Investigation of Diapers Usage For the Toilet Training Readiness on Toddler

Rahmi Amir[1*], Henni Kumaladewi Hengky[2], Chadija Karim[3], Fourth Author[4], Fifth Author[5]

Faculty of Health Sciences, University of Muhammadiyah Parepare, Parepare City, Indonesia, ORCID ID (ex: https://orcid.org/0000-0001-6119-867X)

[*1]Corresponding author: ammiandjala@gmail.com

Abstract. Toilet training is a training for children to controlling the activity of defecation and urination in place. Toilet training can be applied to toddlers (18-36 months). The purpose of this study was to determine whether there was an influence between the use of diapers for the readiness of toilet training on toddler. This research is a quantitative-comparative research with case control design. The population in this study is 51 children. Sampling used purposive sampling technique with number of case samples is 24 children dan control samples is 24 children, with a total sample is 48 children. The instrument using a questionnaire. Data analysis use Bivariate analysis with Chi Square and Odd Ratio statistical test. In the result of the studi, it was found a significant influence between the use of diapers for the toilet training readiness on toddlers.The OR shows that toddler who are still using diapers are at risk of 26 times being unprepared for toilet training compared to toddler who are not using diapers. For public health workers to have a more active role in fostering the community, especially mothers who have toddler about the importance of toilet training on children.

Keywords: Diapers, Toilet Training, Toddler.

1. Introduction

Toilet training is an attempt or excercise to instill the habit of the child is able to control the activity of defecation and urination in inappropriate, toilet training is influenced by many factors including physical, mental psychological, and parental readiness (1). Toilet training that start applied from an early age, allowing children to have full bladder control, it can produce significant health benefits for children in the future (2). Toilet training for children in general can be carried out since the child enters the phase of independence (3). Toddler's in aged 12-36 months or 1-3 years, where the quality of development is determined at that age (4). The use of disposable diapers is associated with delay in recognizing and responding to the sensation of bladder fullness make it difficult for children to control urination consiously which will have an impact on toilet training success (5).

The last few decades have seen a delay in the success of toilet training in developing countries. The trend of delays in toilet training success is accompanied by changes in diapering habits, which currently tend to use more disposable diapers with high absorption than other types of diapers (5). According to the National Household Health Survey (SKRT), it is estimated that around 75 million of children under the age of 5 years old, have difficulty controlling defecate and urinate up to pre-school age (6). According to H. Nuhan & N. Ribek, the factors related to the ability of toilet training in children other than the mother's last education is the intensity of using diapers (7).

Based on this phenomenon, there are still many mothers who prefer to use diapers rather than applying toilet training to their children. Regarding toilet training, a few researchers only focus on the success of toilet training, there have been limited studies concerned on toilet training readiness. Therefore, this research intends to investigate wheter there is a significant effect/influence between the use of diapers and the readiness of toilet training on toddler's, so that in the future this research is expected to provide benefits to the community.

2. Methods

This research is a quantitative-comparative type of research with a case control approach where researchers make observations, fill out questionnaires, which aim to obtain data or information about sample characteristics, use of diapers, and toilet training readiness. The population in this research were all of toddler (18-36 month old), as many as 51 children who live in Tiroang Village, Tiroang District, Pinrang Regency, Indonesia. The sample used a case group comparison : the control group was 1:1. Based on this comparison, the minimum sample number of cases was 24 children and the minimum number of controls was 24 children with a total sample of 48 children. The sampel size was determined using the Stanley Lemeshow formula.

Sources of information based on primary and secondary data, secondary data obtained through registration data for toddler's at Posyandu Nangka, Tiroang Village, Tiroang District, Pinrang Regency, Indonesia. The primary data sources were obtained through observation, filling out questionnaires and direct interviews in the field to determine the condition of the research location. The analysis carried out is a bivariate analysis. The statistical test used is Chi Square and Odd Ratio. The basis for making the decision to accept the research hypothesis is based on the level of significance (*p*-value), if the *p*-value > 0,05 then the research hypothesis is rejected, and if the *p*-value < 0,05 then the research hypothesis is accepted.

