

The effect of knowledge on attitude of pregnant women in prevention of worm infections

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ABSTRACT

Introduction: Helminthiasis is an endemic and chronic disease caused by parasitic worms with a high prevalence rate and is non-fatal, but it affects the health of the human body by reducing the absorption of nutrients and proteins in infected individuals and reducing blood levels in the human body so that if it occurs in pregnant women, it can affect pregnancy and childbirth. This study aimed to examine the influence of findings on attitudes of pregnant women towards the prevention of helminthiasis in the work area of the Gatak Health Center, Sukoharjo.

Methods: This study used a descriptive observational research method with a cross-sectional approach with 144 samples taken with an all-sampling technique.

Results: Statistical test shows that the value of $p < 0.000$ is less than $\alpha 0.05$, which means there is a relationship between the knowledge the Pregnant women and the attitude of pregnant women insist the mother in preventing the occurrence of worms.

Conclusion: The pregnant woman's posture is classified as functional because it influences the mother in the prevention and treatment of helminthiasis and affects her state of health.

Keywords: attitude, knowledge, pregnant women, worm infection.

Cite This Article: Sulastri., Triana, D.A.A. 2021. The effect of knowledge on attitude of pregnant women in prevention of worm infections. *Bali Medical Journal* 10(3) Special Issue ICONURS: 1168-1172. DOI: 10.15562/bmj.v10i3.2850

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Received: 2021-10-27

Accepted: 2021-12-09

Published: 2021-12-30

INTRODUCTION

Worm infections, especially intestinal worm infections, are environmental diseases that remain a problem in Indonesia. The infected worms can inhibit nutrient uptake and the occurrence of bleeding to reduce patient productivity. All age groups range from 40% to 60%, and up to 195 million people live in endemic areas of the world.¹ Results from studies in several other countries showed that at Kasoa Polyclinic, Ghana, 300 pregnant women whose stool samples were examined with the direct wet preparation technique and the concentration of ether former, 43 (14.3%) of them had intestinal parasites.² The results of a study in Ethiopia that the prevalence of intestinal helminth infections in pregnant women in 5 areas studied was 277 (37.3%).³

Infection with intestinal worms has negative effects. This disease can weaken the patient's health, nutrition, intelligence, and performance, for which it causes many economic losses, as it causes loss of carbohydrates and proteins and blood loss (anemia).⁴ Worm infection

is one factor that makes anemia worse because as the number of worms in the intestine increases, so makes blood loss, which disrupts the iron balance as more iron is released than the iron supplied.⁵ Earthworm species from the group of *soil-borne helminths* are still a health problem, namely *Ascaris lumbricoides*, *Trichuris trichiura*, *Strongyloides stercoralis*, and *hookworms* (*Necator americanus* and *Ancylostoma sp.*)⁶ Mouth up to the mucous membrane of the small intestine. Hookworms ingest blood and travel from site to site in the lining of the intestine, leaving minimal bleeding and injury.⁷ Worm infections can be transmitted through food contaminated with worm eggs because they are not washed properly. The ingested water contains worm eggs.

Infections are also caused by economic and environmental factors and poor personal hygiene.² Based on the health profile data in Sukoharjo in 2019 regarding environmental conditions, it was found that there were still some house buildings that still had dirty floors, especially the kitchen, there was no sewage, so there were

still puddles in the house and household garbage. It had not been properly administered to provide access to drinking water. There is still water that does not meet the requirements for consumption because Coli bacteria are found, the water source may be contaminated with feces, or there is a leak in the mains.⁸ Worm infections can be controlled by regularly administering anthelmintics, improving hygiene, improving personal hygiene, and providing health education to vulnerable groups.⁹ One of the factors that cause helminthiasis is the knowledge of pregnant women about helminthiasis. The better the pregnant woman's knowledge, the better the mother will behave in preventing helminthiasis. Based on the previous problem, this study aimed to investigate pregnant women's knowledge and attitudes towards helminthiasis in the work area of the Gatak Health Center, Sukoharjo.

