

Toilet Training and Behaviors of People with Autism: Parent Views¹

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Individuals with autism often present with toileting problems, yet there is little information about the nature of these problems. This investigation surveyed 100 parents of people with autism of a mean age of 19.5 years. Results indicated that lower cognition and lower verbal levels were significantly correlated with age of accomplishment of bowel and urine training; some subjects were not trained at the time of the study. The average duration of urine training was 1.6 years, bowel training 2.1 years. On the average, training started more than 2½ years before the average age of diagnosis of autism. Fifty-six percent of the sample had to be taught to self-initiate, 42% were taught to ask to use the toilet, and 49% were taught using a schedule. Reinforcement was used by 78% of the parents of males and by 100% of the parents of females. Punishment, primarily scolding was used by 37% of the parents. The most common problems reported were urinating in places other than the toilet, constipation, stuffing up toilets, continually flushing, or smearing feces. More fears related to toileting were noted for verbal subjects.

Since the Azrin and Foxx (1971) articles of 20 years ago, studies regarding toilet training, enuresis, and encopresis have been published in education, psychology, and medical journals. Anderson (1982) speculated that self-initiation of toileting might be too stringent an expectation for individuals who have severe retardation. Levine (1982) defined encopresis as the "deposition of formed or semi-formed stools" outside the toilet after the age of 4. He also states that virtually all children with encopresis retain stools, at least intermittently, leading to abdominal pain and impaired sensory feedback from the bowel. Some of the precursors to encopresis are

¹We thank Susan K. Gray who helped with the survey questions, and Jan E. Hendrix who conducted the pilot study.

simple constipation, avoidance of bathrooms, toilet fears, painful defecation, attention deficits, psychosocial stresses, coercive medical interventions, and possibly diet such as eating large quantities of chocolate or milk. Shaffer's (1985) discussion of enuresis stated that 2% of 5-year-olds wet during the day and that while bed-wetting is normal at 3, by 4 years of age it is usually indicative of problems. In a study by Tsai, Stewart, and August (1981) of 102 children with autism, enuresis was experienced by 59% of males and 86% of females after the age of 3.5 years. Encopresis was experienced by 66% of males and 86% of females after the age of 3.5 with no significant differences between the mean IQ of either group.

Child development literature suggests postponing toilet training until the age of 2 to reduce soiling, bed-wetting, and constipation later (Brazelton, 1976). The suggestion to go easy and not push toilet training is repeated in almost all child development texts today. There is some evidence that the age of toilet training achievement is increasing. Sears, Macoby, and Levin (1957) reported completion at the mean age of 18 months, with nighttime accidents until the age of 2, average duration of training being 7 months. White and Burton (1985) reported that the majority of children developing well were not trained before their second birthdays. Brazelton (1976) reported that in one study the mean age of self-training was 27.7 months and that only 1.5% of the children were still wetting the bed after the age of 5; 80% of the children were night trained by 3 years of age.

For children with disabilities, Dunlap, Koegel, and Koegel (1984) recommended consistency. They suggested that most children should be at least 2 years old before beginning, be able to retain urine for 30 to 60 min, and be mobile. Progress should be evident within weeks. Baker, Brightman, Heifetsy, and Murphy (1977) suggested for toileting readiness the child be able to follow directions, sit for 5 min, and wait at least 1½ hr between elimination times.

Caplan and Caplan (1977) explained that bowel and bladder control depends upon the physical maturation of the sphincter muscles and the sensory centers of the brain and that bladder control takes longer than bowel control. Chandler, Lourie, and Peters (1968) discussed the socialization process of toilet training noting that the capacity to wait and to know where and when certain activities occur is needed. Space and time concepts must become coordinated to body functions.

Rodger (1987) compared parenting throughout the life-span of a child developing normally and one with disabilities. Toileting was mentioned as a facet of the dependent child's life that parents must learn to manage. Dalrymple and Angrist (1988) reported toilet training a 15-year-old female with autism who displayed symptoms of a megacolon and a large rectal vault due to years of bowel retention.

Twenty percent of parents of children with autism listed enuresis and encopresis as a concern (Ohta, Nagai, Hara, & Saski, 1987). Few studies have taken an in depth look at how toilet training was taught and how toileting issues affect individuals with autism. Kasari, Sigman, Mundy, and Yirmiya (1988) examined the interactions between caregivers and children with autism, and those of children with mental retardation. They suggested that children with autism displayed fewer nonverbal indicating behaviors making it more difficult for caregivers to identify the children's needs, placing more responsibility upon the caregiver.

The present study examined ages of toilet training, toilet training methods, and toileting skills and behaviors as reported by parents of individuals with autism. Eighty-five percent of the respondents were mothers, 8% both parents, 5% fathers, and 2% others, including grandparents.

