month follow-up with parents and teachers revealed that Bob was consistently initiating appropriately. Teachers reported that hugs were a nonissue, all school personnel and others in his environment were consistently responding to him regarding physical proximity. Outbursts had decreased from a daily occurrence to a couple of times a week. Every time a stressful event occurred, Bob was observed to verbalize to himself the number he was at on his anger thermometer. Occasionally he needed redirection from another adult as to what the number implied that he should do, for example, a six and above meant take deep breaths and ask for a break.

Case Study 2

Dave Fuller was 17 years old when referred to our outpatient program. He had received a diagnosis of AD at the age of 11 years from a local developmental clinic. He was a straight A student, with superior IQ and presented as socially awkward, pedantic, and having trouble with organizational skills.

Treatment Assessment

The COMPASS assessment is summarized below and includes information from Dave, his parents, and teachers (Table 5).

Background Information

Parent/teacher priorities. Dave's parents, Mr. and Mrs. Fuller, reported that their major concern regarding Dave was that he was increasingly becoming a social isolate. Dave was spending much of his time in things that he was good at such as reading, academics, and his volunteer work with the kids. Dave's only friend was his cousin. Unlike other boys his age, he did not hang out with his peers or date and spent nearly all of his time at home after school. Parents were also concerned that Dave relied tremendously on them to get his work done. His dad pretty much took charge of his planner and school calendar and reminded him when his assignments were due and what needed to be completed when.

Dave's teacher spoke very highly of Dave's academic excellence. She was more concerned about his social awkwardness and shyness. Dave never attended any social activity such as school dances or other social events.

Table 5 Description of Dave's Challenges and Supports

<p>Personal challenges</p> <p>Behavioral</p> <ul style="list-style-type: none"> • Hard time losing • Planning and organizational skills • Avoids social opportunities <p>Social</p> <ul style="list-style-type: none"> • Socially isolated • Maintaining interactions • Awkwardness such as fidgetiness and grimacing during interactions <p>Emotional</p> <ul style="list-style-type: none"> • Anxiety during interactions • Expressing worry about many things <p>Sensory</p> <ul style="list-style-type: none"> • Sensitivity to noise, crowds, and being touched <p>Environmental challenges</p> <ul style="list-style-type: none"> • Not many peers in neighborhood • Lack of understanding regarding Asperger syndrome • All male school • Does not fit in with majority of peers 	<p>Personal strengths</p> <ul style="list-style-type: none"> • Intelligent • Modest • Creative • Plays piano • Desires to be social • Positive attitude • Very polite • Helpful • Volunteers with children with disabilities • Quick recall team • Chemistry club • Math team <p>Environmental strengths</p> <ul style="list-style-type: none"> • Supportive peers in school • Supportive teachers • Supportive family • Extended family support • Cousin is a good friend • Treatment with anxiolytics
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Individual Assessment

The TSSA (69) was administered. Dave was dressed very maturely and appeared to be slightly apprehensive. He was pleasant and friendly throughout the assessment. His use of language was also very mature. Eye contact was adequate. There was a tendency to speak too fast, and Dave was observed to be quite fidgety. Certain odd mannerisms were observed with how Dave used his hands and facial expressions.

Assessment of affective understanding and perspective taking. Dave was shown several pictures of children's faces and picture of various situations that contained a problem involving two or more people. When shown the pictures, he was able to label each emotion presented, tell a time when he had felt the emotion, as well as relate what would cause a significant other to experience the similar emotion. When given the scenarios, Dave was able to identify the problem, explain the possible thoughts and feelings of the people involved, as well as generate multiple solutions to each problem. Overall, he demonstrated good perspective taking and affective understanding skills.

Assessment of preferred activities. Dave reported that he liked to do many activities with friends or family, as well as some alone. With friends, Dave reported enjoying going to a movie, going out to eat, going bowling, and going to a swimming pool. In reality, however, Dave hardly indulged in any of these pursuits with friends.

Assessment of role-play skills. During role-plays, Dave was able to initiate greetings and interactions. Although he was very pleasant, conversations comprised uneasy long pauses. Dave did not contribute very much, neither did he show much interest in the examiner's topic of interest. A strength was his positive response to social bids from others.

Treatment Goals

The COMPASS evaluation combined with the TSSA revealed two major areas of concern: (i) planning and organizational skills and (ii) reciprocal interactions with peers.