METHODS

The present study is a cross-sectional descriptive observational study conducted

in January-February 2021; the study was conducted on pregnant women in the work area of Gatak Health Center, Sukoharjo Regency, Central Java, Indonesia. The study sample consisted of 144 pregnant women with pregnancy. Age in the first to third trimesters was recorded using a total sampling technique. The inclusion criteria in this study were pregnant women who could communicate well and were willing to become participants, while the exclusion criteria this study were pregnant women who did not collect research questionnaires, the variables this study were the characteristics of pregnant women (age, gestational age, education, occupation and when they last took antiparasitic drugs) as independent variables and the level of knowledge and attitudes of women pregnant as the dependent variable.

The data collection technique used primary data obtained by completing questionnaires by pregnant women. The questionnaire consisted of 12 questions about the mother's knowledge of helminthiasis and 17 questions about the mother's attitude towards the prevention of helminthiasis, and then the data were evaluated using univariate and bivariate analysis; A univariate analysis was carried out, which describes the frequency and representation of the characteristics of the pregnant woman, which are represented by a frequency distribution table. Diverse analysis was conducted to determine the relationship between the characteristics and knowledge, and attitudes of pregnant women about helminthiasis in each prevalence using the SPSS application by *chi-square* analysis.

RESULTS

Characteristics of Respondents

The results of the study of 144 respondents gave the distribution of the characteristics of the respondents in Table 1 with the age of the respondents at the productive age of 20-35 years, namely 114 respondents (79.2%) and 30 respondents (20.8%) were of risk age. Most of the respondents were in the second trimester of pregnancy, up to 76 respondents (52.7%), 48 respondents (33.3%) in the third trimester, and 20 respondents (14.0%) in the first trimester. Ninety-two respondents (64%) already

have an average educational qualification of high school, 28 respondents (19.4%) have a university degree or a bachelor's degree, but there are still 16 respondents with a lower level of education in middle school (11.1%) and elementary school as many as eight respondents (5.5%). Most of the pregnant women in the study did not work or became housewives up to 78 respondents (54.2%). Some mothers worked as private employees, civil servants, and other occupations such as factory workers, tailors, or traders. Before medication, neither during pregnancy nor

before pregnancy, only 24 respondents (16.6%) of the pregnant women had taken antiparasitic medication for more than six months. Two respondents (1.5%) used fewer worming agents. 6 months of pregnancy.

Level of Knowledge and Attitude of Respondents

Of the 144 test samples, the level of knowledge and the attitudes in Table 2 with the level of knowledge of the pregnant woman about the infection with intestinal parasites, 90 respondents

Table 1. Distribution of Respondents Characteristics.

Characteristics	Frequency (n)	Percentage (%)
Age		
< 20 years old	0	0 %
20-35 years old	114	79,2 %
>35 years old	30	20,8 %
Gestational age		
First Trimester	20	14,0 %
Second Trimester	76	52,7 %
Third Trimester	48	33,3 %
Educational Background		
Elementary School	8	5,5 %
Middle School	16	11,1 %
High/Vocational School	92	64,0 %
Diploma/Bachelor's Degree	28	19,4 %
Occupation		
Private Employee	50	35,0 %
Housewife	78	54,2 %
Civil Servant	6	4,1 %
Others	10	6,9 %
When was the last time you took anthelmintic?		
< 6 months	2	1,5 %
>6 months	24	16,6 %
Never	118	81,9 %
Total	n=144	100%

Table 2. Level of Knowledge and Attitude of Respondents.

Level of knowledge and attitude	Frequency (n)	Percentage (%)
Knowledge		
Good	90	63 %
Fair	50	35 %
Poor	2	1 %
Very poor	2	1 %
Attitude		
Good	86	59 %
Fair	52	36 %
Poor	4	2,7 %
Very poor	2	1,3 %
Total	n=144	100%

Table 3. The Effect of Characteristics on Knowledge.

