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Determinant of healthcare-seeking behavior for follow-up of toddler pneumonia in Kulon Progo District, 2023

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Abstract

Purpose: Follow-up visits are crucial to the management of toddler pneumonia. The purpose of this study is to determine the healthcare-seeking behavior (HSB) follow-up visit for toddler pneumonia in the Kulon Progo District. **Method:** This was an observational study with a cross-sectional study design and a sample size of 185 mothers or caregivers of toddler pneumonia in Kulon Progo District. Data were obtained through interviews using questionnaires. Univariate, bivariate, and multivariate analysis using logistic regression tests. **Results:** A total of 185 mothers or caregivers were successfully interviewed with a response rate of 96.9%. The percentage of follow-up visits for toddler pneumonia was 65.9%. The multivariate analysis showed that support from healthcare providers (aOR = 7.36 95% CI: 2.38-22.73) and degree of severity (aOR = 3.56, 95% CI: 1.42-8.93) were significantly associated with HSB follow-up visit in toddlers with pneumonia, which was adjusted to family support, caregivers' knowledge, access to health facilities, number of children, occupation, education of caregivers and toddler sex. **Conclusion:** Good support from healthcare providers may improve HSB follow-up visits for toddler pneumonia compared to those with less support, with a 7.36 times higher rate. Recommendations for healthcare providers to provide appropriate care, especially those with limited knowledge, in order of increasing caregivers' knowledge about the necessity of follow-up visits.

Keywords: follow-up visit; healthcare-seeking behavior; toddler pneumonia

INTRODUCTION

Pneumonia is the most common cause of morbidity and mortality in children worldwide. Only 68% of children with pneumonia symptoms globally reach a healthcare facility [1]. In developing countries, pneumonia is the primary cause of morbidity and mortality. Similarly, in Indonesia, pneumonia remains a big issue, with a high fatality rate [2]. The identification of cases and treatment of toddler pneumonia are crucial measures. The integrated management of childhood illness (IMCI) strategy is being used in pneumonia, which has decreased efforts to identify patients early and reduce morbidity and death.

In 2022, the majority (95%) of the health centers in Kulon Progo will provide standard treatment for at least 60% of toddlers coughing or having difficulty breathing with [3]. In 2023, 7833 under-five children had ARI, with 7736 having their breath measured or having their chest wall pulled in (TDDK). There were 338 cases of toddler pneumonia, 315 of which were treated with antibiotics, and the number of follow-up visits for treatment monitoring was not reported.

Follow-up visits are essential in the management of toddler pneumonia. Toddler pneumonia should be treated with antibiotics as soon as possible, followed by a follow-up visit. Follow-up visits are required to determine the efficacy of the treatment and to provide additional treatment if necessary [4,5].

A study in Bangladesh demonstrated the necessity of follow-up that allows for adequate care to minimize mortality in children with pneumonia after having pneumonia treatment in health facilities due to the risk of recurrence or development of other illnesses [6]. Another study found that anticipating severity based on clinical and laboratory assessments at follow-up services might support evaluating the next level of care for some children who did not respond to the first therapy after 48-72 hours [7].

During its implementation, most children with pneumonia under the age of five who received antibiotic treatment did not return for additional visits. The outcome of pneumonia in toddlers who received antibiotics is unknown and insufficiently recorded. Suboptimal data availability has an impact on the quality of data and information systems used to monitor program performance. Furthermore, financial limitations and workers with multiple roles prevent routine monitoring and evaluation.

Another barrier is the lack of a standard operating procedure (SOP)-based method for tracking follow-up antibiotic treatment for child pneumonia [8]. Healthcare provider skills in toddler pneumonia management, including advice for follow-up appointments, enable mothers to make follow-up visits. Follow-up visits should ideally take place in the same health facility where the children received their initial care. However, community follow-up systems may be possible provided educated and motivated community health workers and other resources are available [6].

