PREVALENCE AND SCREENING OF PHIMOSIS IN TODDLERS AT THE INTEGRATED SERVICE POST WITHIN THE WORKING AREA OF WAGIR COMMUNITY HEALTH CENTER, MALANG REGENCY

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ABSTRACT

Objective: *This study aimed to determine the prevalence of phimosis in toddlers at the health posts within the working area of the Wagir Health Center, Malang Regency, assess parents' knowledge, and analyze the factors that influenced parents' knowledge about phimosis.****Material &Methods:*** *This study was descriptive and observational analytical and involved 248 male toddlers. Data were obtained through questionnaire responses and physical Examination which were then analyzed using the SPSS software by Pearson's Chi-Square comparative test and Binary Logistic regression.****Results:*** *Phimosis cases were found in 71.77% of 248 toddlers, with 82.6% of them having parents with a lack of knowledge. There was a significant association (p-value <0.05) between family history factors and parents' income level with parents' knowledge of phimosis. However, there was no significant relationship (p-value > 0.05) between the factors of parents' education history and the access to healthcare facilities with parents' knowledge of phimosis.* ***Conclusion:*** *Parents' knowledge of phimosis is low or still lacking.*

Keywords: *Phimosis, parents' knowledge, sociodemographic factors, health factors, prevalence.*

ABSTRAK

Tujuan:*Penelitian ini bertujuan untuk mengetahui prevalensi fimosis pada balita di posyandu wilayah kerja Puskesmas Wagir, Kabupaten Malang, menilai pengetahuan orang tua, dan menganalisis faktor-faktor yang mempengaruhi pengetahuan orang tua tentang fimosis.* ***Bahan & Cara:*** *Penelitian ini bersifat deskriptif analitik observasional dan melibatkan 248 balita laki-laki. Data diperoleh melalui pengisian kuesioner dan pemeriksaan fisik yang kemudian dianalisis menggunakan perangkat lunak SPSS dengan uji komparatif Chi-Square Pearson dan regresi Logistik Biner.* ***Hasil:*** *Kasus fimosis ditemukan pada 71,77% dari 248 balita, dengan 82,6% di antaranya memiliki orang tua dengan pengetahuan kurang. Terdapat hubungan yang signifikan (p-value <0,05) antara faktor riwayat keluarga dan tingkat pendapatan orang tua dengan pengetahuan orang tua tentang fimosis. Namun, tidak ada hubungan yang signifikan (p-value > 0,05) antara faktor riwayat pendidikan orang tua dan akses terhadap fasilitas kesehatan dengan pengetahuan orang tua tentang fimosis.* ***Kesimpulan:*** *Pengetahuan orang tua tentang fimosis adalah rendah atau masih kurang.*

Kata kunci: *Fimosis, Pengetahuan orang tua, Faktor sosiodemografi, Faktor kesehatan, Prevalensi*

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INTRODUCTION

Phimosis is a condition in which the prepuce cannot be retracted to the proximal part of the glans penis in men who have not undergone circumcision. The causes of phimosis can be classified into physiologically and pathologically. Physiologically, phimosis is caused by a birth/hormonal congenital deficiency of soft tissue in the prepuce. Whereas pathologically, it occurs due to inflammation or infection of the preputium.[1]

The condition of incomplete foreskin release can occur in 50% of male newborns at the end of the first year, which is considered physiological phimosis. However, this condition is temporary, as the rate of prepuce retraction will increase with time and age without any intervention. This is evidenced by 89% of children aged 3 years having increased prepuce retraction. However, if prepuce adhesions cause scarring and pain, it can be considered as pathological phimosis.[2,3] Phimosis can increase the risk of inflammation, urinary retention, urinary tract

infection, and even penile cancer and is most common in adult males and infants.[4]

Data on the global prevalence of phimosis is still missing. However, from a study in South Korea related to the prevalence of phimosis, 28 boys (40%) out of 141 samples in the age group 0 - ≤ 5 years had phimosis.[3] While the data on the national incidence of phimosis in Indonesia is still unknown, according to medical records at Dr. Saiful Anwar Malang Hospital from 2012 to 2021, genitourinary congenital abnormalities accounted for 71.6% of the total pediatric urological abnormalities. Data obtained through the accumulation of these cases reported 203 cases of phimosis (22%). Physiological factors more often cause phimosis than pathological. This is evidenced by a study that found 70% of the causes of phimosis are physiological/genetic; the rest are pathological.[4]