Variable	Knowledge				Total	p-value
	Good	Fair	Poor	Very Poor		
Age	20-35 years old	70	40	2	2	0,758
	>35 years old	20	10	0	0	
Gestational age	First Trimester	14	6	0	0	0,394
	Second Trimester	46	28	0	2	
	Third Trimester	30	16	2	0	
Educational Background	Elementary School	4	4	0	0	0,811
	Middle School	8	8	0	0	
	High/Vocational School	58	30	2	2	
	Diploma/Bachelor's Degree	20	8	0	0	
Occupation	Private Employee	30	20	0	0	0,567
	Housewife	52	22	2	2	
	Civil Servant	2	4	0	0	
	Others	6	4	0	0	
When was the last time you took anthelmintic?	< 6 months	2	0	0	0	0,320
	>6 months	20	4	0	0	
	Never	68	46	2	2	

Table 4. The Effect of Characteristics on Attitude.

Variable	Attitude				Total	p-value
	Good	Fair	Poor	Very Poor		
Age	20-35 years old	70	38	4	2	0,120
	>35 years old	14	12	4	0	
Gestational age	First Trimester	12	6	2	0	0,062
	Second Trimester	48	26	0	2	
	Third Trimester	24	18	6	0	
Educational Background	Elementary School	6	2	0	0	0,000
	Middle School	8	2	6	0	
	High/Vocational School	52	36	2	2	
	Diploma/Bachelor's Degree	18	10	0	0	
Occupation	Private Employee	38	4	8	0	0,000
	Housewife	42	34	0	2	
	Civil Servant	0	6	0	0	
	Others	4	6	0	0	
When was the last time you took anthelmintic?	< 6 months	2	0	0	0	0,440
	>6 months	18	6	0	0	
	Never	64	44	8	2	

Table 5. The Effect of Knowledge on Respondents' Attitudes.

Variable	Attitude				Total	p-value
	Good	Fair	Poor	Very Poor		
Knowledge	Good	68	20	2	0	0,000
	Fair	16	26	6	2	
	Poor	0	2	0	0	
	Very Poor	0	2	0	0	
Total	84	50	8	2	144	

(63%) have good knowledge, 50 respondents (35%) have a fairly good level of knowledge, 2 respondents (1%) good knowledge. the level of knowledge is not good, 2 respondents (1%) have a low level of knowledge and the attitude of the respondents to worm infections 86 (59%) is good, 52 respondents (36%) are quite good, 4 respondents (2.7%) are not good, 2 respondents (1.3%) are not good.

The Effect of Characteristics on Knowledge

The following table shows the results of the statistical tests that show the influence of the variable characteristics of the pregnant women on the level of knowledge with the results of the sub variable age with a p-value of 0.758 > of alpha 0.05, which means that there is no influence of the maternal age on the level of knowledge Variable gestational age with p-value 0.394 > from alpha 0.05, i.e., no influence of the maternal gestational age on the level of knowledge Variable education with p-value 0.811 > from alpha 0.05, i.e., there is no influence between education and knowledge Work variable with p-value 0.567 > of alpha, i.e., there is no influence between work and knowledge. The variable taking medication has a p-value of 0.320, which means no effect exists between the last use of medication and knowledge.

The Effect of Characteristics on Attitude

The following table shows the results of the statistical tests that show the influence of the characteristic variables of pregnant women on attitudes with the results of the age sub-variable with a p-value of 0.120 > of alpha 0.05; there is no influence between the mother's age in the settings. Variable gestational age with a p-value of 0.062 > alpha 0.05 means that maternal gestational age does not influence attitudes. Education variable with p-value 0.00 < alpha 0.05, which means that there is an influence between education and attitudes of the pregnant woman. Working variable with a p-value of 0.000 < from alpha, which means that there is an influence between the work and the attitude of the pregnant woman and the variable intake of drugs with a p-value of 0.440, which means that there is no effect between the last drug

intake and the attitude of the pregnant woman at the prevention of worms.

The Effect of Knowledge on Respondents' Attitudes

Table 5 shows that pregnant women who are good at preventing helminthiasis are set at the level of those with good knowledge up to 68. Statistical test results show that the p-value of 0.000 is less than alpha 0.05 between the knowledge of pregnant women and the mother's attitude to preventing worms from occurring.