Anderson and Newman explain health care-seeking behaviour as a result of the interaction of health care system determinants, social determinants, and individual determinants. Aspects of individual determinants are categorized into three groups, namely predisposing factors, which are characteristics that influence health service utilization behaviour. Enabling factors are socioeconomic and logistical aspects that facilitate or hinder health service utilization. Need-illness level perceived severity of illness (severe or not severe) is a measure of the perceived need to seek care or treatment [9].

This study aims to identify the determinants of toddler pneumonia follow-up visit service seeking in Kulon Progo District in 2023 to generate useful information for improving toddler pneumonia case management in Kulon Progo District.

METHODS

This study employs an observational research design using a cross-sectional approach. A total of 185 respondents, who are mothers of toddlers, were randomly selected using simple random sampling. The study was conducted from April 19, 2024, to May 21, 2024. The locations were chosen based on the area's characteristics and the highest number of pneumonia cases reported between 2022 and 2023. The research covered nine community health centers (puskesmas): three from the northern (hilly) region, three from the central part of the district, and three from the southern part of Kulon Progo District.

The inclusion criteria were mothers of toddlers living in the study areas who agreed to participate. Exclusion criteria included mothers/caregivers of toddlers with pneumonia who had complications or other coexisting diseases such as TB or HIV. Primary data was collected through questionnaires, with the assistance of trained enumerators.

The outcome variable is the behavior of seeking follow-up pneumonia care for toddlers. The predictors investigated include the mother's age, education, knowledge, occupation, income, child's gender, health insurance, number of children, access to healthcare facilities, location characteristics, family support, healthcare provider support, and the severity of the illness.

The data analysis involves univariate, bivariate, and multivariate techniques. Descriptive analysis is presented through frequency distributions of all the variables studied and their distribution based on the follow-up care-seeking behavior for toddler pneumonia. In the bivariate analysis, Odds Ratios (ORs) are calculated, and variables with a p-value ≤ 0.25 are included in the multivariate analysis. The multivariate analysis determines the adjusted OR (aOR) using logistic regression in STATA 17, with a 95% confidence interval (CI).

RESULTS

This study included 185 mothers/caregivers of toddlers with pneumonia, achieving a response rate of 96.9%. Table 1 shows that 57.3% were aged 25-34 years, with an average age of 35 years. A total of 63.2% had secondary education. Most were unemployed (51.4%). Good knowledge was reported by 64.9% of respondents. Most respondents (60.0%) had more than one child, and 53.0% of the children were boys. 62.2% of respondents earned less than the minimum wage in the Kulon Progo district (Rp. 2,050,447.15). Most

respondents (96.2%) had health insurance. Access to healthcare facilities was primarily moderate, at 74.1%. Regarding living location, 58.9% of respondents were from rural areas. Nearly all respondents (96.2%) had strong family support, and 87.6% had good support from healthcare providers. 68.1% of respondents had children with severe pneumonia. The majority (65.9%) sought follow-up care for their toddler's pneumonia. Detailed characteristics are shown in Table 1.

Table 2 presents the bivariate analysis results, indicating that the proportion of respondents with good healthcare provider support is larger than that with poor backing. Those with a good healthcare provider support had the highest proportion of follow-up care-seeking behavior. The study found a correlation between healthcare provider support and follow-up visits for toddler pneumonia. Respondents with high healthcare provider support were 7.14 times more likely to seek follow-up care than those with poor support (OR = 7.14; 95% CI = 2.65–19.25).

There is a significant relationship between pneumonia severity and follow-up care-seeking behaviour. Respondents with toddlers having severe pneumonia were 4.17 times more likely to seek follow-up care than those with less severe pneumonia (OR = 4.17; 95% CI = 1.88–9.20). No significant relationship was found between the mother's age, education, occupation, knowledge, income, health insurance, number of children, child's gender, access to healthcare facilities, and family support with follow-up care-seeking behaviour for toddler pneumonia.

