

# Determinants of Toilet Training Awareness among Mothers in Siddharthnagar Municipality of Rupandehi District, Nepal

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## ABSTRACT

**Introduction:** If children are not trained in toilet training, they may have psychological issues. Mother's alertness plays a very important role in toilet training which is vital for the better growth and development of a child. Thus the objective of the study was to assess the determinants of awareness regarding toilet training among mothers.

**Methods:** Descriptive cross-sectional study design was carried out among 100 mothers of children aged 1-3 years using non-probability purposive sampling technique. The study was done in Siddharthnagar Municipality, ward number 3, Rupandehi Nepal from 19<sup>th</sup> September to 3<sup>rd</sup> October 2021. Semi-structured questionnaire was used to collect the data. The collected data was checked, reviewed, coded, edited, entered in Microsoft excel and was analyzed by using Statistical Package for Social Science version 20. In descriptive analysis frequencies, percentages, means, and standard deviation were calculated. Inferential statistics was used to find the determinants of awareness level.

**Results:** The study findings revealed 49% of mothers had high level of awareness regarding toilet training. Mothers having age group 31 to 40 years (AOR=12.27; CI: 2.87-52.49), who cannot read and write (AOR=0.09; CI: 0.02-0.52), and number of living children (AOR=36.58; CI: 6.26-213.55) were significantly associated with level of toilet training awareness.

**Conclusion:** Almost half of the mothers had high level of awareness regarding toilet training. Age of mother, education status of mother and number of children were determinants of toilet training awareness of mother. Thus, local government, policy makers and health personnel are recommended to conduct informal educational program especially for early age mothers and mothers having only one child for promoting and upgrading the mother's awareness regarding toilet training.

**Keywords:** Awareness, Determinants, Mothers, Toilet training

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## INTRODUCTION

Toilet training is a function of a child's sequential age, based on the motor, cognitive and psychosocial development of the child and their connection with primary caregiver.<sup>1</sup> Children start to learn autonomy in self-care, when they reach 3 years of age. Attainment of control of the physical functions of defecation and urination is one of the key tasks of the toddler period throughout growth and development.<sup>2</sup> The time for starting toilet training is diverse in different cultures.

The suitable age for beginning of toilet training is after the age of 18 months. Though, the bladder and bowel control are voluntary at nine months but at 18 months the neurodevelopment is enough, after that age the child would work together with caregivers for training.<sup>3</sup>

The American Academy of Pediatrics (AAP) guidelines highly recommend a child toilet training that caregivers do not follow toilet training unless the child is behaviorally, developmentally and emotionally

prepared to commence. In 2 year, the pediatrician is capable to evaluate the readiness of the child and parents.<sup>4</sup> Ineffective toilet trainings can be able to cause children to be disobedient, spoiled and most notably, psychological problems will appear in children and cannot independently control defecation and urination. Late achievement of toilet training causes problems in schools due to the increased presence of non-toilet-trained children, the educational activities are hampered, and the teachers experience extra workload due to troubles connected with toilet training.<sup>5</sup>

The importance of toilet training are to teach children to live in a disciplined and healthy life, motivate children's thinking and creativity, support children's independence, and keep away from lazy behavior from an early age. In the United States of America, about 5 - 10% children wet the bed by age 7 years and less than 5 % are affected by age 10 years.<sup>6, 7</sup> Descriptive cross-sectional study conducted on knowledge, attitude and practice regarding toilet training among 155 mothers of toddler at Kalika municipality, Chitwan, Nepal shows that 51.60% had inadequate awareness and 48.4% had adequate awareness regarding toilet training. Mother's awareness level was inadequate on signs of readiness, time component, possible effects and reasons for wetting and parental action for negative reaction of toddlers.<sup>8</sup>

Toilet training is a significant footstep for growth and development. Sufficient information of mothers on toilet training helps children for better growth and development. As per researcher's knowledge very few study regarding toilet training are done in developing countries like Nepal. Thus, the researcher felt the need to explore this area and carry out this research. Therefore this study was conducted to assess the determinants of awareness regarding toilet training among mothers of Siddharthnagar municipality of Rupandehi district, Nepal.