In some cases, phimosis that is not treated properly can cause complications or secondary phimosis, such as urinary tract obstruction or infection (UTI), balanitis, urethral stricture or narrowing, bleeding, balanitis xerotica obliterans (BXO) / lichen sclerosus, balanopostitis, and penile cancer.[1] Phimosis can become more severe in the next stage if the prepuce is forcibly retracted, which can lead to the possibility of paraphimosis, where the prepuce that has been retracted to the proximal part of the glans penis cannot return to its previous state.[5]

With limited data on incidence rates, particularly in Indonesia and Malang District, and the importance of knowledge the signs and symptoms and management of phimosis that contribute to preventing dangerous complications, it is necessary to screen the incidence of phimosis, particularly in Malang District, to analyze prevalence rates, parental knowledge, and factors that may influence parental knowledge of phimosis.

OBJECTIVE

This study aimed to determine the prevalence of phimosis in toddlers at the health posts within the working area of the Wagir Health Center, Malang Regency, assess parents' knowledge, and analyze the factors that influenced parents' knowledge about phimosis.

MATERIAL& METHODS

This research is a descriptive and observational analytical study that has received ethical clearance from the FKUB Research Ethics Committee No. 119/EC/KEPK-S1-PD/05/2024. The research instrument used was a form-based questionnaire without a control group. The questionnaire was distributed through real work at service posts within the working area of Wagir Health Center, accompanied by screening of the number of incidents that will be carried out after filling out the questionnaire through a physical examination.

The study was conducted at the service posts within the working area of the Wagir Community Health Center, Malang Regency, precisely in several villages, namely Sumbersuko Village, Pandanlandung Village, Sukodadi Village, Parangargo Village, Petungsewu Village, Sitirejo Village, Dalisodo Village, Pandanrejo Village, Mendalanwangi Village, Sidorahayu Village, and Gondowangi Village. The study began after ethical clearance was issued and was conducted over 3 months by adjusting the service posts' schedule in June - August 2024.

In collecting samples, this study used the total sampling method. The research sample were the male toddlers who were examined, while the research respondents were parents who filled out the questionnaire. The inclusion criteria used in taking samples were in the form of (1) respondents (parents) who agree to informed consent to participate in this study, (2) samples of children aged a maximum of 5 years, and (3) people who live in Wagir District, Malang Regency. The exclusion criteria used were samples with urogenital abnormalities other than phimosis and respondents who had a history of mental disorders.

The research instrument used in this study was a questionnaire consisting of 2 subsets with a total of 12 questions, including data/identity of respondents and knowledge data related to phimosis. Data collection was carried out offline through the distribution of introduction sheets, informed consent sheets, and questionnaire sheets in the form of multiple-choice questions. The research questionnaire has been tested for validity with the acquisition of the value of r count > r table (0.444) and significance value < 0.05 on all questions. This questionnaire has also been tested for reliability with a Cronbach's alpha value of 0.842.

This study uses Pearson's Chi-Square analysis method to analyze the relationship between independent variables and the dependent variable, both of which are categorical. To assist the analysis,

the data that has been collected will be analyzed through the software application Statistical Package for Social Sciences (SPSS) version 23.0 for Windows. Results are declared statistically significant if the p-value is <0.05. If the results are statistically significant, the variables are further analyzed using the Binary Logistic Regression statistical test to predict multiple independent variables on the dependent variable in one model. Data on incidence rates will be presented in tabular format, while data on characteristics will be presented in graphical and descriptive format.

RESULTS

This study identified 71.77% of phimosis instances or 178 cases out of 248 research respondents who completed the questionnaire. The characteristics of the research sample are general characteristics that are adjusted to the conditions of the independent variables, including family history, parents' education, parents' income level, and distance to health facilities. Details of the characteristics of the research sample are presented in the table below.

