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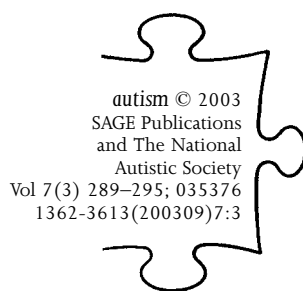
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Use of a Social Story intervention to improve mealtime skills of an adolescent with Asperger syndrome



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ABSTRACT This study assessed the utility of a Social Story intervention to improve the lunchtime eating behaviors of an adolescent diagnosed with Asperger syndrome. Using an ABAB design, the Social Story program appeared to result in a decrease in the number of food and drink spills and an increase in the frequency of appropriate mouth-wiping during lunch at school.

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KEYWORDS

Asperger syndrome; eating behaviour; mealtime skills; Social Stories

Although Asperger syndrome is a lifelong disability, it appears to present especially significant challenges for adolescents. Adolescents with Asperger syndrome are commonly perceived by others as socially awkward, emotionally impaired, self-centered, unable to understand non-verbal social cues, inflexible, and lacking in understanding. Even when young people with Asperger syndrome try to seek out and initiate contacts with others, they frequently encounter rejection because of their lack of understanding of the results of social behaviour (Barnhill et al., 2000). Unsuccessful social encounters often result in elevated levels of stress, anxiety, conduct problems, poor self-esteem and low social status (Barnhill, 2001; Cesaroni and Garber, 1991; Ghaziuddin et al., 1998; Volkmar and Klin, 2000; Wetherby and Prizant, 2000). However, there is a general agreement that the social outcome for individuals with Asperger syndrome can be enhanced by the use of effective practices and supports (National Research Council, 2001).

One relatively novel method for improving social interactions involves the use of Social Stories (Gray, 1995; Lorimer et al., 2002). According to Gray (1997) the Social Story is designed to assist individuals to understand and appropriately follow specified social protocols. Guidelines for writing Social Stories address salient elements of a given social situation, including who, what, when, where, and why (Gray, 1997; Gray and Garand, 1993). The basic Social Story formula generally consists of four types of sentences: (1) descriptive, (2) directive, (3) perspective, and (4) affirmative (Gray, 1997). Descriptive sentences define a social setting and what people typically do in a particular situation. Directive sentences guide an individual to engage in an appropriate response in a defined situation and often begin with 'I will work on', 'I will try', or 'I have a choice', 'I may'. Perspective sentences refer to the internal status of the person for whom the Social Story is written. Finally, affirmative sentences express a shared opinion or value.

Although Social Stories have gained widespread recognition and popularity in recent years (Myles and Simpson, 2001), there have been few studies designed to measure the efficacy of this approach, especially with adolescents (Hagiwara and Myles, 1999; Kuttler et al., 1998; Norris and Dattilo, 1999; Swaggart et al., 1995). The present study was designed to assess the effectiveness of a Social Story treatment to improve the lunchtime eating behaviors of an adolescent diagnosed with Asperger syndrome.

Method

Participant and setting

The participant of the study was a 13-year-old male who had a medical diagnosis of Asperger syndrome and attention deficit hyperactivity disorder. He scored within the average range on the Wechsler Intelligence Scale for Children—Third Edition (full scale IQ = 82; performance IQ = 83; verbal IQ = 83; Wechsler, 1991). On the Woodcock–Johnson Psychoeducational Battery—Revised (Woodcock and Johnson, 1989) his standard scores for reading, written work, math and general knowledge were all between 91 and 97. At the time of the study he lived with his parents and was enrolled in a special classroom for students with emotional/behavioral disorders, within a separate public school alternative school facility. The participant was prescribed various medications to assist with behavior management, including Adderall to treat ADHD, Risperdol to assist with anger control, and Zoloft as a treatment for obsessive behaviors.

The participant's special education classroom environment was highly structured, and was staffed by a licensed special education teacher and classroom assistant. Students received both individual and group instruction

within their self-contained special education classroom. The participant ate lunch with his age and grade level peers in a dining area within the alternative school. The study was conducted in the dining area during the participant's scheduled lunch period.