## MATERIALS AND METHODS

Community based descriptive cross-sectional study was conducted in Siddharthnagar Municipality, ward number 3 of Rupandehi district, Lumbini Province, Nepal among mothers of children aged 1-3 years to find out awareness regarding toilet training. Data collection was done from 19<sup>th</sup> September to 3<sup>rd</sup> October 2021.

Sample size of this study was calculated by using formula  $N = \frac{Z^2 pq}{L^2}$ <sup>9</sup> with 95% level of confidence interval, taking 10% margin of error,  $p = 0.484\%$  as previous study found 48.4% of respondents had adequate awareness regarding toilet training in Kalika Municipality of Chitwan district, Nepal.<sup>8</sup> Initial sample size of the study was 96. Considering 4% non-response rate, the final sample size was 100. Non-probability purposive sampling technique was used to select sample for the study. Mothers having at least one child of age between 1-3 years and willing to participate was included in the study.

Semi-structured interview schedule to find awareness was developed by the researcher herself by reviewing the related literatures, consulting with the research experts. The research instrument consist of following parts: Part I: related to socio-demographic variables, Part II: related to awareness of mother regarding toilet training. Part II consists of 16 questions, each with correct answer. In each questions score one was given for both multiple choice question (MCQ) and multiple response (MR) question. For MCQ score one was given for one correct answer and for MR scores one was divided into each correct answer. Thus total score range from 0 to 16. Level of awareness was classified on the basis of mean score which was 7.44. High awareness: more than and equal to mean score; low awareness: less than mean score.

Content validity of the research instrument was established by consulting with the subject experts. The English language of the questionnaire was translated to Nepali language and back translated to English language. Pre - test was conducted on 10% of the total sample size mothers of children aged 1-3 years of Siddharthnagar Municipality, ward number 1, Rupandehi. Ethical approval was obtained from the Institutional Review Committee of Universal College of Medical Sciences (UCMS/IRC/098/21). Administrative approval was obtained for data collection from the office of ward number 3, Siddharthnagar Municipality, Rupandehi. Written informed consent was obtained voluntarily from each respondent by explaining the objective of the study. Confidentiality was maintained and collected information was used only for research purposes. Respondents were allowed to discontinue from the study at any time if they wish. The collected data was

checked, reviewed, coded, edited and entered in Microsoft excel. After that collected data was analyzed by using Statistical Package for Social Science (SPSS) version 20. In descriptive analysis frequencies, percentages, means, and standard deviation were calculated. Inferential statistics was calculated to find the determinants of awareness level. Those variables which were statistically significant with  $p$  values less than 0.05 in bivariate analysis were used to assess the goodness of fit and multicollinearity through Nagelkerke R Square and the variation inflation factor (VIF). The Nagelkerke R square value of 0.549 indicated that the goodness of fit is sufficient. Similarly, VIF of all independent variables were less than 10 ranging from 1.082 to 1.300, which indicates that multicollinearity among independent variables was not available. After that those variables which were significant in bivariate analysis were included in the multivariate regression analysis model.

## RESULTS

The finding of the study showed that 53% of the respondents were of age 20-30, 35% were Muslim and 36% belonged to joint family. Likewise 62% were literate, 83% homemaker, 53% have two or more children and 60% toddler were within 12-24 months. Similarly cent percent spouse of respondents were literate and 54% spouse of respondents were involved in daily wage (Table 1).

All respondents answered training on regular bowel and bladder habit as meaning of toilet training and 51% answered control bowel and bladder as importance of toilet training. Likewise 46% answered 18-24 months as bladder control age, 43% answered 24-30 months as bowel control age and 48% answered 23-36 months as age of completion of toilet training. Similarly 92% answered child understands toilet related words and has adequate vocabulary of his/her own as general sign of readiness and 96% answered child verbalizes or non-verbalizes the urge as behavioral signs of readiness.