The multivariate analysis was carried out after evaluating collinearity among the independent variables by checking the variance inflation factor (VIF) and tolerance values. The collinearity test results indicated no collinearity among the variables, as VIF values were less than 10, and the tolerance values for each variable were greater than 0.1. Variables that had a p-value < 0.25 in the bivariate analysis were included in the multivariate analysis. These variables included education, occupation, mother's knowledge, number of children, child's gender, access to healthcare facilities, family support, healthcare provider support, and illness severity.

The multivariate analysis, as presented in Table 2, reveals a significant association between healthcare provider support and illness severity with follow-up care-seeking behavior for toddler pneumonia, even after adjusting for other variables. Healthcare provider support shows a p-value of 0.001, an aOR of 3.47, and a 95% CI of 2.38–22.73. Respondents with strong support from healthcare providers were 3.47 times more likely to pursue follow-up care for their toddler's pneumonia than those with weaker support from healthcare providers. Respondents with toddlers suffering from severe pneumonia were 2.71 times more likely to seek follow-up care compared to those whose toddlers had less severe pneumonia (p-value = 0.007; aOR = 2.71, 95% CI: 1.42–8.93).

Table 1. Sociodemographic characteristics of respondents (n=185)

Variables	Category	n	%
Mother's age	15-24	8	4.3
	25-34	106	**57.3**
	≥35	71	38.4
Mother's education	Elementary school	39	21.1
	Junior high school	117	**63.2**
	High school	29	15.7
Mother's occupation	Employed formally	37	20.0
	Informally employed	53	28.6
	unemployed	95	**51.4**
Mother's knowledge	Poor	39	21.1
	Enough	26	14.1
	Good	120	**64.9**
Income	Poor	115	**62.2**
	Enough	70	37.8
Insurance health	Have	178	**96.2**
	Do not have	7	3.8
Gender of toddler	Boy	98	**53.0**
	Girl	87	47.0
Number of children	1	74	40.0
	>1	111	**60.0**
Access to health facilities	Difficult	2	1.1
	Medium	137	**74.1**
	Easy	46	24.9
Family support	Less	7	3.8
	Good	178	**96.2**
Health worker support	Less	23	12.4
	Good	162	**87.6**
Characteristics of residential location	Rural	109	58.9
	Urban	76	41.1
Degree of severity	Pneumonia	126	**68.1**
	Severe pneumonia	59	31.9
HSB under-five pneumonia revisit	No	63	34.1
	Yes	122	**65.9**

Table 2. Multivariate analysis of determinants of HSB for toddler pneumonia follow-up visits

Variables	Bivariate			Multivariate		
	OR	95% CI	p-value	aOR	95% CI	p-value
Mother's age						
15-24	1					
25-34	1.27	0.286-5.628	0.752	-	-	-
≥35	1.03	0.229-4.703	0.961	-	-	-
Gender of toddler						
Boy	1			1		
Girl	0.59	0.322-1.096	**0.096**	0.58	0.284-1.198	0.142
Mother's education						
Elementary school	1			1		
Junior high school	0.53	0.237-1.195	**0.126**	0.51	0.191-1.373	0.184
High school	1.08	0.356-3.300	0.887	0.55	0.135-2.238	0.405
Mother's occupation						
Employed formally	1			1		
Informally employed	0.55	0.226-1.343	**0.190**	0.51	0.171-1.497	0.219
Not working	0.96	0.420-2.206	0.929	0.82	0.294-2.270	0.700
Mother's knowledge						
Poor	1			1		
Enough	1.05	0.386-2.872	0.919	0.74	0.217-2.569	0.235
Good	1.87	0.890-3.954	**0.098**	1.241	0.504-3.054	0.638
Income						
Poor	1					
Enough	0.80	0.430-1.496	0.489	-	-	-
Insurance health						
Do not have	1					
Have	0.76	0.144-4.070	0.756	-	-	-
Number of children						
>1	1			1		
1	0.56	0.302-1.042	**0.067**	0.59	0.282-1.224	0.156
Access to health facilities						
Difficult	1			1		
Medium	2.42	0.148-39.725	0.535	9.24	0.370-230.612	0.176
Easy	1.09	0.064-18.514	0.952		0.169-128.000	0.363
Family support						
Less	1			1		
Good	5.17	0.974-27.463	**0.054**	3.2	0.448-26.147	0.235
Health worker support						
Less	1			1		
Good	**7.14**	2.651-19.255	**0.000**	**7.36**	2.382-22.731	**0.001***
Residential location						
Rural	1					
Urban	1.20	0.647-2.249	0.553	-	-	-
Degree of severity						
Pneumonia	1			1		
Severe pneumonia	**4.17**	1.886-9.204	**0.000**	**3.56**	1.418-8.936	**0.007***