Target behaviors

Observations of the participant during lunch revealed that he appeared to be interested in sitting and talking with his peers. The same observations, however, revealed a number of eating-related problems, including talking with his mouth full of food, spilling food and drink on the table and on his clothing, failure to wipe food from his face, talking in a loud voice, and failure to clean his area of the table after he completed his meal. The participant's parents also expressed concern regarding their son's eating behavior and they avoided eating in public because of this. The participant himself had stated that, 'No one wants to eat with me when I make messes.' Specifically, his peers reported concern over the participant's poor eating habits, as well as his distress over spilling food on himself. Thus, after spilling food and/or drink on his clothing, the participant would become agitated and jump up and down while voicing his frustration in a loud and angry tone. Previous interventions included reminders and earning bonus points for demonstrating appropriate eating behaviors. Neither of these interventions resulted in any measurable improvement in the participant's eating behaviors.

Two eating-related behaviors were targeted for Social Story intervention: spilling and wiping. *Spills* were defined as food or drink that was dropped or fell off any utensil or out of the participant's hand or mouth and subsequently landed on the table, the floor, or his clothing. *Wiping* was defined as any contact with the participant's mouth area using a napkin.

Social Story intervention

The researchers hypothesized that increasing the participant's appropriate eating skills and behavior would result in an increase in age-acceptable peer social interactions and social acceptance. It also appeared that the participant lacked an understanding of basic etiquette and eating skills, including the social implications of poor skills. Accordingly, a Social Story intervention was selected to assist the participant improve his eating habits. The text of the story was written using black bold type in Times New Roman 12 font print on white background, and then placed on black 5 inch × 9 inch construction paper. The resulting bound four-page booklet included (1) a title page; (2) a two-sentence descriptive component (p. 1); (3) a three-sentence perspective/descriptive component (p. 2); (4) two directive and one perspective sentences (p. 3); and (5) photos of peers and the participant demonstrating appropriate eating behaviors (see Table 1).

Measurement and reliability

An event recording system was used to monitor the daily frequency of the participant's lunchtime spilling and wiping behaviors. Independent reliability checks were made by the classroom assistant who simultaneously recorded the participant's spills and wipes on 10 randomly selected days. The overall reliability for both target behaviors was 90 percent (total agreements divided by total agreements and disagreements \times 100).

Experimental design

An ABAB design was used to evaluate the effectiveness of the Social Story to improve lunchtime eating behavior. The first baseline (A) lasted 7 days, during which time stability was established for both behaviors. During the first intervention phase (B), the Social Story was read daily to the participant by the senior author for 5 days immediately prior to lunch. In addition, the Social Story was made available to the participant upon request or occasionally by teacher suggestion. Phase 3 (A) was a 5 day return to baseline. During phase 4 (B), the Social Story was reintroduced for 4 days, following the same procedure outlined in the first intervention.

Results

Figure 1 illustrates the frequency of lunchroom spills and wipes respectively. During the first baseline (A), the median spilling behavior frequency was 4.0. After the Social Story was introduced in intervention phase (B),

Table 1 Social Story for eating etiquette

Cover page text

Table manners

Page 1 text

Sometimes I like to sit with my friends and eat lunch.

We talk about lots of things like movies, music and video games.

Page 2 text

I have noticed that my friends eat slowly and carefully to get their food and drink into their mouth.

They often wipe their mouth with a napkin while eating.

This keeps their clothes and table area neat and their mouth stays clean while they are eating.

Page 3 text

I will try to eat slowly and carefully to get my food and drink into my mouth.

I can use a napkin to wipe off my mouth often while I eat.

If I do this, my friends will want to sit and talk to me at lunch.