**Table 1:** Mothers' socio-demographic characteristics

Characteristics	Frequency (n=100)	Percentage
<b>Age in years</b>		
20-30	53	53.0

31-40	47	47.0
<b>Ethnicity</b>		
Dalit	14	14.0
Janjati	10	10.0
Madhesi	33	33.0
Muslim	35	35.0
Brahmin/chhetri	8	8.0
<b>Type of family</b>		
Nuclear	31	31.0
Joint	36	36.0
Extended	33	33.0
<b>Educational status</b>		
Can read and write	62	62.0
Cannot read and write	38	38.0
<b>Occupation</b>		
Homemaker	83	83.0
Self-employed	17	17.0
<b>Number of children</b>		
One	47	47.0
Two or more	53	53.0
<b>Age of toddler in month</b>		
12-24	60	60.0
25-36	40	40.0
<b>Spouses' educational status</b>		
Can read and write	100	100
<b>Spouse occupation</b>		
Business	24	24.0
Self employed	7	7.0
Daily wages	54	54.0
Service holder	7	7.0
Foreign employed	8	8.0

Correspondingly 81% answered familiarize with toilet equipment as responsibility of parents and 64% answered child will verbalize desire for toilet training as outcome of toilet training. In the same way 40% answered anger as effect of too early initiation and 82% answered toilet refusal as effect of too late initiation of toilet training (Table 2).

Result shows that 51% of respondents had low awareness and 49% had high awareness regarding toilet training (Table 3). There was significant association between mother's age ( $p<0.001$ ), mother's education status ( $p<0.001$ ), type of family ( $p=0.002$ ) and number of children ( $p<0.001$ ) with level of awareness regarding toilet training (Table 4).

Those variables having statistically significant association in bivariate analysis with  $p$  value  $<0.05$  were considered for multivariate analysis. Mothers having age group 31 to 40 years were 12.27 times more likely (AOR=12.27; CI: 2.87-52.49) to have high

awareness than those who were within the age group 20-30 years. The odds of having high awareness were 9% less likely (AOR=0.09; CI: 0.02-0.52) among those mothers who cannot read and write as compared to their counterpart. Mothers having two or more children were 36.58 times more likely (AOR=36.58; CI: 6.26-

213.55) to have high awareness regarding toilet training. After exposed to multivariate model, type of family was found as confounder for having high awareness regarding toilet training among mothers of children aged 1 to 3 years (Table 5).

**Table 2:** Respondents' awareness regarding toilet training

Variables	Frequency(n=100)	Percentage
<b>Meaning: Training on regular bowel and bladder habit</b>	100	100
<b>Importance: Control bowel and bladder</b>	51	51
<b>Bladder control age (in months): 18-24</b>	46	46
<b>Bowel control age (in months): 24-30</b>	43	43
<b>Age of completion (in months): 23-36</b>	48	48
<b>General signs of readiness</b>		
Child is able to walk	47	47
Child understands potty related words and has adequate vocabulary of his own	92	92
Child can imitate your behavior	50	50
<b>Behavioral signs of readiness</b>		
Child verbalizes or non- verbalizes the urge	96	96
Child recognize urge for urine and stool	7	7
Child indicate if they become wet	89	89
Child follows instructions by parents on toileting	57	57
<b>Responsibilities</b>		
Give them potty chair voluntarily	42	42
Familiarize with the toilet equipment	81	81
Show a calm and relaxed expression	42	42
Praise the child	31	31
Hold the training for a while	35	35
Provide 5-10 minutes for each time	35	35
<b>Outcomes</b>		
Child will verbalize for desire for toileting	64	64
Child pass stool at a regular time	51	51
Child control bowel and bladder voluntarily	32	32
<b>Effects of too early initiation</b>		
Irritable	11	11
Anger	40	40
Fear	10	10
<b>Effects of too late initiation</b>		
Takes longer time to train	55	55
Toilet refusal	82	82
Physical and psychological problems	45	45
Holding stool for long time	42	42

**Table 3:** Respondents' overall level of awareness regarding toilet training

Awareness Level	Frequency (n=100)	Percentage
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<b>High awareness <math>\geq 7.44</math></b>	49	49
<b>Low awareness <math>&lt; 7.44</math></b>	51	51
<i>Mean score = 7.44      Total score = 16</i>		

