Critical Review:
Are social stories effective at decreasing maladaptive behaviours in children with autism?

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Social stories are short stories written in the first person for children with autism that feature a socially productive script for managing a social situation in which the child has demonstrated challenging behaviour in the past (Gray & Garand, 1993). Speech-language pathologists, teachers, and other professionals write and implement social stories to reduce problem behaviours in children with autism who possess basic language skills. The five studies described below show a moderate level of support for social stories as an effective tool for decreasing problem behaviours in children with autism. Each of the reviewed studies has limitations suggesting further research is still needed.

considered when interpreting the results of studies using a single-subject design.

Scattone et al (2002) used a single-subject, multiple-baseline design across participants to examine the effectiveness of social stories for decreasing disruptive behaviours in three male children, aged 7 to 15, with existing diagnoses of autism. In order to use each participant as a control for the others, the intervention was introduced using staggered entry across three different series. An 8 to 9 page social story, following Gray's 1998 guidelines (Gray, 2012), was created specific to each child. Social stories were written to discourage chair tipping, staring at girls, and shouting at the teacher.

Throughout the study, the teacher was told to respond to each child's disruptive behaviours in the same way as before the study. At intervention, the teacher read each child their social story and comprehension questions. Each child answered all their comprehension questions accurately after one reading. Assessment of treatment integrity, the consistency of the intervention presentation, revealed that participant 1 read his social story at least once per day, participant 3 was read his social story at least once per day, and participant 2 read his social story on 91% of the days during intervention. Trained university students used a cued 10-second partial interval system to track disruptive behaviours for 3 periods of 20-minutes each week. Inter-observer agreement was calculated for 30% of the observation data; it was 100% for participants 1 and 3, and 93% for participant 2.

For participant 1, chair tipping averaged 50% (range 48-60%) of intervals during baseline and 4.6% (range 0-17%) of intervals during intervention. For participant 2, staring averaged 66.9% (range 50-85%) of intervals during baseline and 18.3% (range 0-58%) of intervals during intervention. For participant 3, shouting averaged 16% (range 0-40%) of intervals during baseline and 5.1% (range 2-10%) of intervals during intervention. All three children demonstrated a marked decrease, although less dramatically for participant 3, in disruptive behaviours from baseline to intervention.

Despite the decrease in disruptive behaviours, a suitable alternative behaviour was not always seen. For example, participant 2 pulled his sweater over his head during several observations. It may have been helpful to include in his story suggestions for where to look instead of staring at girls, and/or to decrease awareness of being observed by having regular school staff collect the data.

The results indicate the use of social stories was associated with a decrease in disruptive behaviours for the children and suggest social stories may be effective at reducing disruptive behaviour even when not carried out with 100% integrity. The use of a multiple baseline across participants design added to the study's internal validity by decreasing the opportunity for alternative explanations for the observed changes. The study does not provide an explanation for why less of a change was seen for participant 3. He was the only participant who did not read his story independently. This may be an area warranting future research. Although unplanned, the teachers were observed providing verbal prompts (directly related to the social stories) occasionally, it is unclear whether or not this played a role in decreasing disruptive behaviours. The study was completed over 22 sessions with interventions beginning on sessions 5, 9, and 16. It may be worthwhile for future studies to look at longer-term maintenance of the behavioural changes associated with social stories.

Agosta et al (2004) used a single-subject (ABCA) design to examine the effects of social stories on the challenging behaviours, more specifically screaming during special education classroom activities, of a 6-year-old boy with a medical diagnosis of autism. Two social stories were created for the child following the guidelines outlined by Gray and Garand (1993) with the addition of Boardmaker Picture Communication Symbols (Mayer-Johnson, 1981-2003). The first social story, presented as Treatment 1 on day 9, incorporated a tangible reinforcement system, while the second social story, presented as Treatment 2 on day 19, did not. Screaming behaviour was measured through observation, and was considered to have occurred when loud, disruptive sounds were heard during a 15 second interval. Data was recorded on a data chart by trained observers during 20 minutes of circle time activities over 36 days. Baseline data was collected in 15 second intervals over 20 minutes across 9 mornings. For Treatment 1, the boy's teacher introduced the social story and tangible reinforcement system involving 5 minutes of quiet sitting earned verbal praise and "happy face" pins which could later be exchanged for candy bears. The child did not show interest in the candy bears, so Treatment 2 was designed with verbal praise as the only reinforcement. A return-to-baseline phase involved verbal reminders and verbal praise without the use of social stories.

During baseline, the child demonstrated a mean of 21.2 screams (range 11-40) and a mean length of time between screams of 4.8 minutes (range 2.8-6.5). During Treatment 1 including a social story and reinforcement system, the child demonstrated a mean of 7.4 screams (3-19) and a mean length of time between screams of

9.5 minutes (range 2.5-16.3). During Treatment 2 including a social story without the reinforcement system, the child demonstrated a mean of 6.8 screams (range 1-16), and a mean length of time between screams of 8.8 minutes (range 4.8-

pathologists. Through reinforcement, these behaviours can become habitual and may negatively impact social and academic functioning. Evidence-based practices that facilitate the participation and inclusion of children with autism at school and in the community are therefore much needed. The reviewed articles are suggestive that social stories are an effective tool for managing maladaptive behaviours in children with autism. Due to the heterogeneity of the population, clinicians should always use caution when applying this intervention to children with autism. Considering the limitations of the research, and the impact problem behaviours can have on a child's social interactions and quality of life, more research on the effectiveness, generalization and maintenance of social stories for managing maladaptive behaviours in children with autism is needed.

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