

[ORIGINAL RESEARCH ARTICLE]

Knowledge and Practice Regarding Toilet Training among Mothers of Toddlers in Pokhara, Nepal

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ABSTRACT

Toilet training is an essential developmental milestone for toddlers and requires adequate knowledge and appropriate practice from mothers. Improper or delayed training may lead to anxiety, constipation, and behavioural problems in children. Despite its importance, limited evidence is available on mothers' knowledge and practices related to toilet training in Nepal. This study aims to assess the level of knowledge and assess the practices regarding toilet training among mothers of toddlers in selected areas of Pokhara. A descriptive cross-sectional research design was used, non –non-probability purposive sampling technique was applied to select 178 mothers of toddlers. Data were collected through face-to-face structured interview questionnaires. Collected data was analysed using SPSS software with descriptive statistics (as frequency, percentage, mean and standard deviation) and inferential statistical tests as per the nature of the data. The study revealed that most (78.7%) of the participants had average knowledge, while 17.4% had poor

knowledge, and only 3.9% demonstrated good knowledge regarding toilet training. The total mean knowledge score was 19.2 (SD=3.1). No significant association was found between the level of knowledge and selected socio-demographic variables. The study showed that the majority of mothers had an average level of knowledge regarding toilet training, with only a small proportion demonstrating good knowledge. No significant association was found between knowledge levels and socio-demographic variables.

Although mothers possessed basic awareness, gaps remain in their understanding and application of appropriate toilet-training practices. Strengthening community-based health education and providing practical guidance to mothers can help enhance effective toilet-training practices and support healthy developmental outcomes in toddlers.

Keywords: Toilet training, knowledge, practice, mothers, toddlers

INTRODUCTION

Early childhood is a time of rapid cognitive, physical, and psychological growth. Child starts expressing their independence, investigating their environment and picking up vital abilities necessary for day-to-day living throughout the toddler stage (WHO, 2018). Toilet training is the most important and difficult task for these early development milestones for children and as well as the caretaker. It is a complicated behaviour process that requires the integration of social learning, emotional stability, cognitive preparation and motor abilities (Barutçu *et al.*, 2024). The complex aspect of toileting requires mastery of physical signs, communication of requirements, undressing, eliminating, wiping, flushing, and hand hygiene (Joinson *et al.*, 2015).

Toilet training has long-term effects and is based on traditional beliefs of development. According to Freud's psychosexual theory, toilet training occurs during the anal stage (18 months to 3 years), when children find fulfilment in controlling their body's processes (Lantz *et al.*, 2025). Later personality traits like independence, self-control, or compulsive tendencies are shaped by the type of parental responses during this time, whether they are supportive, punitive, or controlling. Toilet training necessitates patience, consistency, positive reinforcement, and awareness of the child's developmental preparedness, according to contemporary developmental psychology (de Carvalho Mrad *et al.*, 2021).

According to American Academy of Paediatrics (AAP) guidelines, training should only start when the child exhibits emotional, cognitive and behavioural readiness, such as remaining dry for two hours, expressing the need to urinate or defecate, showing discomfort with soiled diapers, and following basic instructions (El-Khedr, 2014; 'Toilet Training', 2022). There are a number of toilet training techniques that are influenced by caregiver preferences and cultural standards, such as the organised Azrin and Foxx "toilet training in one day" approach and the Brazelton child-oriented method (Michel, 1999). These variations highlight how crucial it is to provide caregivers with culturally sensitive information.

Research across countries shows that the timing and method of toilet training significantly affect health outcomes. Early initiation (before 24 months) is often associated with earlier continence, whereas delayed training (after 32 months) has been linked to higher risks of urinary tract infections, constipation, daytime wetting, and urge incontinence (Saral and Ulke-Kurkcuglu, 2020). Although most healthy children eventually attain bladder and bowel control, inadequate caregiver knowledge can prolong the process and increase stress for both the child and parents.

Despite its importance, evidence from South Asia and Nepal shows that mothers frequently lack adequate knowledge of toilet training readiness, techniques, and complications. Different studies from India report that only half of mothers possess adequate knowledge, with many relying on inconsistent or culturally inherited practices (El-Khedr, 2014; Leelavathi, 2020a; Biju *et al.*, 2022). In Nepal, a study from Siddharthanagar Municipality found that only 49% of mothers had a high level of

awareness regarding toilet training (Bhattarai and Bhusal, 2023). These gaps underscore the need for improved caregiver education, particularly as delays and misconceptions may be a direct cause of toileting issues and avoidable health problems.