## DISCUSSION

The finding of the study showed that 51% had low awareness regarding toilet training. The finding of the study is consistent with the study conducted in Chitwan, Nepal which showed 51.2% had inadequate knowledge.<sup>8</sup>

The study finding revealed 100% of the mothers were aware about the meaning of toilet training as training on regular bowel and bladder control. This finding was not consistent with another study conducted in Chitwan, Nepal which showed

40.6% of mothers were aware about the meaning of toilet training on regular bowel and bladder control.<sup>8</sup> This difference might be due to the different methodology adopted and different study setting in these two studies. The study finding showed 51% of respondents were aware about the importance of toilet training. The findings of the study revealed 46% of respondents were aware about the bladder control age and 43% of respondents were aware about the bowel control age.

**Table 4:** Association between level of awareness regarding toilet training and socio-demographic variables

Variables	Awareness Level		Test of Association (Chi-square)	<i>p-value</i>
	High No. (%)	Low No. (%)		
<b>Age in years</b>				
20-30	41(77.4)	12(22.6)	36.289	<0.001*
31-40	8(17)	39(83)		
<b>Ethnicity</b>				
<i>Madeshi</i> and muslim	31(45.6)	37(54.4)	0.990	0.320
Other than <i>madeshi</i> and muslim	18(56.3)	14(43.8)		
<b>Education status</b>				
Can read and write	21(33.9)	41(66.1)	14.944	<0.001*
Cannot read and write	28(73.7)	10(26.3)		
<b>Occupation</b>				
Homemaker	41(49.4)	42(50.6)	0.031	0.860
Self employed	8(47.1)	9(52.9)		
<b>Type of family</b>				
Nuclear	15(48.4)	16(51.6)	12.260	0.002*
Joint	25(69.4)	11(30.6)		
Extended	9(27.3)	25(72.7)		
<b>Number of children</b>				
One	37(78.7)	10(21.3)	31.351	<0.001*
Two or more	12(22.6)	41(77.4)		
<b>Age of toddler child (in months)</b>				
12-24	34(56.7)	26(43.3)	3.528	0.060
25-36	15(37.5)	25(62.5)		
<b>Spouse occupation</b>				
Daily wages	28(51.9)	26(48.1)	0.382	0.537
Other than daily wages	21(45.7)	25(54.3)		

*Significant value  $p < 0.05$*

The finding of the study showed 48% of respondents were aware about the age of completion. This

finding was not similar with the study conducted in Chitwan, Nepal which shows 2.6% were aware about

the age of completion.<sup>8</sup> This variance might be due to the different study setting and methodology in these two studies. The findings of the study revealed that respondents were aware regarding general signs of readiness as child understands toilet related words and has adequate vocabulary of his own (92%), child is able to walk (47%) and child can imitate parent's behavior (50%). The findings of the study was not

supported by the study conducted in Korea which found child is able to express his/her awareness of urination (75.1%), child is able to walk (67.9%) and child is able to imitate the motion of his/her parents (73.4%) as signs of readiness of toilet training.<sup>10</sup> This differences might be due to the different sample size and the age group of the toddlers.

**Table 5:** Determinants of toilet training awareness among mothers in using bivariate and multivariate analysis

Characteristics	COR (95% CI)	AOR 95% CI
<b>Age in years</b>		
20-30	1	1
31-40	16.66(6.15-45.11)	12.27(2.87-52.49)
<b>Ethnicity</b>		
Madeshi and muslim	1	Ns
Other than madeshi and muslim	0.65(0.28-1.52)	
<b>Education status</b>		
Can read and write	1	1
Cannot read and write	0.18(0.08-0.45)	0.09(0.02-0.52)
<b>Occupation</b>		
Homemaker	1	Ns
Self employed	0.91(0.32-2.59)	
<b>Type of family</b>		
Nuclear	1	1
Joint	0.41(0.15-1.12)	0.23(0.03-1.63)
Extended	2.5(1.88-7.08)	4.91(0.87-27.56)
<b>Number of children</b>		
One	1	1
Two or more	12.64(4.89-32.68)	36.58(6.26-213.55)
<b>Age of toddler child (in months)</b>		
12-24	1	Ns
25-36	2.18(0.96-4.94)	
<b>Spouse occupation</b>		
Daily wages	1	Ns
Other than daily wages	1.28(0.58-2.82)	

