Prevalence Analysis of Intestinal Worm Infection in Pregnant Women

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Abstract. Worm disease causes a lot of losses due to lead to reduced absorption of macronutrients such as carbohydrates and proteins, and cause reduced amount of blood in the body if it occurs in pregnant women may contribute to complications either during pregnancy or during childbirth. This study aims to analyze the prevalence of information on pregnant women suffering from worms on the hemoglobin levels in the Gatak Public Health Center, Central Java, Indonesia. This research is descriptive-analytic by cross-sectional approach. Sample of 232 pregnant women, information was collected by examining the sample of pregnant women's feces door to door then checking employing the Harada Mori method and analyzing it with univariate to describe the characteristics of pregnant women and the prevalence of worms. The findings demonstrated that the most age frequency distribution was 20-35 years old, in primiparous parity, gestational age in the third trimester, education at high school education, work as a housewife, the prevalence of worms of 16.8%, and those who experience anemia were 8 respondents. This research can be used as a reference for the Gatak Public Health Center in the management of helminthiasis and maternal nurses to prevent the appearance of worms in pregnant women in the future.

Keywords: Anemia, Helminths, Pregnant Women, Prevalence Worm Infection

1 Introduction

Worms are endemic and chronic disease caused by parasitic worms with a high prevalence and is harmless yet it undermines the health of the human body, resulting in lower nutritional and health conditions for the affected person. Worms cause many losses as it decreases the absorption of macronutrient nutrients such as carbohydrates and protein, and diminish the amount of blood circulating in the body, hence, once it is detected in pregnant women it may contribute to complications both during pregnancy and childbirth.

Worms that infect the human body are not all life-threatening but have a huge impact on health. Most worms are classified as parasites because they cannot live outside

Z. B. Pambuko et al. (eds.), *Proceedings of the 4th Borobudur International Symposium on Humanities and Social Science 2022 (BIS-HSS 2022)*, Advances in Social Science, Education and Humanities Research 778,
https://doi.org/10.2991/978-2-38476-118-0_72

their hosts, they depend on their hosts to meet their food needs. Pathogenic manifestations of worm disease are no less important, usually caused by physical factors related to the location and size of worms and individual lifestyles [1].

One form of helminthiasis is being infected by worms through the soil or called Soil-Transmitted Helminths (STH) which then develops in the intestine. The most common types of worms that infect humans are roundworms (Ascaris lumbricoides), hookworms (Ancylostoma duodenale and Necator americanus), and whipworms (Trichuris trichiura). One of the causes for the spread of worms is poor personal hygiene, unclean house floors and the habit of not using footwear can also make it easier for worm eggs to enter the pores of the feet, especially when injured. Which eventually develops in the human body (host). Rural communities or very dense urban areas and slums are easy targets for helminth infections.

This worm can cause a decrease in the health condition, nutrition, intelligence, and productivity of the sufferer so economically it causes a lot of losses, because it causes loss of carbohydrates and protein and blood loss, thereby reducing the quality of human resources. The presence of worms in the patient's intestine will disrupt the normal physiological balance in the intestine, causing local irritation so that it interferes with peristaltic movements and food absorption [2].

In Indonesia, the prevalence of worms for all ages ranges from 40%-60%, and as many as 195 million population live in wormy endemic areas, the prevalence of worms in Indonesia is statistically very high, especially in those underprivileged with a high risk of contracting this disease [3]. Despite worms may not trigger unexpected flare-ups of sickness and result in numerous casualties, worms can have very genuine well-being impacts by gradually decreasing human well-being, causing lasting incapacity, paleness, and even demise.

Iron deficiency prompts an expanded danger of confusion during pregnancy, labor, and puerperium. Iron paleness brings about early termination, preterm labor, obstructed fetal turn of events, the hazardous contaminant, hyperemesis gravidarum, antepartum discharge, an untimely burst of films, expanded occurrence of toxemia and sepsis just as expanded cardiovascular yield, and expanded responsibility of heart siphoning [4].

In Indonesia, the rate of iron deficiency in pregnant women remains very high. In metropolitan regions and in-country regions were 36.4% and 37.8%, respectively. As indicated by research on national health data information, the gathering of pregnant women is one of occasions with a high danger of encountering frailty, albeit the anemia experienced and large relative iron deficiency due to physiological changes in the body during pregnancy. Anemia in the number of inhabitants in pregnant women as indicated by the measures controlled by WHO and the 1999 Service of Wellbeing rules, which is 37.1%, shows that the weakness rate in Indonesia almost reaches a serious general medical condition [3].