Mothers are crucial in helping children learn to use the restroom and in forming their habits; thus, this information gap is very important. Supporting healthy development requires an understanding of important factors such as the best age to start training, indicators of preparedness, duration, typical difficulties, and enuresis management. Lack of this information causes toilet training to be drawn out, frustrating, and possibly dangerous (Van Aggelpoel *et al.*, 2019; Saral & Ulke-Kurkcuoglu, 2020). Increasing maternal knowledge is a public health priority because timely and proper training promotes autonomy, hygiene, and psychological development.

Therefore, in the Nepalese context, a more thorough understanding of mothers' toilet training techniques and knowledge is required. Systematic evaluation is crucial given the small number of studies carried out in Nepal and the disparity in results across different locations. The purpose of this study is to assess toddler mothers' toilet training techniques and knowledge, find any gaps, and provide information that can guide community-level interventions and policy suggestions.

DATA AND METHODS

A community-based descriptive cross-sectional study design was used to assess the knowledge and practice of toilet training among mothers of toddlers in the selected area of Pokhara-05, Malepatan. The study was conducted among mothers of toddlers (i.e. 1-3 years). The sample size of 178 was determined using Cochran formula ($n = Z^2 pq/d^2$) with a prevalence value of 0.133 (Joshi *et al.*, 2019).

A non-probability, purposive sampling technique was employed to select the eligible mothers. Data was collected using a face-to-face structured interview questionnaire. The instrument was developed and consulted with the subject expert. The questionnaires were divided into three. Part I consists of demographic information related to independent variables of the participants, like age, religion, ethnicity, education of mother, occupation of mother, residence, type of family, number of children, birth order of children, and income of family income. Part II: It consists of questions related to knowledge regarding toilet training. There were a total of 20 multiple-choice questions (MCQs), including 3 multiple-response questions (MRQs). The total score "1" was given for a correct answer and "0" for a wrong answer. For multiple response questions, a score '1' was given for each correct response and '0' for no response. The mothers were considered to have poor knowledge if responses were less than 50%, fair knowledge 50%-75% and good knowledge more than 75%. Part III: It consists of questions related to practices regarding toilet training, which included 17 multiple choice questions (MCQs), including 2 multiple response questions (MRQs), which depicted the practices that are followed by mothers during toilet training their child. The validity of the instrument was based on content validity. By developing the instruments based on a literature review, the opinion of subject experts, research advisors, peer discussion, and a statistician validity of the instrument was established. The instrument was given to experts, and the suggestions given were subsequently incorporated into the study. The validity of the tool was 0.83. The reliability of the instrument for knowledge was calculated by using Karl Pearson's correlation coefficient test by adopting the Split-Half technique. It was found to be 0.72.

Ethical approval was obtained from the Institutional Review Committee (IRC, Ref. No.166/2080/81), Pokhara University, after formal permission and an approval sheet was

obtained from all concerned authorities of Pokhara University, as well as ward authorities of Ward 05, Pokhara Metropolitan City. Informed consent was obtained from the participants after providing all preliminary information regarding the study. Privacy and confidentiality were maintained throughout the study. The participant's privacy was protected by not including the participant's name in the study and instead using the participant's code number for identification. Throughout the investigation, data confidentiality was maintained by ensuring that physical and electronic data were stored safely where only the researcher had access, and by not disclosing participant information to anyone not associated with the study. The collected data was exclusively used for the researcher's academic purposes. At the end of the data collection, the queries of the participants were clarified, and participants were informed about toilet training through informal education. Data was collected using face-to-face interviews for 15-20 minutes for each participant.

After data collection, checking and compiling were done manually on the same day of data collection. The collected data were coded and entered into the EpiData 3.1 version with a validated command. Statistical Package for Social Sciences (SPSS) program version 23 was used to edit, code, and enter the data. Data was analysed by using descriptive statistics (frequency, mean, percentage, and standard deviation) and inferential statistical tests as per the nature of the data. A chi-square test was used to find the association between the level of knowledge of toilet training and selected variables, and the kind of practices performed was assessed.

RESULT

Table 1 showed that out of 178 participants, more than half (68.0%) of participants were aged between 26-35 years, and the mean age of participants was 29.52 years with a standard deviation of 5.143 years. Regarding religion, the majority (86.5%) of participants followed Hinduism, and more than half (60.7%) of participants were Brahmin/Chhetri, with Janajati (20.8%) and Dalit (18.5%). Nearly half (48.9%) of families were nuclear. Regarding education, (90.4%) most mothers were literate. Among the literate mothers, more than half (58.4%) had achieved secondary education, and more than half (64.0%) of mothers were homemakers. Regarding the income of the family (Rs/month), two-thirds (65.7%) of the income range falls into the 30,000-60,000.

