Children Who Hide While Defecating Before They Have Completed Toilet Training

A Prospective Study

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Objective: To examine the incidence and age at onset of hiding while defecating in children before they have been toilet trained and its association with difficulties in toilet training.

Design: Prospective study.

Setting: Suburban private pediatric practice.

Subjects: Three hundred seventy-eight children aged 17 to 19 months.

Methods: Children were followed up by telephone interviews with the parents every 2 to 3 months until the child completed daytime toilet training. Children who were described at any follow-up telephone call as always or almost always hiding when defecating prior to completing toilet training were defined as the hiding group. The remainder of the children, who were described as never hiding or only sometimes hiding, was defined as the nonhiding group.

Results: Two hundred sixty-three children (69.6%) met the criteria for the hiding group. The median age at initiation of hiding for the group was 22 months. Thirty-eight began hiding before toilet training was initiated and 64 started hiding after intensive toilet training had begun. The nonhiders (115 [30.4%]) were significantly less likely to have stool toileting refusal, frequent constipation, or stool withholding. They also completed toilet training at an earlier age than the hiders (34.5 ± 5.9 months vs 38.1 ± 5.9 months; \( P < .001 \)).

Conclusions: The behavior of hiding while defecating before completion of toilet training is associated with stool toileting refusal, constipation, and stool withholding. These behaviors may make toilet training more difficult.


IN OUR RESEARCH research on toilet training and in our clinical practice, we have observed that children often hide from the adults around them while defecating in their diapers.\(^1,2\) In a recent abstract, this behavior was found to be associated with difficult toilet training, but we are unaware of any reports on the incidence of this behavior, its age at onset, or other significant associations.\(^3\) This behavior is of interest because training children for stool is often the major stumbling block to successful toilet training.\(^1,4,5\) As part of a study investigating the effectiveness of an intervention designed to decrease the incidence of stool toileting refusal, we prospectively observed 378 children through the toilet training process. This report describes the incidence and age at onset of hiding while defecating, and its association with toilet training difficulties.

See also pages 1153 and 1193

METHODS

SAMPLE

Families of 408 consecutive 17- to 19-month-old children from the private pediatric practice of one of us (B.T.) were asked to participate in a study designed to investigate factors related to age at completion of toilet training and to study an intervention designed to decrease stool toileting refusal. Parents of 406 children gave written informed consent to participate in the study. Children with global developmental delays or structural abnormalities of the spinal cord, genitourinary tract, or gastrointestinal tract were excluded. The pediatric practice is in the suburbs of a major metropolitan area and serves predominantly middle- and upper-middle-class families. More than 90% of the families are white, and the mean ± SD Hollingshead score\(^6\) was 52.4 ± 10.8, which is near the top of social stratum IV of the 5-category index.

Twenty-seven families were lost to follow-up or stopped participating in the study before the completion of toilet training. One child was dropped from the study because of global developmental delays not apparent at the...
time of enrollment. Three hundred seventy-eight (93%) were followed up until they completed daytime toilet training and are the subject of this article. The study was approved by the institutional review board of The Children’s Hospital of Philadelphia, Philadelphia, Pa.

PROCEDURES
At enrollment, families were randomized to receive 1 of 2 intervention handouts. Both handouts emphasized a child-oriented approach to toilet training consistent with published guidelines. The intervention handout provided the additional recommendation to increase praise for defecating and not refer to stool in negative terms.

We conducted follow-up telephone interviews every 2 to 3 months until the parents reported that the child had completed daytime toilet training at 2 consecutive interviews. Toilet training was defined as completed when the child was wearing underpants whenever awake and had fewer than 4 urine accidents per week and 2 or fewer fecal soiling episodes per month. During the interviews, parents were asked whether they had initiated toilet training and, if so, at what age and how often they asked the child to sit on the toilet or potty. We defined the age at initiation of toilet training as the age at which parents took out a potty chair and began discussing some aspect of toilet training with the child. We defined the age at intensive toilet training as the age at which parents asked their child to use the toilet or potty more than 3 times a day.

Parents were also asked whether their children had gone off by themselves while having a bowel movement in the diaper and, if so, whether they did so sometimes, almost always, or always. Children who did so almost always or always for at least 1 month made up the hiding group. Those who never went off by themselves or did so only occasionally made up the non-hiding group.