3. Results And Discussion

Research Result

Mothers Characteristics

Based on the results of data collection and processing that has been carried out during the research, it can be seen that the characteristics of toddler from both the case and control group are as follows :

Table 1. Distribution of Diapers Usege Based on the Characteristics of Mothers in Tiroang Village, Tiroang District, Pinrang Regency, Indonesia

Mothers Characteristics	*Diapers Usage*				Frequency	
	Case		Control			
	n	%	n	%	n	%
Mothers Age						
18-31 years old	17	70,8	11	45,8	28	58,3
32-45 years old	7	29,2	13	54,2	20	41,7
Mother's Education						
Primary School	12	50,0	11	45,8	23	47,9
Junior High School	9	37,5	5	20,8	14	29,2
Senior High School	2	8,3	4	16,7	6	12,5
College/ Academy	1	4,2	3	12,5	4	8,3
Uneducated	0	0,0	1	4,2	1	2,1
Mother's Profession						
Housewife	24	100,0	24	100,0	48	100,0
Total	24	100,0	24	100,0	48	100,0

Source: The Primary Data 2022

Based on table 1, it can be seen that the characteristics of mothers of toddler who still use diapers (case groups), based on the ages of 18-31 years old are 17 people (70,8%), while at the ages of 32-45 years old are total 7 people (29,2%). As for the age of mothers of toddlers who are not using diapers (control group) at 18-31 years old are total 11 people (45,8%) and ages 32-45 years old are total 13 people (54,2%).

The characteristics of mothers from the case group based on maternal education were mostly at the Primary School level (50,0%) and at least the College/Academy level which total to 1 person (4,2%) and there were no mothers who were not educated. The education level of mothers from control group was mostly at the Primary School level, which total 11 people (45,8%) and the leaast was at the College/Academy level, which total 3 people (12,5%) and there were 1 uneducated mother.

Based on the employment status of mothers from the case group, which amounted to 24 people (100%) and the control group, which amounted to 24 people (100%) overall were not working/Housewife.

Toddlers Characteristics

Based on the results of data collection and processing that has been carried out during the research, it can be seen that the characteristics of toddlers from both the case and control group are as follows :

Table 2. Distribution of Diapers Usege Based on the Characteristics of Toddlers in Tiroang Village, Tiroang District, Pinrang Regency, Indonesia

Toddlers Characteristics	*Diapers Usage*				Frequency	
	Case		Control			
	N	%	n	%	n	%
Toddlers Age						
18-27 months	15	62,5	6	25,0	21	43,8
28-36 months	9	37,5	18	75,0	27	56,3
Toddlers Gender						
Male	7	29,2	13	54,2	20	41,7
Female	17	70,8	11	45,8	28	58,3
Diapers Duration						
Often	17	70,8	0	0,0	17	35,4
Seldom/Never	7	29,2	24	100	31	64,6
Diapers frequency usage						
High	17	70,8	0	0,0	17	35,4
Low	7	29,2	24	100	31	64,6
Total	24	100%	24	100%	48	100%

Source: The Primary Data 2022

Based on table 2, it can be seen that the characteristics of toddlers in the case group based on the age of children 18-27 months amounted to 15 children (37,5%) and in the 28-36 months age group there were 9 children (37,5%). As for the age of children in the control group, at the age of 18-27 months are total 6 children (25,0%) and at the age of 28-36 months totaling 18 children (75,0%).

The characteristics of toddlers in the case group based on male were 7 children (29,2%) and 17 female children (70,8%). The gender of toddlers in the control group were 13 male children (54,2) and 11 female children (45,8%).

The duration of diapers usage in the case group often use category was 17 children (70,8%) and seldom/never use category there were 7 children (29,2%). The duration of diapers usage in the control group often use category was 0 children (0,0%) and seldom/never use category there were 24 children (100,0%).

The frequency of diapers usage in the high frequency category case group was 17 children (70,8%) and in the low frequency category it was 7 children (29,2%). The duration of diapers usage in high frequency category control group was 0 children (0,0%) and the low frequency category was 24 children (100,0%).

Crosstabulation Between Diapers Usage and Toilet Training Readiness

Based on the results of data processing that has been carried out using the SPSS aplication, the output of crosstabulation is obtained between the effect of using diapers on toilet training readiness in toddlers as follows :

Table 3. Crosstabulation Between the Effect of Diapers Usage on Toilet Training Readiness for Toddlers

Toilet Training Readiness	Diapers Usage				Frequency		*P*	OR (95% CI)
	Case		Control					
	n	%	n	%	n	%		
Not Ready	17	70,8	2	8,3	19	39,6	0.000	26,714 (4,909-145,377)
Ready	7	29,2	22	91,7	29	60,4		
Total	24	100,0	24	100,0	48	100,0		

Source: The Primary Data 2022

Table 4 shows that the toddlers in the case group category were not ready to do toilet training there were 17 children (70,8%), and the category ready to do toilet training there were 7 children (29,2%). Meanwhile, toddlers in the control group category were not ready to do toilet training with there were 2 children (8,3%), and the category ready to do toilet training there were 22 children (91,7%).