Table 1

Socio-Demographic Information Related to Participants

Variables	Number (n)	Percent (%)
Age in complete years		
16-25 years	37	20.8
26-35 years	121	68.0
36-45 years	20	11.2
Mean±SD = 29.52±5.143, Min:16 ,Max: 44		
Religion		
Hinduism	154	86.5
Buddhism	20	11.2
Christian	3	1.7
Islam	1	0.6
Ethnicity		
Brahmin/Chhetri	108	60.7
Janajati	37	20.8
Type of family		

Nuclear	87	48.9
Joint	85	47.8
Extended	6	3.4
Educational Status of the Mother		
Literate	161	90.4
Illiterate	17	9.6
If literate		
Primary level	3	1.7
Secondary level	104	58.4
Bachelor's degree	37	20.8
Master's degree	17	10.1
Occupation of the mother		
Homemaker	114	64.0
Self-employment (business/shops/agriculture)	28	15.7
Private service	24	13.5
Government service	12	6.7
Family Income(Rs/month)		
<10000	2	1.1
10000-29999	28	15.7
30000-60000	117	65.7
>60000	31	17.4

Table 2 illustrates that less than half (43.8%) of the participants in families have one child, and more than half (57.9%) of children were in the 12–24-month age range. Regarding the gender distribution of children is relatively balanced, with 55.1% female and 44.9% male and nearly half (47.8%) of the children are first-born, followed by second-born and third-born. All participants reported providing toilet training to their children. The progress in toilet training varied, with only 36.0% of children achieving daytime bladder and bowel control, one third (32.0%) both controls, 18.0% nighttime control, and 14.0% having no control. More than half of families used diapers (53.4%), and less than half (46.6%) don't use diapers or cloth for their children.

Table 2

Socio-Demographic Information related to children

Variables	Number(n)	Percent (%)
Number of children		
One	78	43.8
Two	75	42.1
Three	25	14.0
Age of Child (in months)		
12-24	103	57.9
25-36	75	42.1
Gender of Child		
Female	98	55.1
Male	80	44.9
Birth order of the child		
First	85	47.8
Second	71	39.9
Third	22	12.4
Given toilet training to the child		
Yes	178	
Use of diaper/Cloth		
Yes	95	53.4
No	83	46.6

Progress in toilet training		
Daytime bladder and bowel control	64	36.0
Both control at all times	57	32.0
Nighttime bladder and bowel control	32	18.0
No control	25	14.0

Table 3 showed that, regarding general information about toilet training, participants had the highest possible score of 12, with a mean of 6.494 and a standard deviation of 1.18. Regarding the readiness of toilet training, the mean knowledge score was 15.68 with a standard deviation of 2.614. Regarding responsibilities, the maximum score was 20, with the mean score of 14.49, and the mean score for enuresis was 7.97.

Table 3

Participants' mean knowledge score on different aspects of toilet training

Area of knowledge	Maximum Score	Mean score	S.D
General components	12	6.4	1.18
Readiness	22	15.6	2.61
Responsibilities	20	14.4	2.36
Enuresis	13	7.9	1.66
Overall knowledge score	55	44.6	7.81

Table 4 showed that the majority (78.7%) of the participants had average knowledge, whereas in contrast, only 17.4 percent had poor knowledge and only 3.9 percent had good knowledge regarding toilet training. The minimum score was 13, and the maximum score was 29. Total mean score was 19.2 with 3.1 S.D.

Table 4

Level of Knowledge regarding toilet training among mothers of toddlers

Level of Knowledge	Number (n)	Percent (%)
Poor (<50%)	31	17.4
Average (50-75%)	140	78.7
Good (>75%)	7	3.9
Mean± S.D= 19.2±3.1		

Table 5 shows that all participants (100%) reported that they have started toilet training their child. Two-thirds (63.5%) of participants had started toilet training before 12 months of age. Regarding the time for toilet training, the majority (80.9%) of participants chose to provide toilet training in the morning. Regarding the most common sign of needing to use the toilet, the majority (77.5%) responded with verbalisation. Regarding articles used for toilet training, most (80.9%) responded with potty chairs, with fewer utilising flushable wipes, step stools, or training pants. Regarding motivating the child for toilet training, the majority (77.0%) chose using the consistent routine.