*) = significant p-value <0.05; CI (Confidence Interval); OR (Odds Ratio); aOR (adjusted Odds Ratio)

DISCUSSION

The results of this study indicate a significant association between healthcare worker support and disease severity with follow-up visits for pneumonia in toddlers after controlling for other variables. The severity of illness is a measure of need that becomes the most pressing factor in the utilization of healthcare services. Individuals or families will seek health care that is compatible with the nature and level of care needed, based on the disease's perceived severity [9]. The changes in patient health status influence follow-up visits [10]. The healthcare provider's support is related to follow-up visits for toddler pneumonia. This suggests that health provider support is crucial to motivating mothers to make follow-up visits, especially for mothers and caregivers with low levels of knowledge.

Consistent with the other research by Indriyani et. al., there is a relationship between the role of healthcare providers and mothers' compliance in follow-up visits in the IMCI program [11]. Therefore, healthcare providers are expected to provide appropriate counseling. There is no relationship between maternal age, education, occupation, and

knowledge—predisposing factors in individual determinants—and follow-up visits for toddlers' pneumonia in this study. Another study found a relationship between maternal age and compliance with follow-up visits for pneumonia in toddlers [12]. However, the variables of maternal education and occupation showed similar results to this study, i.e., they were not related to compliance with follow-up visits.

There was also no correlation between the knowledge and follow-up visits for pneumonia in toddlers. This might occur because of respondents' generally high knowledge of Kulon Progo. This contrasts with the other findings, which reported a correlation between mother knowledge and compliance with follow-up visits for toddler pneumonia [11,12]. Another study discovered that compliance with follow-up advice rises with the mother's educational level [13]. Other research suggests that low knowledge contributes to noncompliance with therapy and follow-up in tuberculosis patients [14].

Income and family support are not statistically related to follow-up visits for toddler pneumonia in Kulon Progo. This is the same as the study in Semarang, which found that income and family support are not related to compliance with follow-up visits for pneumonia in toddlers [12]. Studies about interventions involving family support (husbands or other family members) are beneficial in enhancing the outcomes of child health programs in low- and middle-income countries [15]. In relation to this study, the involvement of the husband or other family members is essential to motivate mothers to monitor their toddlers' condition by making follow-up visits to healthcare facilities.

Implications of research findings: healthcare provider support correlates with follow-up visits for toddler pneumonia in Kulon Progo. Providing appropriate counseling to mothers regarding the importance of follow-up visits, when to make these visits, and administering medication as recommended are essential aspects of healthcare provider support. This process will be effective if the healthcare provider understands the management and needs of the program. Therefore, efforts are needed to enhance the understanding of healthcare providers involved in the program through relevant and up-to-date training. The limitations of this study were interviews with respondents whose toddlers had pneumonia more than 5 months to a year ago, so the assessment of knowledge might not reflect the conditions when their toddlers had pneumonia.

CONCLUSION

Healthcare provider support and disease severity are two determining factors that increase the probability of follow-up visits for toddler pneumonia in Kulon Progo District. Support from providers has the potential to improve moms' willingness to return to the doctor for toddler pneumonia.

As such, one of the most crucial program inputs is increasing the knowledge of healthcare providers through current, relevant training. This is important for improving case management quality and the surveillance system as the follow-up visit program is implemented.

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