In addition, information was obtained about constipation, stool withholding, and stool toileting refusal. Children were coded as being constipated if parents ever reported hard bowel movements at a follow-up interview. Stool toileting refusal was scored as occurring when a child refused to defecate in the toilet or potty for longer than 1 month after meeting the criteria for daytime toilet training for urine. Stool withholding was scored as occurring if the child engaged in a physical activity such as crossing of the legs or running around to avoid having a bowel movement in the diaper or pull-on disposable underwear.

STATISTICS
Statistical analyses were performed with SPSS version 9.0 (SPSS Inc, Chicago, Ill). The group who hid during the toilet training process was compared with the group who did not. For dichotomous variables, the χ² statistic was used, and for continuous variables the unpaired t test was used. P values less than .05 were considered statistically significant.

RESULTS
There was no difference in the incidence of hiding during defecation between the intervention group (68.4%) and the control group (70.4%); therefore, the 2 groups were combined for this analysis. Two hundred sixty-three children (69.6% of the sample) met the criteria for daytime toilet training as the age at which parents asked their child to sit on the toilet or potty. We defined the age of toilet training with the child. We defined the age at intensive toilet training as the age at which parents asked the child to use the toilet or potty more than 3 times a day.

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RESULTS
There was no difference in the incidence of hiding during defecation between the intervention group (68.4%) and the control group (70.4%); therefore, the 2 groups were combined for this analysis. Two hundred sixty-three children (69.6% of the sample) met the criteria for being in the hiding group. There was no significant difference in sex distribution between the hiding and non-hiding groups (Table 1). For children in the hiding group, parents reported initiating toilet training at a slightly greater age than in the nonhiding group, although there was no difference in the age at initiation of intensive training (Table 1). The median age for initiation of hiding was 22 months, and the distribution of ages for initiating hiding was skewed, as shown in the Figure. Thirty-eight children began hiding before toilet training was initiated; 64 children began hiding after intensive toilet training was initiated.

The nonhiders were significantly less likely to have stool toileting refusal, constipation, or stool withholding during the toilet training process (Table 1). They also completed toilet training at a significantly earlier age (Table 1). Since stool toileting refusal has been associated with constipation and delayed toilet training, we analyzed the data excluding children with stool toileting refusal. Children in the hiding group still trained later and had a higher incidence of constipation and stool withholding (Table 2).

COMMENT
The phenomenon in children of hiding while defecating in their diaper has, to our knowledge, not previously been described in any detail. The only reference to this be-

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behavior in the literature is in an abstract published in 2001, associating it with difficult toilet training. The data in this article support this association to a degree. This behavior occurred in the majority of children (69.6%), yet only 29.1% of these children developed either stool toileting refusal or stool withholding (Table 1). However, those who did not frequently hide while defecating had a much lower chance of difficulty in toilet training for stool (Table 1).

Since stool toileting refusal is associated with constipation and delayed toilet training, and we found that hiding increases the incidence of stool toileting refusal, we investigated whether hiding was associated with constipation and later toilet training in children who did not develop stool toileting refusal. This analysis suggested that hiding was a risk factor for constipation and later toilet training independent of its effect on stool toileting refusal.

Training children to defecate in the potty or toilet is often the most challenging aspect of toilet training. We know that approximately 20% of children will experience stool toileting refusal when toilet training is attempted. The data in this article on the phenomenon of children hiding while defecating in their diapers sheds new light on the complexity of the toilet training process. These data challenge investigators studying this process to better understand the reasons for this behavior, since such understanding may help in the development of approaches to toilet training that avoid stool toileting refusal, stool withholding, and their negative consequences.

Fourteen percent of the children who hid began doing so before parents reported that toilet training was initiated, and 52% of the remainder began before intensive toilet training was started. The age at initiation of toilet training was slightly greater for those in the hiding group. Therefore, for many children, this behavior does not appear to be in response to the parental pressure to toilet train. The reason that children hide while defecating in a diaper cannot be determined from this study. For some it may be that, from observing the adults in their environment, they assume that defecation is done in private. For others it may be a response to fear or shame related to defecating. For those who begin hiding after the initiation of intense toilet training, it may be a response to the pressures of toilet training. Whatever its cause, given its association with constipation, stool toileting refusal, and stool withholding, this behavior appears to make toilet training more difficult for some children.

There are some limitations of this research in that the data were obtained from a population of mostly middle- and upper-middle-class white families. Factors affecting toilet training and the incidence and implications of hiding during defecation may differ in other cultures or socioeconomic groups. In addition, the data were based on parental report. However, the age at completion of toilet training and the incidence of stool toileting refusal in this study are consistent with those in other recent reports.

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REFERENCES