Table 5

Practices regarding age started, time, common signs, articles and motivation during toilet training

Statements	Number (n)	Percent (%)
Started toilet training the child		
Yes	178	100

No	0	0
Recently used materials for toileting		
Water closet	96	53.9
Diapers	75	42.1
Napkins	7	3.9
Age started toilet training		
< 12 months	113	63.5
12-24 months	63	35.4
25-36 months	2	1.1
Time to usually provide toilet training		
Morning	144	80.9
Afternoon	27	15.2
Evening	7	3.9
Night	0	0.0
Common signs to use the toilet*		
Verbalises the urge	138	77.5
Pulling down the pants	76	42.7
Squatting and grunting	74	41.6
Run towards the toilet	43	24.2
Articles used for toilet training		
Potty chair	144	80.9
Flushable wipes	22	12.4
Step stool	6	3.4
Training pants	6	3.4
Motivate for toilet training		
Use a consistent routine	137	77.0
Praise and reward the child	24	13.5
Use playful activities	12	6.7
Keep track of little progress	5	2.8

*Multiple Response Question

Table 6 showed just over half (54.5%) of participants involved their child in selecting the potty chair, suggesting a moderate level of child participation in the process. Nearly two-thirds (64.0%) of participants preferred potty chairs for their ease of use. Offering incentives for sitting was used by more than half (56.7%) to address refusal. Two-thirds (64.0%) of participants warned their child against wetting pants or bed. The majority (95.5%) of participants ensure their child washes their hands with soap and water after using the toilet. Regarding common challenges during toilet training, less than half (41.6%) responded that resistance to training was the most challenging. Two-thirds (66.3%) of participants provide fluids before bed, potentially influencing nighttime toileting. Three-fourths (71.9%) of children showed an unpleasant expression when their diaper was wet.

Table 6

Practices regarding the benefits of the potty chair and activities followed by parents during toilet training

Statements	Number (n)	Percent (%)
Allows child participation in the selection of a potty chair		
Yes	97	54.5
No	81	45.5
Benefits of a potty chair during toilet training*		
Easy use for small children	114	64.0

Portability	98	55.1
Transition to adult toilet	78	43.8
Easy to clean	72	40.4
When a child refuses to sit on the toilet or potty chair		
Offer incentives for sitting	101	56.7
Respect their choice and try again	60	33.7
Ignore the behaviour	11	6.2
Force the child to sit	6	3.4
When a child wets their pants or wets their bed		
Warn your child not to do it again	114	64.0
Tell your child it's okay	53	29.8
Scold the child	10	5.6
Praise the child	1	0.6
Teach children to wash their hands with soap and water after toilet use		
Yes	170	95.5
No	8	4.5
Most common challenges during toilet training		
Resistance to training	74	41.6
Regression behaviors	58	32.6
Toileting refusal	26	14.6
Constipation	20	11.2
Performs toilet training, whatever the child's condition		
Yes	100	56.2
It depends on the condition	63	35.4
No	15	8.4
Provide fluids before bed.		
Yes	118	66.3
No	60	33.7
Shows an unpleasant expression when a wet diaper		
Yes	128	71.9
Verbalises to take the diaper off	33	18.5
Don't realise until I check it myself	17	9.6

There was no significant association between the level of knowledge and selected demographic variables.

DISCUSSION

In this present study, more than half 68% of the participants were aged between 26-35, with a mean age of 29.52 years, with 5.143 S.D. These findings of the study were consistent with the study that was done in Saudi's mother, which revealed that nearly one quarter of the mothers were in the age group of 26-35 and the mean age was 30.94 with a S.D. of 6.93 (El-Khedr, 2014).

The present study showed that 78.7% of participants had average knowledge regarding toilet training. The result of this study is consistent with the findings of the study conducted in Karnataka, which showed that 68% mothers had moderately adequate knowledge on toilet training (A M, S.K. SK, 2014). The findings of the present study contradict the study done in a pediatric ward in Saudi which showed that only 22% of mothers had average knowledge regarding toilet training (El-Khedr, 2014). Also in another contradictory study done in Ludhiana showed that only 64% of mothers had an average level of knowledge regarding toilet training(Kumar, 2024). Another study conducted in India only 19% of the mothers had adequate knowledge on toilet training.

The difference may be due to difference in study setting, difference in methodologies and differences in instrument used in these two studies and variation in sample size.

In the present study, the overall mean knowledge score regarding various aspects of toilet training was 44.63 with S.D. of 7.819. A similar finding was reported in a study conducted in Kalika Municipality, Chitwan, where the overall mean knowledge score was 25.47 with an SD of 6.2 (Sharma et al., 2018).