METHOD

Subjects

The sample was drawn from a population of all parents with children 9 years of age or older in a data base at the Indiana Resource Center for Autism. All had the diagnosis of autism as recognized by their current placements. The diagnostic criteria used by agencies in Indiana are the same as those in the DSM-III-R (American Psychiatric Association, 1987). Questionnaires were mailed to 315 households with an explanation of the study; 116 were returned anonymously, and 16 were discarded due to incomplete data or incorrect age. Thus 100 surveys were compiled and analyzed. Almost one third of the original sample was used, comparable to surveys of similar length with sensitive material. Because the returned surveys were anonymous, a comparison of the sample to the attrition group could not be performed. Ninety-seven percent of the individuals with autism lived in community living arrangements or the parent's home. The children of the subjects in the sample consisted of 32 females and 68 males between the ages of 9.1 and 38.9 years, with a mean age of 19.5. There were no significant relationships between the gender and cognitive and verbal levels of the individuals with autism. Although autism occurs about four times more often in male than female, this sample of 2 males to 1 female may reflect that parents of females responded at a higher rate than parents of males because the original sample reflected a 3.4 to 1 male-female ratio. Verbal and cognition level ($r = -.35$, $p < .001$) related significantly confirming previous studies (DeMeyer, Hingter, & Jackson, 1981; Hermelin &

O'Connor, 1970; Rutter, 1966). The mean age of diagnosis was 5.08 years and did not relate to demographics.

Development of the Survey Instrument

The Survey of Toilet Habits (STH) was developed using a sample of 10 parents. Extended interviews were conducted with parents of children between the ages of 12 and 24, including 2 females and 8 males with varying cognitive levels to discover the issues to be addressed in the survey. The STH consisted of 21 open-ended questions involving (a) developmental milestones in toileting development, (b) difficulties in urine and bowel training, (c) post toilet training difficulties, and (d) methods implemented in toilet training. Feedback from parents was used to design the final questionnaire consisting of 22 primary questions with some divided for specificity. Cognitive levels reported from a choice of five included severe/profound, moderate, mild, average, and gifted; verbal levels included verbal, minimally verbal, and nonverbal. The levels were derived from two statewide needs assessment surveys and the interview study. An alpha coefficient of internal consistency calculated for the STH yielded .82.

RESULTS

Urine Training

Twenty percent of the respondents reported stopping urine training for longer than 3 months. Thirty percent noted a regression in urine training after being trained. The primary reason reported for this was change in routine by 42% of those responding in the affirmative, illness by 24%, a move by 15%, a new baby at home by 12%, and other by 36%. Cognitive level related significantly to regression in urine training ($\chi^2 = 11.7, p < .02$) with those people more retarded being more likely to show regression. The mean age nighttime wetting stopped was 5.08 years. However, 22 people from 9.38 to 32.58 years ($M = 20.3$) still wet at night. Verbal and cognitive levels related significantly to the age of nighttime training (Tables I and II).

Bowel Training

Verbal and cognitive levels related significantly to age of starting and age of accomplishing bowel training (see Table II). Parents waited longer to start training children who were more impaired, and training was ac-

Table I. Training Ages^a

	Urine training (years)		Bowel training (years)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
For accomplishment	3.85	1.98	4.70	3.26
For starting	2.24	1.07	2.64	1.47
Of duration	1.61		2.06	
Of time between starting and mean age of diagnosis	2.84		2.56	

^aEight subjects between 11.42 and 32.58 ($M = 18.8$) years were not urine trained during the day. Twelve subjects between 10.92 and 38.92 ($M = 19.3$) years were not bowel trained.

complished later. Thirty percent of the sample reported a regression in bowel training after being trained. A change in routine was indicated as the reason by 43% of those responding in the affirmative, a move by 23%, illness by 17%, and other reasons by 47%.

Untrained and/or Wearing Diapers

Five subjects with a mean age of 23.8 were not trained for urine, bowel, or during the night. Forty-eight percent wore diapers after the age

Table II. Training Ages Related to Cognitive and Verbal Levels

	<i>n</i>	Started urine training (<i>n</i> = 87)	Accomplished urine training (<i>n</i> = 88)	Stopped wetting at night (<i>n</i> = 74)	Started bowel training (<i>n</i> = 92)	Accomplished bowel training (<i>n</i> = 86)
Cognitive levels ^a						
Severe/profound	28	2.6	5.6 ^d	7.9 ^d	3.5 ^c	7.1 ^c
Moderate	26	2.3	3.4	6.0 ^a	2.4	3.8
Mild	26	2.0	3.1	3.5	2.1	4.2
Average	10	1.9	3.1	3.5	2.1	4.0
Gifted	6	2.0	3.1	3.4	2.3	3.5
Verbal levels						
Nonverbal	35	2.6	5.3 ^d	7.6 ^d	3.2 ^c	6.4 ^b
Minimally verbal	29	2.1	3.4	4.1	2.5	3.9
Verbal	38	2.1	3.1	4.2	2.2	4.1

^aModerate and severe/profound cognitive levels are not significantly different at $t = 1.3$, $p < .178$.