Table 1. Summary of Research Samples' Characteristics.

Sociodemographic and Health Characteristics	Frequency (N)	Percentage (%)
Total of Respondents	178	100.0
Parental Knowledge		
Fine Knowledge	31	17.4
Poor Knowledge	147	82.6
Family History		
Affirmative	7	3.9
Negative	171	96.1
Parental Education		
No School	2	1.1
Elementary	35	19.7
Junior High	40	22.5
Senior High	72	40.4
College	29	16.3
Income Level		
More than/Equal to minimum wage	46	25.8
Less than minimum wage	132	74.2
Distance to Health Facilities		
Approachable	158	88.8
Unapproachable	20	11.2

Table 1 shows that the majority of respondents had a lack of knowledge (147 respondents), had no family history of phimosis (171 respondents), had a history of high school/vocational school education (72 respondents), had an income level of less than minimum wage (132 respondents), and stated that health facilities were approachable (158 respondents).

Data analysis is needed to test one of the hypotheses related to the influence of several factors on parents' knowledge of phimosis using Pearson's chi-square test. The results of data analysis will be reviewed from the final value. The final value defined from the H1 "There is a relationship between the factors studied on parental knowledge of phimosis" and H0 "There is no relationship between the factors studied on parental knowledge of phimosis". Hypothesis H1 is accepted and H0 is rejected if the significance value of p-value < 0.05. Details of the analysis results are presented in the table and graph below.

Table 2. Results of Pearson Chi-Square Data Analysis of Family History on Parents'Knowledge

Crosstab

		Parent's Knowledge		
		Poor Knowledge	Fine Knowledge	Total
Family History	Negative	145	26	171
	Affirmative	2	5	7
		147	31	178

X^2 Test

	Value
Pearson's chi-square	0.000
Fisher's Exact Test	0.002

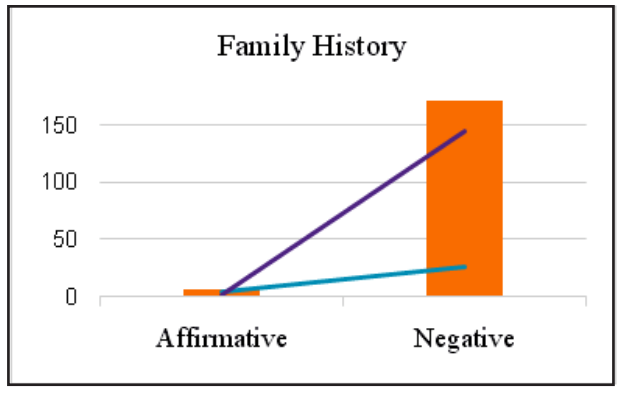

Figure 1. Research Samples' Characteristics Based on Family History.

Table 2 shows the relationship between family history and parents' knowledge of phimosis. The chi-square test requirement on this variable is

not met because there is an expected count frequency of less than 5 in two cells, so the p-value result is obtained through Fisher's Exact Test with a p-value of 0.002. So, it can be interpreted that H0 is rejected and H1 is accepted, or in other words, there is a significant relationship between family history and parents' knowledge of phimosis.

Table 3. Results of Pearson Chi-Square Data Analysis of Parental Education on Parents' Knowledge

Crosstab				
		Parent's Knowledge		
		Poor Knowledge	Fine Knowledge	Total
Parental Education	No School	2	0	2
	Elementary	31	4	35
	Yunior High	34	6	40
	Senior High	59	13	72
	College	21	8	29
Total		147	31	178

X^2 *Test*	
	Value
Pearson's chi-square	0.468

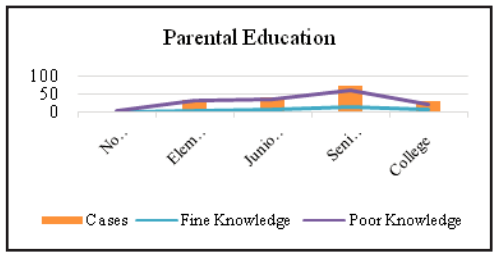

Figure 2. Research Samples' Characteristics Based on Parental Education.

