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Self-management treatment of drooling: A case series

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ABSTRACT

Behavioral treatment of drooling is advocated widely, but evidence of its effectiveness is lacking. In a center-based case-series study, 10 participants with severe drooling were taught self-management skills to reduce drooling. Following treatment, all participants remained dry for intervals of 30–60 min, while being engaged in daily activities. Generalization to the classroom occurred in each participant. For three participants, maintenance of treatment effect was established at 6 and 24 weeks. Seven participants failed to maintain self-management skills at follow-up. Although the self-management procedure showed promising results, further adaptations are required to improve efficacy, generalization, and maintenance.

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1. Introduction

Drooling is a disabling condition for many handicapped children, adversely affecting their physical health, daily life and care, social interactions, and self-esteem. Although behavioral treatment is frequently advocated as a treatment option (e.g., Blasco, 2002; Brei, 2003), its evidence-base is limited (see Van der Burg, Didden, Jongerius, & Rotteveel, 2007a). In contrast to medical intervention studies on the treatment of drooling, the total number of participants in behavioral studies is small (i.e., $N < 60$) and participants vary considerably in age, and intellectual and motor disabilities. In addition, behavioral

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procedures to reduce drooling vary. Four types of procedures can be distinguished: (a) instruction, prompting, and positive reinforcement, (b) negative social reinforcement and decelerative procedures, (c) electronic cueing techniques, and (d) self-management procedures (Van der Burg, Didden, Jongerius, & Rotteveel, 2007b). Based on outcomes of case reports and case series it appears that all procedures (either alone or in combination) are effective, albeit with different long-term outcomes.

Self-management aims at controlling drooling without social and/or technical support and leads to independency of the individual. As opposed to external cueing, self-management techniques aim at teaching the individual to self-monitor and self-evaluate his/her physical appearance, to self-initiate an appropriate response and to self-reinforce both appropriate responses and appropriate physical appearance. However, data on self-management procedures for drooling are available from only two case reports. Thorbecke and Jackson (1982) taught self-monitoring and self-instruction following overcorrection (i.e., if the trainer observed the chin was wet, the girl had to swallow once and wipe her chin 10 times) to a 19-year-old girl with mild cerebral palsy and moderate intellectual disability. The procedure was administered mainly in the classroom, but was also executed by her teacher during trips and recesses in the playground. During self-management treatment, she had to check her chin every 5 min and repeat the teacher's instructions aloud. In case of a wet chin, she had to swallow once and wipe her chin 10 times, as in the overcorrection procedure. In subsequent treatment sessions she had to repeat these phrases first aloud, then in a whispering mode, and finally, silently. While overcorrection failed to produce a lasting response, the reduction of drooling remained stable after the addition of self-management training and following the fading out of the teacher's prompts. Dunn, Cunningham, and Backman (1987) used self-management for swallowing and positive reinforcement to eliminate drooling in a 16-year-old boy with severe spastic quadriplegia. His language comprehension and non-verbal cognitive abilities were estimated at 13 years. Two years prior to behavioral treatment, he had surgical rerouting of one salivary gland duct to redirect salivary flow, which failed to result in reduced drooling. The self-management procedure encompassed four steps: (a) monitoring mouth closure, (b) determining the need to swallow, (c) evaluating the effect of the procedure in terms of drooling prevention, and (d) verbally rewarding himself if successful. Each 60 s, he was verbally prompted to start the self-management procedure and was allowed to take a token each time he succeeded. Treatment was conducted in a hospital outpatient clinic one full day a week for a period of 10 weeks. After reduction of drooling, reinforcement was eliminated and prompts were gradually faded out. At school he was prompted to use the self-management routine in the classroom after the clinic treatment was completed. While the initial treatment effect remained stable at the 3 month follow-up, a booster training was necessary at 6 months after an increase in drooling. After the booster training, effectiveness was maintained for another 6 months. Although the authors only presented data for one individual, they claimed to have achieved a similar effect with a number of children ranging in age from 8 to 13 years with developmental ages ranging from 4 to 10 years, but without providing data.

Although these case reports seem promising, studies on self-management for drooling remain scarce. As a consequence, no general conclusions can be drawn about the effectiveness of self-management procedures for drooling in children with motor and learning disabilities. In the present study, the effectiveness of a new self-management procedure for drooling was evaluated in 10 children. Also, generalization of treatment effects to the classroom and maintenance were assessed. Finally, treatment effects on daily life and care, social interaction, and self-esteem of the participant were evaluated.

2. Method

2.1. Participants

Ten children participated in this study. Inclusion criteria were (a) severe drooling, defined as a score of 3 or higher on the Teacher Drool Scale (TDS; Camp-Bruno, Winsberg, Green-Parsons, & Abrams, 1989; see subscript Table 4), indicating at least 'occasional drooling, intermittent all day', (b) a developmental age of 6 years or higher, (c) some overt awareness (i.e., comments of the participant) of practical and social (adverse) consequences of drooling, (d) the ability to close their mouth and swallow on

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