The resut of the statistical test using SPSS version 24.0 with the chi square test at $\alpha<0,05$ that we founded *p*-value = 0,000 then H_a was accepted and H_0 was rejected, it means that there is a significant effect between diposable diapers usage to toilet training readiness on toddlers. The odd ratio value shows that toddlers who are still using

diapers are 26 times risk of experiencing unpreparedness for toilet training compared to toddlers who are not using diapers.

Research Discussion

Toilet Training Readiness on Toddlers who Still Use Diapers

Based on the results of research conducted on 24 children who are still using diapers, it can be seen that there are only 7 children (29,2%) who are ready to do toilet training, and children who are not ready to do toilet training ere 17 children (70,8%), so it can be seen that the diapers usage can hinder the readiness of children to do toilet training. The use of disposable diapers is associated with delays in recognizing and responding to the sensation of full bladder, so that the cild does not realize that they had urinated in their diaper because of the high absorption capacity of the disposable diaper so that the diaper remains dry. This makes it difficult for children to consciously control urination which will have an impact on the success of toilet training (5).

The delay in the readiness/success of toilet training in toddlers will basically cause delays in bowel control. Some impacts that may occur due to delays in bowel control are increasing the prevalence of impaired elimination function, enuresis (bedwetting), constipation, urinary tract infections, encorepsis (impaired bowel control), refusal to do toileting and impaired self-confidence (5).

The results obtained from parents who have toddlers who are not ready to do toilet training, namely the physical readiness of the child is not in a healthy condition, the child has not entered the toddlers category (18-36 months), cannot squat/sit for 5 minutes, cannot control the anal sphincter and bladder, and is unable to raise and lower her pants independently.

In mental readiness, the child has not been able to recognize the urge to defecate or urinate, has not been able to tell when he wants to defecate or urinate, has not been able to imitate proper behavior related to toileting, has not been able to wipe independently after defecating, and cannot can follow orders or instructions given.

In psychological readiness there are developmental disorders in children, do not have an independent nature, cannot sit/squat on the toilet for 5 minutes without standing up first, still need help when going to defecate, and the child feels normal with damp conditions and dirt in his pants.

Whereas in parental readiness, parents are not in good health, do not recognize the level of readiness of children to urinate and defecate, do not have the desire to take the time to do toilet training, are unable to give instructions to stimulate children when defecating, and other people parents are experiencing stress or have problems in the family.

The status of the use of disposable diapers in Tiroang Village, Tiroang District, Pinrang Regency is also influenced by several factors such as maternal knowledge and socioeconomic status. The results of a brief interview when the research was conducted according to the 24 children who were the research sample, it can be seen that, there are still many mothers who do not understand the importance of toilet training in children so they do not know the impact that will occur if they continue to rely on disposable diapers as an instant way to accommodate children's feces without need to do toilet training. Most mothers consider that under 2 years of age they still need disposable diapers because they are considered unable to be taught toilet training, so that on average, children under 2 years of age are not ready for toilet training.

Rana (2010) in D. Ifalahmah & N. Hikmah (2019) explains that the latest study has recommended for parents to start introducing toilet training when their children enter the age of 18-36 months, because children who only practice using the toilet are at the age of 3 years. tend to wet the bed more often until school age. On the other hand, if parents start to introduce toilet training to their children before the age of 18 months, they will more often experience failure/unpreparedness for toilet training (8).

Toilet Training Readiness for Toddler Age Children Who Are Not Using Diapers

Based on the results of research conducted on 24 children who are not using diapers, it can be seen that there are only 2 children (8.3%) who are not ready to do toilet training, while the children who are ready to do toilet training are 22 children (91.7%). , so that it can be seen that toddlers who are not using diapers have a greater chance of being ready to do toilet training compared to children who are still using diapers. This is in line with

Purwatih's research (2017), which states that there is a significant relationship between the use of diapers and the success of toileting (9). Meanwhile, according to H. Nuhan & N. Ribek, a factor related to the ability of toilet training in children other than the mother's last education is the intensity of using diapers (7).

The results obtained from parents who have toddlers who are ready to do toilet training, namely the physical readiness of the child is in a healthy condition, the child is already in the toddler age category (18-36 months), can squat/sit for 5 minutes, can controls the anal and bladder sphincters, and can raise and lower the pants independently.

In mental readiness, children are able to recognize the urge to defecate or urinate, are able to tell when they want to defecate or urinate, are able to imitate proper behavior related to toileting, are able to wipe independently after urinating, and can follow orders or given instructions.