Treatment Plan

Improving Dave's planning and organizational skills. The first step involved having Dave understand the importance of planning and organizational skills and its overall impact on his life. A semantic organizer approach (109) or flow chart was used to illustrate in a concrete manner the implications of planning and organization (Fig. 3). The organizer presented the information in a visual/spatial mode highlighting relationships, sequences, and outcomes.

The next step involved having Dave develop an awareness of what type of environments were most conducive to his learning and what some strategies were that contributed to being organized. It became apparent that Dave was very often caught up in the moment; he would often sit at his computer and research something that piqued his interest for hours, losing all sense of time. His dad often had to redirect him to assignments and tests that were due. Parents were constantly in touch with his teachers and were on top of his due dates. Parents could also access some homework assignments online.

An individualized organization system was developed for Dave along with parent and teacher support. Dave was very motivated to do well in school and go to university to pursue science and psychology; he now understood that planning and organization played a huge role in his academic performance. Rather than relying on his parents for help, he also understood the importance of taking on this responsibility himself.

Since Dave was a visual learner, he did better with information when it was written than when presented auditorily. The first step in this process required Dave to meet with all his teachers individually and write down assignments, tests, and dates in his planner. He then created an assignment folder for each

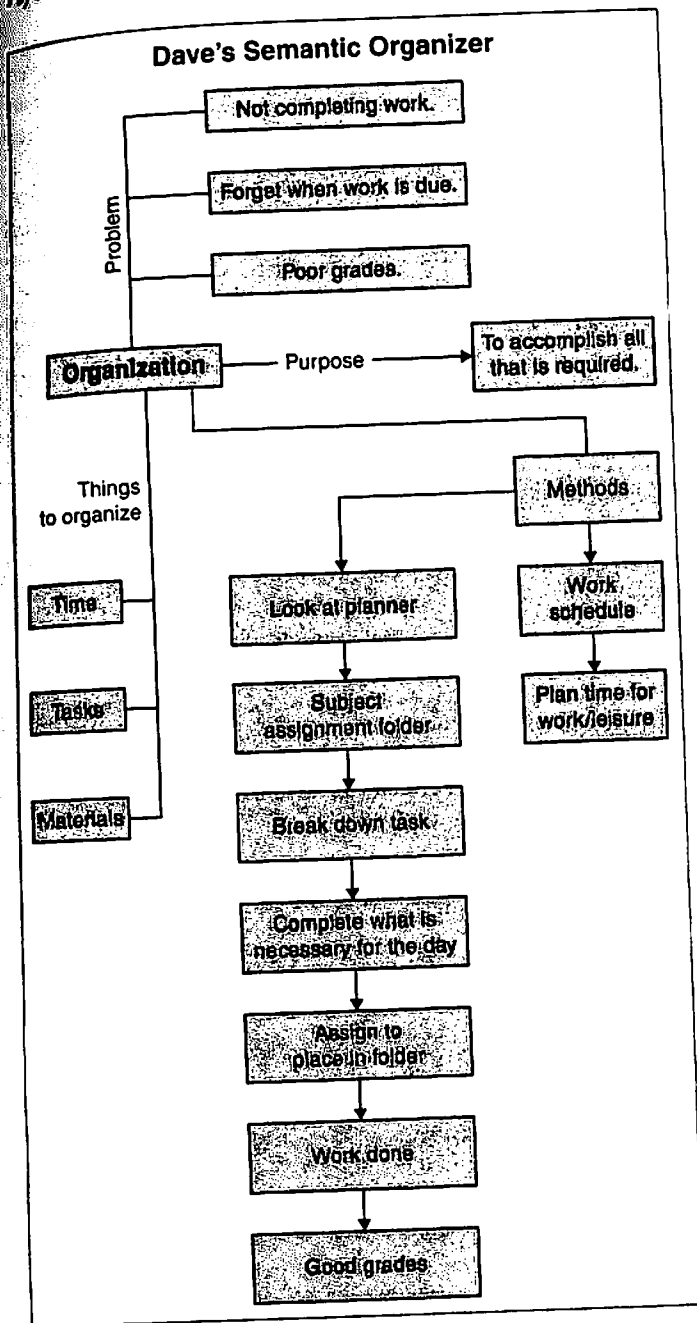


Figure 3 Dave's flow chart for organization.

subject. This folder held assignment guidelines and due dates for the given subject. The front pocket of the folder held all the work to be completed and what he was working on currently and was labeled accordingly. The back pocket held all the completed assignments and was labeled "Completed."