^b $p < .05$.

^c $p < .01$.

^d $p < .001$.

Table III. Toiletting Problems by Cognitive and Verbal Levels^a

Cognitive levels	Wearing diapers after age 5 (n = 94)		Place for urine (n = 92)		Place for bowel (n = 93)		Constipation (n = 98)		Miscellaneous other problems (n = 97)		Fears (n = 96)		Current problems (n = 96)	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Severe/profound	28	67	18	50	14	29	8	32	9	57	16	25	7	50
Moderate	28	25	7	43	12	29	8	39	11	50	14	29	8	50
Mild	26	15	4	38	10	27	7	58	15	42	11	38	10	31
Average	10	0	0	40	4	20	2	40	4	40	4	30	3	20
Gifted	6	0	33	2	2	17	1	33	2	0	50	50	0	0
χ^2 test of significance		28.4 ^c		2.39		0.78		4.03		0.91		4.41		9.86 ^a
Verbal levels		(n = 96)		(n = 94)		(n = 94)		(n = 100)		(n = 98)		(n = 97)		(n = 98)
Nonverbal	35	46	19	43	15	29	10	34	12	64	21	27	9	57
Minimally verbal	29	24	7	41	12	17	5	31	9	24	7	14	4	24
Verbal	38	11	4	42	16	29	11	55	21	50	19	50	19	32
χ^2 test of significance		18.87 ^c		6.11		1.83		4.61		9.34 ^c		10.70 ^b		11.95 ^b

^ap < .05.
^bp < .01.
^cp < .001.

of 3. Verbal and cognitive levels related significantly to age of ceasing to wear diapers (see Table III).

Methods of Training

Thirty-five percent of the males were taught to stand to urinate, 28% to sit, and 35% were switched between the two methods. Sixty-eight percent currently stand, 17% sit, and 14% switch. Cognitive and verbal levels did not relate to the method used.

Fifty-six percent of the sample were taught to self-initiate toileting (go without a cue), 74% female and 52% male. Seventy-five percent currently self-initiate when they know the location of the bathroom. Cognitive and verbal level did not relate to needing to be taught to self-initiate.

Forty-two percent of the sample were taught to ask to use the toilet; 49% of those with a schedule. Seventy-six percent of those who used a schedule said that it was effective for urine training whereas 56% said it was effective for bowel training. Half of those using a schedule did so with daily routines, whereas 31% used clock time.

Effective instructional cues used by 25% of the sample included modeling and running water from a faucet. Reinforcement was used by 85% of the parents when training their child. There was a significant relationship between gender and reinforcement ($\chi^2 = 6.74, p < .01$); 100% of the females compared to 78% of the males were reinforced. Praise was used by 93%, food by 33%, and toys by 13%. Punishment was used by 37% of the parents as part of toilet training. Of these scolding was used by 78% and spanking by 27%.

Behaviors Associated with Toileting

Problems with Location. Forty-three percent urinated in places other than the toilet after being trained; 63% reported urinating outside, 30% in bedroom, and 26% in other places. Twenty-six percent had bowel movements in places other than the toilet after being trained; 42% reported outside, 31% bedroom, and 54% other places. Current toileting problem behaviors related significantly to having urinated ($\chi^2 = 8.99, p < .01$) and defecated ($\chi^2 = 13.06, p < .001$) in other places (see Table III).

Health-Related Problems. Constipation related significantly to problems regarding toileting ($\chi^2 = 4.79, p < .05$) and current toileting problems ($\chi^2 = 7.82, p < .01$). Thirteen percent reported that laxatives had been needed for longer than a week, and 13% had been treated for severe diarrhea.

Table IV. Help That Was Currently Needed in Toileting By Cognitive Levels

Cognitive levels	n	Wiping		Monitor frequency of bm		Flushing		Encouragement		Use of schedule ^a	
		%	n	%	n	%	n	%	n	%	n
Severe/profound	28	75	21	43	12	36	10	25	7	77	20
Moderate	28	50	14	18	5	14	4	7	2	43	12
Mild	26	42	11	27	7	8	2	4	1	44	11
Average	10	30	3	20	2	0		20	2	40	4
Gifted	6	17	1	0		17	1	0		20	1
Total subjects	98	51	50	27	26	17	17	12	12	49	48

^a $\chi^2 = 10.6, p < .05$.

