Introduction

- Nocturnal Enuresis (NE), or bedwetting, is one of the most common elimination disorders among children.
- NE is characterized as repeated urination into the bed or clothing and occurs at least twice a week for at least 3 months in children 5 years of age and older.
- Past research has demonstrated that the use of a urine alarm is highly effective in treating NE. Urine alarms are worn by children at night. Wires attached to the pajama bottoms activate the alarm whenever a child wets during the night. When the alarm sounds, the child wakes and stops urinating.
- Urine alarms are proposed to work in one of two ways: (1). The alarm is an unconditioned stimulus which is repeatedly paired with the sensation of a full bladder. Initially, a child wakes to the sound of the alarm, but over time, the child wakes up when his or her bladder is full, prior to the elimination of urine. (2). Children become aware of the need to urinate and contract the muscles supporting the bladder to avoid setting off the alarm. In this way, the alarm functions as a type of negative reinforcement.
- In addition to a urine alarm, incentive or contingency management systems have been used to treat NE. Although not likely to cure NE when used in isolation, incentives may help to motivate children to participate in treatment.

Purpose

This study examined the effectiveness of contingency management coupled with an auditory alarm as treatment for nocturnal enuresis. Two research questions were examined:

1. Did the treatment effectively reduce the frequency and amount of urine voided during the night?
2. Did the treatment package demonstrate social validity?

Method

- An 11-year-old boy who had a history of frequent nighttime accidents and received a DSM-IV diagnosis of Nocturnal Enuresis served as a participant. Cognitive ability was in the average range and the participant's medical history was unremarkable besides bedwetting.
- Baseline data was collected through interviews with the participant's mother.
- Treatment began with the use of contingency management. During this time, the participant's mother used an incentive program as well as responsibility training to reduce nighttime bedwetting accidents.
- After 1 week of using contingency management, a urine alarm was also implemented to reduce nighttime bedwetting accidents. This combined treatment plan was used continually for 5 weeks.
- Throughout treatment, the participant's mother used a bedwetting tracking sheet to record the frequency and amount of urine voided at night. The mother also kept track of her use of incentives and responsibility training.
- After 6 weeks of treatment, the participant's mother completed a social validity questionnaire. The questionnaire assessed the mother's opinion of treatment effectiveness and the amount of effort required to implement treatment.

Results

- The graphs above display the frequency of voiding urine during 1 week of baseline (BL), 1 week of contingency management (CM), and 2 weeks of contingency management plus the urine alarm (CM + UA).

- The graphs above display the amount of urine voided during wet nights during 1 week of baseline (BL), 1 week of contingency management (CM), and 2 weeks of contingency management plus the urine alarm (CM + UA).

Social Validity Questionnaire

The participant's mother completed a 6-item social validity questionnaire. Response options ranged from “Completely Agree” to “Completely Disagree”. Results of the questionnaire are displayed below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This treatment plan reduced the amount of urine accidents.</td>
<td>Mostly Agree</td>
</tr>
<tr>
<td>2. This treatment plan reduced the size of urine spots.</td>
<td>Mostly Agree</td>
</tr>
<tr>
<td>3. This treatment plan was easy for me to use.</td>
<td>Mostly Agree</td>
</tr>
<tr>
<td>4. This treatment plan was easy for my child to use.</td>
<td>Mostly Agree</td>
</tr>
<tr>
<td>5. My child is happy with the effectiveness of the treatment plan.</td>
<td>Mostly Agree</td>
</tr>
<tr>
<td>6. Overall, I feel this treatment plan was effective.</td>
<td>Mostly Agree</td>
</tr>
</tbody>
</table>

Discussion

- The results of this study contribute to the current literature by examining a combination of treatments and assessing the acceptability of treatment implementation.
- Contingency management alone and contingency management in combination with a urine alarm decreased the number of wet nights per week over the baseline condition.
- Trends in the current data suggest that if the combination of treatments were continued, the number of wet nights per week would decrease to zero.
- The amount of urine voided at night also decreased in the two treatment conditions when compared to baseline.
- Based on the social validity questionnaire and interviews with the participants’ mother, the treatment package was determined to be acceptable and easy to implement.

Limitations

- The incentive system was not implemented consistently or with fidelity. This may have influenced the effectiveness of the treatment.
- On several occasions, the urine alarm became detached during the night and therefore did not wake the participant when he wet the bed.
- Other external factors may have influenced the effectiveness of the treatment. For example, we were not able to control for fluid intake prior to bedtime.
- Results may not be generalized to other cases.
- Post-treatment follow-up data was not collected.

References