Table 3 shows the relationship between parental education history and parents' knowledge of phimosis. The results of data analysis on this variable obtained a p-value of 0.468. So, it can be interpreted that H0 is accepted and H1 is rejected, or in other words, there is no significant relationship between parental education history and parents' knowledge of phimosis.

Table 4 shows the relationship between parents' income level and parents' knowledge of phimosis. The chi-square test requirement on this variable is not met because there is an expected count frequency of less than 5 in two cells, so the p-value result is obtained through Fisher's Exact Test with a p-value of 0.003. So, it can be interpreted that H0 is rejected and H1 is accepted, or in other words, there is a significant relationship between income level and parents' knowledge of phimosis.

Table 4. Results of Pearson Chi-Square Data Analysis of Income Level on Parents' Knowledge

Crosstab				
		Parent's Knowledge		
		Poor Knowledge	Fine Knowledge	Total
Income Level	Less than minimum wage	116	16	132
	More than Equal to minimum wage	31	15	46
Total		147	31	178

X^2 *Test*	
	Value
Pearson's chi-square	0.002
Fisher's Exact Test	0.003

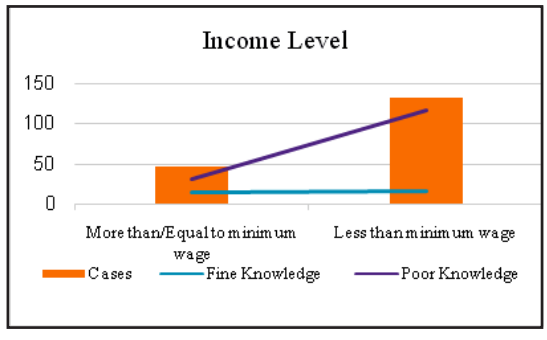

Figure 3. Research Samples' Characteristics Based on Income Level

Table 5. Results of Pearson Chi-Square Data Analysis of Distance to Health Facilities on Parents'Knowledge

Crosstab				
		Parent's Knowledge		
		Poor Knowledge	Fine Knowledge	Total
Distance to Health Facility	Unapproachable	16	4	20
	Approachable	137	27	158
Total		147	31	178

X^2 *Test*	
	Value
Pearson's chi-square	0.746
Fisher's Exact Test	0.756

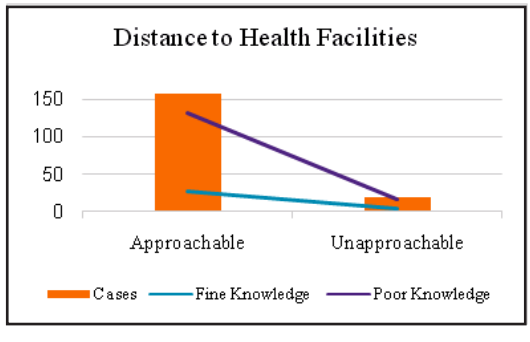

Figure 4. Research Samples' Characteristics Based on Distance to Health Facilities

Table 6. Results of Data Analysis of Multivariat Binary Logistic Regression Model

Parameter	95% Wald Confidence Interval		Hypothesis Test		
	Lower	Upper	Wald Chi-Square	Df	Sig
Constant			.000	1	.999
[Family History =1]	2.764	98.492	9.458	1	.002
[Education = 0]			.141	4	.998
[Education = 1]	.000	-	.000	1	.999
[Education = 2]	.000	-	.000	1	.999
[Education = 3]	.000	-	.000	1	.999
[Education = 4]	.000	-	.000	1	.999
[Income Level = 1]	1.453	10.006	7.393	1	.007
[Health Facilities = 1]	.179	2.493	.359	1	.549

Table 6 shows the relationship between the distance to health facilities and parents' knowledge of phimosis. The chi-square test requirement on this variable is not met because there is an expected count frequency of less than 5 in two cells, so the p-value result is obtained through Fisher's Exact Test with a p-value of 0.756. So, it can be interpreted that H0 is accepted and H1 is rejected, or in other words, there is no significant relationship between the distance to health facilities and parents' knowledge of phimosis.