Other Toileting Problems. Parents reported other toileting problems; of those 43% stuffed-up toilets, 40% continually flushed toilets, 40% smeared feces, 30% played in toilets/urinals, and 23% refused to use a variety of toilets. Verbal levels related significantly to these problems (see Table III). At the time of the survey 39% of the sample currently had problems associated with toileting behaviors. There was a significant relationship between verbal and cognitive levels and current toileting problems.

Fears and Help Needed

Thirty-two percent of the parents reported fears related to toileting; 41% sitting on the toilet, 34% toilet flushing, 19% wiping up bowel movements, 16% being alone in the bathroom, and 41% other fears. Development of fears and other problems related significantly to verbal levels (see Table III). Also, the more disabled the person, the more likely the person was to need help (Table IV).

DISCUSSION

Lower cognitive level, being nonverbal, and needing continued help with toileting related to age of accomplishing training whether it was urine, bowel, nighttime, or diaper wearing. Thus, in these areas people with autism may be comparable to individuals with similar cognitive and verbal levels. However, problems related to toileting were prevalent across the cognitive and verbal levels with fears and constipation highest in verbal individuals.

The start of toilet training for children with autism was slightly later than most children's training begins today and about the same as writers advise for children who are severely disabled. The duration of training for the children in the sample was longer than for most of their peers. Toilet training began before most parents knew their child had autism and was completed before the average age of diagnosis. Although the child presents problems around toileting, it is important to note that parents may not perceive some behaviors as problems. From the notes parents wrote, it appears that some are reluctant to ask for help with toileting problems of older children.

The study suggests the following: Wait to begin urine training until 4 years and bowel training until 4.5 years, the mean age of completion in this study, unless the child shows interest. Bowel training usually takes longer and is more difficult to adapt to a schedule. Fear, pain, confusion, and frustration are associated more with bowel training, and constipation problems are common.

Change of routines and bathrooms were listed as reasons for regression and problems. Transitions are often problematic for people with autism; thus, these are additional elements to teach and consider. Teaching a male to sit, stand, or switch did not affect his ability to stand when he was older. It is not clear whether having to make the decision to sit or stand makes toilet training more difficult.

Many children with autism regardless of their functioning level may need to be taught to self-initiate toileting and to ask to use the toilet. Using a schedule, specifically tied to routines, worked for individuals who did not train as early as others, notably for urine training. Reinforcement, primarily praise, was used by most parents. Punishment was used less. Many parents indicated that their child did not understand punishment, and it was ineffective.

Urinating in places other than the toilet was not uncommon. Using other places for bowel movements was reported by a quarter of the respondents. Thus, attention to teaching appropriate places to access toilets may be useful.

About 30% of the individuals with autism had fears associated with toileting. Verbal individuals had the most, with nonverbal people having about twice as many fears as the minimally verbal group. Possibly fears are easily understood as fears from those who can say them. There may be more opportunity to interpret behaviors as fears of nonverbal people, because they may have more help with toileting.

Other toileting problems were mentioned by half of the sample. About 40% had current toileting problems focusing more on difficulties that occur when the person is toileting independently such as use of toilet

paper and flushing. Although only 11% of the parents thought puberty was a complicating factor to toileting, 15% may not have reached puberty due to their age being between 9 and 12, and 22% were not yet fully trained.

This study poses limitations; it was conducted in Indiana and may not be a representative sample of the nation because of the cultural and racial makeup. However, because Indiana is often considered more conservative than many other states, parents' willingness to discuss this topic may be indicative of the desire for help and information. Because of respondent anonymity, no comparison between the subjects and the attrition group was performed. Respondents may represent people with different views and memories about toilet training than nonresponders. Variables such as age of parents, area of residence (urban or rural), and social economic status that may effect the toilet training process and outcome were not controlled for. Because the survey required recall of events, some of the information may be less accurate; however, toilet training is an area that parents often remember well. No comparison group was included.

Further areas of research include (a) what additional reinforcement strategies other than the commonly used social component are most beneficial for individuals with autism during toilet training and maintenance; (b) how does the ability to "read" a child's cue aid or hinder toileting; (c) how does waiting until an older age to begin training influence toileting; (d) what does combining reinforcement, scheduling with daily routines, communication, and generalization do for toilet training; (e) how does constipation affect outcome; (f) why are fewer problems reported for minimally verbal people; (g) how can maintenance across place and time be achieved; and (h) how do the findings of this study relate to toileting of people with other disabilities?

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