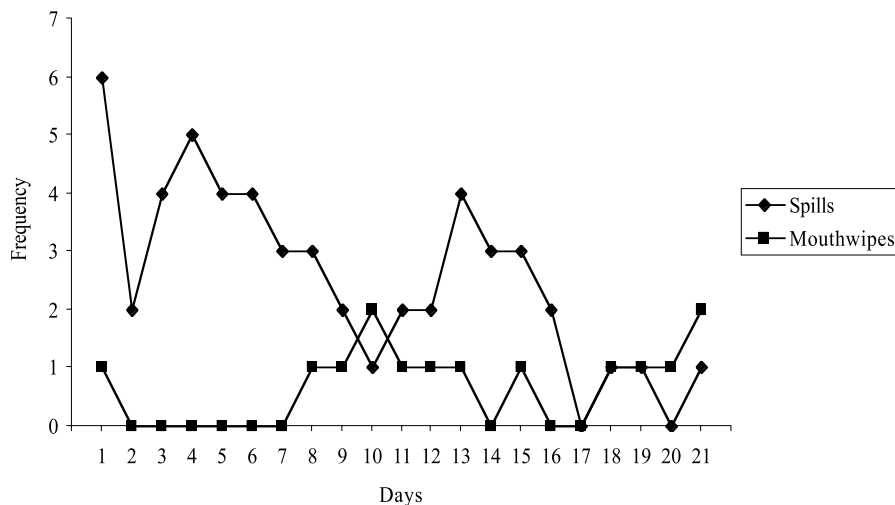


Figure 1

spilling decreased to a median of 2.0. A return to baseline (A) resulted in an increase in spilling to a median of 3.0. During the second phase of intervention (B), the Social Story was reintroduced and the participant's spilling decreased again to a median frequency of 1.0.

The data on face wiping indicated that the median of wiping in the first baseline (A) was zero. After the Social Story was introduced in intervention phase (B), wiping increased to a median frequency of 1.0. Returning to baseline resulted in a decrease in wiping to zero. The 5 day return to intervention (B) resulted in an increase in the average number of mouth wipes to a median of 1.0.

Discussion

The present Social Story intervention appeared to be effective in improving the lunchtime eating behavior of a youth with Asperger syndrome, and as predicted there were improvements in positive behaviours (mouth wiping) and undesirable behaviours (spilling food). Gray and Garand (1993) observed that when Social Story interventions are effective the results are typically apparent within the first week. The results of this study followed that trend. That is, improvements in both spilling and wiping occurred rapidly. It is also interesting to note that the return to baseline phase resulted in increases in spilling and wiping, and the second phase of intervention produced the greatest changes for both targeted responses. The behavioural increases during the return to baseline may indicate that the student

required additional prompted practice to master skills. This hypothesis appears to be supported in that once the Social Story was reintroduced, the targeted behaviors decreased. That is, while the Social Story produced immediate improvements, it was most effective the longer it was being used.

Although it is not possible to establish the exact variables responsible for the success of the program, the young man's motivation may be the important element. Before the intervention he had expressed concerns that his classmates appeared to avoid him at lunchtime because of his eating behaviors. Thus, the participant's self-motivation and his awareness of the connection between his eating skills and his ability to interact with his peers may have enhanced the effectiveness of the intervention. The data also suggest that the Social Story approach provided the participant with the visual and narrative cues needed to improve his eating behaviour.

The improvements in the participant's eating behaviors were also associated with fewer lunchroom tantrums. Although no formal data on tantrums were collected, informal observations by the senior author and classroom assistant revealed that as the participant's eating skills improved, there were fewer occasions when he spilled things on himself and, thus, had fewer tantrums related to spilling food and drink. In consequence, it is not surprising that his peers seemed more willing to interact with the participant at mealtime and this could be the first step leading to better social interactions and peer acceptance more generally.

The present study extends the use of Social Story interventions in assisting an adolescent with Asperger syndrome to modify a significant eating problem that was negatively affecting his peer social relationships. The study indicates that Social Stories can be an effective means of managing behavioural and social difficulties for adolescents with autism spectrum disorders. Furthermore, the relative cognitive, linguistic and academic strengths that are common among students with Asperger syndrome may make these individuals prime beneficiaries of this particular method.

Nevertheless, significant questions related to the use of Social Stories remain unanswered. Arguably, the most significant of these relates to the individual characteristics that are positively and negatively associated with students' responsiveness to Social Story interventions. In the particular case of students with Asperger syndrome, research is needed to clarify the relative importance of age, gender, cognitive and language characteristics, motivation to change a particular behavioral excess or deficit, social interaction skills, and so forth. Such information will be key to directing practitioners in the effective use of this potentially promising tool.

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