\* 1=reference category, COR = crude odds ratio, AOR =adjusted odds ratio, Ns =not significant in bivariate analysis

The finding of the study showed 62.25% were aware about the behavioral signs of readiness. However in contrast to this study another study conducted at

Saudi showed lower portion (41%) of respondents had average knowledge regarding behavioral signs of readiness.<sup>11</sup> This differences might be due to the



different study setting as previous study was conducted in hospital setting of Saudi, and time gap of these studies. The findings of the study showed that respondents were aware regarding responsibilities of parents in toilet training as show a calm and relaxed expression (42%), give them potty chair voluntarily (81%), praise the child (42%), provide 5-10 minutes time duration for each time (31%) familiarize with the toilet equipment (35%) and hold the training for a while when child refuses (35%). The study revealed 64% of respondents were aware about child will verbalize for desire for toileting, 32% of respondents were aware about child control bowel and bladder voluntarily and 51% of respondents were aware about child pass stool at a regular time as outcomes of toilet training.

The findings of the study showed that 40%, 11%, and 10% of respondents were aware about effects of too early initiation of toilet training as anger, irritable and fear respectively. The findings of the study revealed that 45% of respondents were aware about effects of too late initiation of toilet training as toilet refusal. The findings of the study is contradictory with the study conducted in Amman, Jordan which showed toilet refusal (15.1%) as effects of too late initiation of toilet training.<sup>12</sup> This variance might be due to the different study setting, variation in sample size and time gap of this studies.

The study finding showed that respondents' education status was statistically significant with the level of awareness regarding toilet training which is in line with several other studies such as study conducted in Chitwan, Nepal<sup>8</sup>, Tamil Nadu India<sup>13</sup>, Chennai India<sup>14</sup> and multicenter study conducted in Turkey<sup>15</sup>. This study finding showed that respondents' occupation was not statistically significant with the level of awareness regarding toilet training. This is in contrast with the study conducted in Chitwan, Nepal which shows that there is statistically significant association between mother's occupation and awareness regarding toilet training.<sup>8</sup> This difference might be due to the different methodology adopted and different study setting.

The study finding revealed that there was statistically significant association between age of respondents ( $p < 0.001$ ) and awareness regarding toilet training which is in line with another study

conducted in Tamil Nadu India<sup>13</sup> and Chennai India<sup>14</sup>. However in contrast to this study several other studies such as study conducted in Chitwan, Nepal<sup>8</sup> and multicenter study conducted in Turkey<sup>15</sup> found no statistically significant association between respondents' age and level of awareness regarding toilet training. This difference might be due to the different methodology adopted and different study setting in these studies. After controlling the confounders in multivariate analysis, the present study showed that there is no statistically significant association between type of family and level of awareness regarding toilet training. However, in contrast to this study, another study conducted in Chitwan, Nepal<sup>8</sup>, Tamil Nadu India<sup>13</sup> and multicenter study conducted in Turkey<sup>15</sup> found statistically significant association between type of family and awareness regarding toilet training. This difference might be due to the different methodology adopted and different study setting in these studies.

The study finding showed that there is statistically significant association between number of children ( $p < 0.001$ ) and level of awareness regarding toilet training. This is not consistent with the study conducted in Karnataka State India<sup>16</sup> which showed that there is no statistically significant association between number of children and awareness regarding toilet training.<sup>8</sup> This difference might be due to the different methodology adopted and different study setting in these two studies.

## CONCLUSION

More than half of the respondents have overall low awareness regarding toilet training. Age of mother, mother's education status and number of children influence the awareness regarding toilet training among mothers. On the basis of the findings of the study, local government, policy makers and the health personnel are recommended to conduct informal educational program especially for early ages mothers and mothers having only one child for promoting and upgrading the mother's awareness regarding toilet training either in community or health facility.

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### Conflict of Interests

The authors declare that they have no conflict of interest.

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