Assignments were broken down so that all assignments were completed at least two days prior to the due date. Dave then wrote down in his planner what amount of work he needed to do each day so that assignments were completed and handed in on the given dates. Surfing on the Internet and all other nonrelated activities could only be attempted after the work assigned for the day was completed and checked off.

His attempts to organize and plan his work were monitored by both parents and teachers. Gradually gaining independence from his parents in this area was intrinsically motivating for Dave.

Increasing reciprocal interactions with peers. A huge roadblock for Dave that got in the way of social interactions was his social anxiety and fear of being rejected or ridiculed. A first step was to create a "social-stress hierarchy." The construction of this hierarchy was a breakthrough for Dave in that he was expressing his fears verbally and acknowledging this to be stressful rather than avoiding the matter completely. While discussing the highest stress-provoking item, he dissolved into tears and it took several sessions to put the hierarchy together. A simplistic version of the hierarchy is presented as follows:

- Attending a dance or party with guys and girls (most stressful)
- Being at a social event with guys and girls
- Hanging out with the guys
- Being introduced to a new peer
- Talking on the telephone with a classmate (least stressful)

The next step involved learning a relaxation routine. Dave learned progressive muscle relaxation, tensing, and relaxing various parts of his body, and began to practice using this technique on a daily basis. He found that deliberate attempts to relax his body calmed him down.

The next step involved graded exposure to the least anxiety-producing stressor and gradually working upwards. Parent involvement and encouragement was much required during this phase of the intervention. Initially, Dave was encouraged to have at least one brief telephone conversation with a classmate a week. During sessions, he began to role-play various social scenarios with his therapist especially on having a reciprocal conversation.

A number of topics were generated that peers his age generally converse about, such as music, sports, video games, and restaurants. Although Dave had no interest in some of these topics, he was required to stay current, show interest, ask questions, and make comments when his communicative partner was on the topic.

Visual cues and modeling was used to demonstrate active listening skills, such as maintaining eye contact, nodding, making comments, and asking questions.

Video self-modeling was a strategy that was used to help Dave identify how he could improve his posture and use of gestures to enhance his conversational skills. He figured that putting his hands in his pockets or holding them behind his back reduced the possibility of fidgeting.

Gradually, new people were introduced to do role-plays with Dave, first a young intern and then other team members. Meanwhile, Dave had moved on to the next step on his anxiety hierarchy and was required to have one social outing a week with his cousin or other classmates at school. Soon, Dave's small network of guy friends began to increase and quite unexpectedly a few girls began to join the social outings. His parents also created opportunities for Dave to meet new friends, including girls from their neighborhood. Dave's mom recalled an incident when she was driving Dave back from school; she stopped to give a female peer who lived in their neighborhood a ride. These tactful opportunities gave Dave more confidence in interacting with his peers. As exposures to anxiety-producing social situations increased, Dave reported decreasing anxiety in these situations. His new confidence and praise from parents were reinforcing to continue exploring social opportunities with peers.

Follow-Up

A two-month follow-up indicated that Dave was independently planning and organizing his work with minimal supervision from parents and teachers. It appeared that the key ingredients to success in this area was becoming aware of what methods and learning strategies worked for Dave. Parent-teacher collaboration was another important factor as well as the additional support from teachers initially to set the plan in motion.

As for increasing reciprocal interactions, Dave enthusiastically reported attending his senior prom with a date. Parents reported that Dave was involved in social outings with his peers at least twice a week.

SUMMARY

Although evidence-based practices in psychosocial treatments for AD are lacking, clinicians are providing an increasing range of mental and behavioral health services to this underserved population. AD is one of the most complex disorders to treat because a combination of theoretical approaches (e.g., developmental, cognitive behavioral) are most likely the most effective. Many clinicians must seek out additional training opportunities in AD to appreciate the unique learning styles and specialized therapeutic approaches for individuals with AD. Examples of therapeutic strategies designed to offset the personal challenges associated with AD as well as a conceptual framework for intervention planning were provided.

Several examples of case studies for family therapy and individual outpatient therapy were also provided.

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