WHO information, 40% of maternal mortality rate in agricultural countries are identified with anemia in pregnancy. Most of the cases are induced by iron deficiency and intense dying. Anemia in pregnancy is a significant medical issue in agricultural countries with dire rates in pregnant women. The normal pregnancy due to anemia in Asia is found at 72.6%, the high predominance of paleness in pregnant women is anissue now confronting the Indonesian government. The consequences of pregnant women

gathering in the Gatak Community Health Center admitted that during their pregnancy they had never been examined for worms.

The purpose of this study was to validate data on hemoglobin levels in pregnant women, confirm not attest data on worms in pregnant women, and analyze the prevalence of data on pregnant women with helminthiasis on hemoglobin levels in the Gatak Public Health Center, Central Java, Indonesia not suffering.

2 Method

This research is descriptive-analytic by analyzing the prevalence of worms in pregnant women employing a cross-sectional approach. Sample in this study as much 232 pregnant women living in the work area of the Gatak Public Health Center, participated according to the inclusion criteria in the study. Ethical Considerations approval of the Ethics Committee of the Medical Faculty of Muhammadiyah Surakarta University, (No. 3645/B.2/KEPK-FKUMS/VII/2021) potential participants reported on the research objectives and reported on their right to withdraw from research at any time without losing your health benefits maintenance service. Signed consent was obtained from all participants after agreeing to participate.

The research was conducted from January to March 2021. It is conducted on pregnant women in the working area of the Gatak Public Health Center, Central Java, Indonesia. The data collection process in this study was carried out by examining the sample of pregnant women feces door to door then checking employing the Harada Mori method. The data was analyzed using univariate, namely describing the characteristics of pregnant women (encompassing age, education, occupation, gestational age and determining the prevalence of worms in pregnant women).

3 Result and Discussion

3.1 Characteristics of Respondents

The age frequency distribution describes the most respondents in the productive age of 20-35 years totaling 189 respondents (81.5%). Parity elaborates the majority of respondents in primiparous parity comprising 92 respondents (39.7%). The gestational age reports that most of the respondents were in the third trimester of 93 (40.1%). Education illustrates that most respondents had a high school education of 140 (60.3%). Occupation shows that most respondents were housewives with 152 respondents (65.5%). The results of the analysis characteristics of the respondent's data can be seen in Table 1.

Table 1. Characteristics Respondents

Characteristic (n=232)	n (%)
Age	
< 20	3 (1.3 %)
20-35	189 (81.5 %)

Characteristic (n=232)	n (%)
> 35	40 (17.2 %)
Parity	
Nulipara	70 (34.1%)
Primipara	92 (39.7 %)
Multipara	47 (20.2 %)
Multigrade	14 (6.0 %)
Trimester	
1st trimester	55 (23.7 %)
2nd trimester	84 (36.2 %)
3rd trimester	93 (40.1 %)
Education	
Elementary School	6 (2.6 %)
Junior High School	48 (20.7 %)
Senior High School	140 (60.3 %)
University	38 (16.4 %)
Employment	
Private Employees	64 (27.6 %)
Government Employees	10 (4.3 %)
Housewife	152 (65.5 %)
Other	6 (2.6 %)
Total sample	232 (100 %)

3.2 Worms Prevalence

The frequency distribution of positive respondents for worms illustrates that based on the results of the worm's examination, out of 232 respondents, 39 positive respondents had worms with a prevalence of 16.8%, with details of 6.4% were infected by *Ascaris Lumbricoides*, 6.0% were contaminated with by *Ancylostoma duodenale/Hook Worm*, 2, 2% were infected with *Trichuris-Trichiura*, and 2.2% were affected by *Enterobius Vermicularis*. Of the 39 respondents who were positively infected by worms, 20 respondents (51.3%) had hemoglobin levels within normal limits, 8 respondents (20.5%) showed less than normal (anemia) hemoglobin levels, and 11 respondents' (28.2%) hemoglobin levels were unknown. The results of the analysis worm's prevalence can be seen in the Table 2.