This analysis aims to determine the relationship of the four independent variables collectively to the dependent variable using Binary Logistic Regression Analysis. Table 6 shows that two variables influence parents' knowledge of phimosis with a p-value <0.05, namely family history (.002) and education level (.007). In addition, other variables with a p-value > 0.05 and a range of values within the 95% Wald Confidence Interval of zero indicated no association. The Wald Chi-Square of 0.000 means these variables can be excluded from the model and will not affect the final results studied.

DISCUSSION

Sociodemographic factors refer to social and demographic characteristics that influence the behavior, attitudes, and knowledge of individuals or groups.[6] Some variables that constitute sociodemographic factors in this study are family history, parents' education, and parents' income level.

Parents' knowledge or knowledge plays an important role in influencing their behavior or attitude, both towards child health care and seeking medical care.[7] Family history is one of the factors that can influence parents' knowledge and awareness of certain health issues.[8] In line with this study, there is a significant relationship between family history and parents' knowledge of phimosis. Direct experience and information obtained by family members who have experienced phimosis or related health problems tend to make them more sensitive and have better knowledge about the condition.

Notoatmodjo stated that the higher a person's level of education, the easier it is for a person to receive information, and the higher a person's knowledge.[9] A study by Wulandari et al.,[6] also found that the respondent's education level influenced the respondent's knowledge about self-medication.

Unlike the results of this study, there was no significant relationship between parents' educational history and parents' knowledge of phimosis. Based on the results of the analysis of this study, although it was found that more parents with a high level of education had a good knowledge, not a few of these groups had a lack of knowledge. In line with this, a study by Rahma et al.,[10] revealed that there was no difference in the level of maternal education among underweight and normal nutrition toddlers. This may be because even though parents have a high level of education, specific information about phimosis is still not conveyed or owned and is not considered urgent to understand.

Socio-economic status plays an important role in influencing a person's health behavior. Poor financial conditions correlate with low health literacy, leading to a lack of awareness about the importance of maintaining health. In addition, limited sources of income often result in low levels of education, which can affect a person's knowledge and awareness of certain health issues.[11,12] This is in line with the results of this study, where there is a significant relationship between parents' income level and parents' knowledge of phimosis.

The affordability of health facilities, including distance and/or time, can influence visits to health facilities.[13] However, it does not necessarily affect people's knowledge of health conditions. In this study, there was a non-significant relationship between facility reach and parents' knowledge of phimosis. This is because a person's knowledge of health problems is more often influenced by individual factors such as education, experience, and information obtained.[14] Based on the analysis of questionnaire answers by respondents in this study, it also shows that although many of them feel they have affordable health facilities, their knowledge of phimosis is still not good.

Based on the results of this study, there are several variables that have different analysis results or are not in line with other studies that have been

conducted previously. Insignificant analysis results indicate that these elements do not significantly affect parents' knowledge or understanding of phimosis. However, if only looking at the trend of the respondents' answers in this study, a trend will be obtained where parents who have a poor knowledge of phimosis are sequentially found more in respondents who do not have a family history, have a low-income level, have a history of secondary education, and have affordable health facilities.

This study certainly has some things that need to be considered and evaluated as material for improvement for future research. This study did not present the actual incidence rate due to limited time and location, so the researchers only visited one service post point in each of the 11 villages located in Wagir sub-district. Wagir sub-district have 12 villages.

Data collection in the form of filling out questionnaires was only obtained from residents who came to the service post, so there was unreachable data, such as residents who did not attend but had related health conditions. In addition, there are parents/guardians who are not willing to be respondents and may feel reluctant or tend to answer the questionnaire with the “don't know” option to make the process faster. This is because the questionnaire given was a combination of this research questionnaire with three other studies, resulting in a large total of questions.

CONCLUSION

The prevalence of phimosis in toddlers at the integrative service post within the working area of Wagir Health Center of Malang Regency was 71.77% of cases and among them had parents with an knowledge of phimosis that was still classified as low or poor. Based on the results of the analysis, it was found that the factors that influence parents' knowledge of phimosis are family history factors and parents' income level. While the factors of parents' educational history and the distance of health facilities do not affect parents' knowledge of phimosis.

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