In psychological readiness there are no developmental disorders in children, have independent characteristics, can sit/squat on the toilet for 5 minutes without standing up first, don't really need help when going to defecate, and children feel uncomfortable with damp conditions and dirt in their pants.

While on parental readiness, parents are in good health, recognize the level of readiness of children to urinate and defecate, have the desire to take the time to do toilet training, are able to give instructions to stimulate children when defecating, and parents are not under stress or have problems in defecating. family.

The status of the use of diapers in Tiroang Village, Tiroang District, Pinrang Regency is also influenced by several factors such as the mother's occupation, the age of the child and the economy. Based on the results of research on 24 children who are no longer using diapers, it is known that all mothers do not have jobs (housewife) so they spend more time for their children. Soedirman (2009) in Purwatih (2017), explains that mothers who do not work more often interact with children than mothers who work outside the home, because they can give more attention and affection to their children, including teaching children to do toilet training (9). Irmayanti, C (2019), also explained that there is a negative relationship between the mother's job status and the success rate of toilet training, namely the busier the mother works, the lower the success rate of toilet training for children (5).

Most mothers decide to stop using diapers for their children due to economic factors, especially for poor families, so they prefer to immediately teach their children to use the toilet instead of continuing to use diapers. This is in line with the opinion of Purwatih N (2017) that the average community or family with a fairly good socioeconomic level will prefer to use diapers for their children because of the advantages that exist in diapers such as comfort, practicality and others (9).

The Effect of Diapers Usage to the Toilet Training Readiness on Toddlers

Based on the results of the study, it was found that there was a significant effect between the use of diapers on the readiness of toilet training in toddler age children in Tiroang Village, Tiroang District, Pinrang Regency in 2022. From the research data it is known that toddler age children who are still using diapers are not ready to perform toilet training as many as 17 children (70.8%), while in the category of ready to do toilet training as many as 7 children (29.2%). Meanwhile, toddler age children who are not using diapers in the category not ready to do toilet training are 2 children (8.3%), while in the category ready to do toilet training there are 22 children (91.7%).

Based on the results of statistical tests using SPSS version 24.0 with the chi square test at $\alpha<0.05$, the *p*-value = 0.000 means H_a is accepted and H_0 is rejected, which means that there is a significant effect between the use of diapers on toilet training readiness for toddler age children in Tiroang Village, Tiroang District, Pinrang Regency. The interpretation of the Odd Ratio value shows that toddler age children who are still using diapers are 26 times risk to experience unpreparedness for toilet training compared to toddler age children who are not using diapers. As for the results of short interviews with respondents, it is known that there are several factors that influence the use of diapers in children, among others, mother's knowledge, education, employment status, socioeconomic, and child's age.

Mother's knowledge about the use of diapers in children is closely related to mother's knowledge about toilet training in children. Mother's knowledge about the impact of using diapers is very influential on the development of children in toilet training. The higher the mother's knowledge about the negative impact of using diapers, the better the mother's knowledge about toilet training for her child, where if the child is not accustomed to using

diapers, it will be easier for him to go through the toilet training period (9).

Meanwhile, based on the results of research from A. Pangestu et al, it is known that there is a relationship between the mother's level of knowledge and the success of toilet training in preschool children. In addition to the parenting style according to E. Ningsih's research, there is a significant relationship between parenting patterns and the success of toilet training in children aged 18-36 months (3). C. Irmayanti, E. Wahyuni, & M. Dewi (2019), explained that there is a negative relationship between the mother's job status and the success rate of toilet training, namely the busier the mother works, the lower the success rate of toilet training for children (5).

Another factor that influences the use of diapers in children is the socioeconomic level. Purwatih N (2017), explains that the average community or family with a fairly good socio-economic level will prefer to use diapers for their children because of the advantages that diapers have such as convenience, practicality and others (9).

Conclusions

Based on the research entitled Investigation of Diapers Usage to Toilet Training Readiness on Toddlers which was carried out in Tiroang Village, Tiroang District, Pinrang Regency, Indonesia. Can be conclude, that there is a significant effect between the use of diapers on toilet training readiness in toddlers, because children who still use diapers tend to be unable to control the urge to urinate and defecate compared to children who are not using diapers. The results of the odd ratio calculation show that toddlers who are still using diapers are at risk of 26 times of being unprepared for toilet training compared to toddlers who are not using diapers.

For health workers to pay more attention and provide regular counseling to mothers who have toddler so that they can use diapers wisely, provide promotion and understanding about the negative impact of using disposable diapers in the long term and the importance of implementing toilet training when the child has entered the age of a toddler (18-36 months).

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