DISCUSSION

Of the 144 pregnant women surveyed who were willing to fill out the Gatak Health Center work area questionnaire, Sukoharjo was dominated by mothers of productive age (20-35 years). Most of them were housewives and had an average high school education. Results¹⁰ showed that hookworm prevalence was more common among younger age groups, less than seven years of education, and farmers.

The study also found that the majority of 118 respondents (81.9%) had never taken anti-parasitic drugs before and did not know if they were adults; they also had to take anti-parasitic medicines. To combat intestinal parasites in pregnant women, the Indonesian government has implemented a program for the administration, detection, and treatment of Fe tablets from the second and third trimesters under medical supervision.¹ An attempt to control and eradicate helminth infections to prevent anemia, low birth weight, and the risk of infant death.¹¹

Table 2 shows that 90 respondents (63%) had a good level of knowledge, and 86 respondents (59%) had a good attitude towards helminthiasis prevention in pregnant women. Various factors that can influence knowledge, such as education, information/media, socio-cultural and economic, environment, experience, age, and attitudes, influence factors such as personal or other experiences, the influence of culture and media, education and religion, and emotional factors.¹²

Although the results of the study in Tables 3 and 4 results from the characteristics of the respondents such as age, gestational age, education, occupation, and time of the last drug intake, nothing

influenced the level of knowledge that the statistical test p-value >0.05 can do caused by other factors not examined in this study, such as information, socio-cultural and economic information, environment and experience of the pregnant woman, but similar results were found in the study where education and work influence attitudes of the pregnant woman.

Good knowledge will lead mothers to understand helminth infections, and mothers 'understanding of helminth infections will influence mothers' attitudes. Based on the research results carried out¹³, the better the knowledge, the better the behavior to avoid helminthiasis. In the results of the study, there is a coincidence that of the respondents with a good level of knowledge, up to 68 respondents have a good attitude. Still, not all have a good attitude. This can be influenced by several factors such as personal experience or other people, and the missing information to get where Never take anti-drug worms.

A lack of information can affect health, and poor personal hygiene can increase the risk of worm infection.¹¹ same source as in animals¹⁰, open stool, the habit of washing hands with soap before eating and after defecation, the habit of cutting nails, and washing vegetables before processing.^{3,14,15}

Infectious worms can cause malnutrition and bleed up to anemia. Hookworms, in particular, can absorb nutrients from the food intake of the host (humans) so that they experience malabsorption and lose the body's nutrients. Hookworms also swallow blood by attaching it to the lining of the upper small intestine, which can lead to digestive tract bleeding and chronic anemia during pregnancy.¹⁶ Many studies¹⁷⁻²⁰ have shown that helminth infections affect pregnancy and childbirth. Worm screening is necessary. Pregnant women during prenatal care visits and offer training on personal hygiene and environmental cleanliness, household waste disposal, and housekeeping to change attitudes in prenatal care. Helminthiasis ventilation in pregnant women.

The limitation of this study is that not all pregnant women in the working area of the Gatak Health Center can participate. Some pregnant women do not dare to do antenatal care in health services for fear

of contracting COVID-19. This results in the number of respondents not being maximal.

CONCLUSION

The level of knowledge and attitudes of pregnant women about helminthiasis in the work area of Gatak Health Center Sukoharjo are mostly good. However, there are still pregnant women who have a fairly good level of knowledge and attitude, even not good. What affects mothers' differences in knowledge and attitudes is the personal experience that creates behavioral habits. There is a need to improve pregnant women's health education to prevent and control intestinal worms and their effects on pregnancy and childbirth.

CONFLICT OF INTEREST

There is no conflict of interest declared.

FUNDING

The providing funding for this research from Muhammadiyah Surakarta University.

ETHIC APPROVAL

Not applicable.

AUTHOR CONTRIBUTION

Conception and design (S, DAAT), Definition of intellectual content (S), Literature search, clinical and experimental studies (S, DAAT), data acquisition and

analysis (S, DAAT), statistical analysis (S), preparation and editing manuscript (DAAT), review of the manuscript (S), and guarantor (S).

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