The current study shows, 47.8% had the knowledge regarding physical readiness for toilet training and 53.7% had the knowledge on psychological signs for toilet training, 63.5% of participants started toilet training at less than 12 months. The findings of the study contradicts with the study conducted in Saudi which showed that the knowledge of mothers on psychological knowledge was found to be only 4% while the knowledge on physical readiness was found to be 12% and 33.8% of participants started toilet training at 1<2 years (El-Khedr, 2014). This could be due to different study settings and variations in sample size. It could also be due to different rearing and caring practices and cultures of these two areas.

In the present study, 62.9% knew the responsibilities of parents, and 65.2% knew enuresis, which is similar to the study conducted at TK AR-ROHIM Kalipepe, which indicated that 75% of participants had good roles of parents and 53.6% had knowledge regarding enuresis (Palupi *et al.*, 2021).

In the present study, most of the participants, 53.9%, used water closets to toilet train their child. The findings contradict the study conducted in Jatinangor, where the majority of 93.7% used a water closet to toilet train their child (Aziz et al., 2019). The difference may be due to widely varying norms and practices; it may also depend on the access and affordability of water closets, also the differences in infrastructure and resources could affect the results.

In the present study, 80.9% of parents conducted toilet training in the morning, 13.5% used praise and rewards while toilet training, 54.5% involved their children in choosing potty chairs and toiletries while 77% followed a consistent routine. Additionally, 5.6% of parents scolded their children for accidents, and 56.2% trained their children regardless of their condition. However, contradictory findings were reported in the study from Kalika Municipality of Chitwan found that 64.5% of parents trained their children in the morning, 36.1% used praise for not wetting innerwear for 2 hours, and 35.5% allowed their children to choose their potty accessories. However, only 26.5% of parents followed a consistent schedule, while 78.1% scolded their children for accidents, and 21.9% trained their children irrespective of their condition (Sharma et al., 2018). The differences may be different cultures that may have distinct attitudes toward the timing, discipline, and involvement of children in choosing training tools. For instance, the higher percentage of praise and rewards in Chitwan may reflect a cultural preference for positive reinforcement; also, the differences in general attitude towards routine, variation in sample size, and data collection method can influence the findings of the study.

The current study reflected that there was no significant association between level of knowledge and other variables like Age of mother, Religion, Educational Status, Family Income, Type of family, Number of Children, In the same way, the contradicts with the study done by Leelavathi of Raipur India where a significant association found between the Age, educational status and occupation of the mother with knowledge (Leelavathi, 2020b). The differences in outcome of the present study and other studies can be due to the samples involved, the size of the sample, the tools used, the type of method applied and it also depends on the interviewer and the interviewee.

The study was confined to a selected community of Ward 05 of Pokhara Metropolitan City. Also, the study was limited to only the mothers of the toddlers, with a study sample of only 178. Thus, the findings of the study cannot be generalised to mothers of other wards of Pokhara. The study's limited timeframe may have restricted the ability to gather comprehensive data or perform a more thorough analysis of toilet training practices. However, the findings of the study will be helpful to other researchers in identifying the level of knowledge and practices done in toilet training the child. It can serve as a source of reference to conduct such research on a large scale. The findings can also be useful in conducting different health programs focusing on child development. It can also help to close the knowledge-practice gap, thereby improving toilet practices, which will help with the healthy development of children.

CONCLUSION

The study found that most mothers possessed only an average level of knowledge regarding toilet training, and no significant association was observed between knowledge levels and selected socio-demographic variables. On the basis of the findings, it is concluded that there is a requirement for community-level programs as well as educational programmes to bring more awareness and healthy toilet training practices. Establishing structured guidance at the primary health-care level would empower caregivers and support timely developmental milestones.

DECLARATIONS

Authors' contributions: SP contributed to conceptualisation and design, literature review, data collection, analysis and manuscript drafting. SL contributed to conceptualisation, literature review, data collection, analysis and manuscript reviewing. Both authors finalised the final draft and agreed on publication.

Data availability statement: The data supporting the findings of this study are available from the corresponding author upon reasonable request and with permission from the institutional review board, due to ethical considerations and participant confidentiality.

Ethical approval: Ethical approval was obtained from the Institutional Review Committee (IRC, Ref.No.166/2080/81), Pokhara University, after formal permission and an approval sheet was obtained from all concerned authorities of Pokhara University as well as ward authorities of Ward 05, Pokhara Metropolitan City.

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