Table 2. Worms Prevalence

(n=39)	n (%)
Worm Infection	
Trichuris-trichiura	5 (2.2%)
Ancylostoma Duodenale/Hook Worm	14 (6.0%)
Ascaris Lumbricoides	15 (6.4%)
Enterobius Vermicularis	5 (2.2%)
The number of positive samples for worms	39 (16.8%)

(n=39)	n (%)
Hemoglobin Levels	
< 11 mg/dL	8 (20.5 %)
≥ 11 mg/dL	20 (51.3 %)
Unknown	11 (28.2 %)
Total sample	39 (100 %)

3.3 Discussion

Of the all-pregnant women in the Gatak sub-region, 232 pregnant women agreed to become respondents. During the pregnancy cycle, there are physiological changes related to the deficient food intake containing iron which can demolish the aftereffect of maternal hemoglobin, prompting changes in fetal development, like low fetal development and preterm birth [5]. It will allow pregnant women to occupy a seat in the gathering regarding the danger of encountering sickness issues.

The outcomes implied that most of the respondents reaching 189 (12.1%) were in the productive age (20-35 years). An examination probed by [6] showed that the time of pregnant women and the rate of iron deficiency had a huge relationship (p-esteem 0.017 <0.05). Another investigation expressed various outcomes with no connection between age and the occurrence of frailty in pregnant women with a p-worth of 1,000 (> 0.05), thus demonstrating that the age that was not in danger, to be more specific the age of 20-35 years did not verify that the mother would encounters weakness [7].

Based on the equality, the greater part of the respondents was in primiparous equality, in particular 92 respondents (39.7%). The primary equality has more danger of creating frailty in pregnancy on the off chance that you do not focus on dietary necessities during pregnancy [8]. Distinctive examination expresses that an equal number of more than 3 is a factor in the event of weakness because too successive pregnancy may drain iron stores in the body and is in danger of encountering intricacies like dying [9].

Given the gestational age, most respondents in the third trimester were 93 respondents (40.1%). Expanded plasma volume, Hb levels, and hematocrit will in general diminish with expanding incubation weeks [10]. The requirement for Fe increments, particularly during the II and III trimesters, so it is important to build iron intake through iron supplementation to help reestablish hemoglobin levels in pregnant ladies [11].

According to the training, the vast majority of the respondents have secondary school instruction, in particular 140 respondents (60.3%). Pallor frequently happens in bunches with low education because of an absence of admittance to data about paleness and its treatment [12]. Diverse exploration asserts that there is no connection between instruction level and the rate of frailty, sickliness might arise due to different factors like maternal mentalities and activities, in which information will later influence one's wellbeing conduct.

According to the occupational status in the investigation, it was tracked down that a large portion of the respondents assumed a part as housewives, in particular, 152 (65.5%), and 64 (27.6%) respondents functioned as private representatives. Work is

firmly identified with the financial status of a family with adequate pay to meet the nourishing necessities of pregnant women [12]. In this investigation, it was found that most mothers did not work, only spouses worked.

Aside from the few factors aforementioned, weakness in pregnant women is more likely caused by worm diseases. Contaminating worms can exasperate frailty because worms in the stomach-related parcel will keep on expanding in number and cause expanded blood misfortune also, to disturb the iron equilibrium [13].

The spread of worms, one of the causes is helpless individual cleanliness – messy house floors and the propensity for individuals entering the washroom with no footwear can likewise make it accessible for worm eggs in the restroom to enter the pores of the feet, particularly in the washroom during the injury, which at long last the eggs are created in the human body (Host) [2].

Of the 232 respondents participated, it was determined that 39 positive respondents had worms with a commonness of 16.8%. The worm type that contaminated the most were *Ascaris Lumbricoides* totaling 15 respondents (6.4%). In looking at excrement, specialists employed the Harada Mori technique. The consequences of another investigation utilizing subjective technique for subjective assessment (direct slide) by means of 2% eosin indicated that 8 out of 30 pregnant women were contaminated with Soil-Communicated Helminths (26.7%) with the predominant kinds of *Ascaris lumbricoide*s and *Trichuris trichiura*. STH pervasion cases are more successful because they needn't bother with a transitional host to proceed with their life cycle and swarm the host [4].

The spread of worm contaminations can be through the degree of individual cleanliness that is as yet poor, messy house floors, and the propensity for individuals going to the restroom without footwear which can likewise make it accessible for worm eggs in the washroom to enter the pores of the feet, particularly during the injury. Which at last builds up the egg in the human body (Host).

Following the consequences of exploration studied by [14] that deficient sterilization, for instance, waste issues can add to the high commonness of parasitic worm contaminations, washing hands appropriately may stop the transmission of disease. Another examination expresses that primigravidas are in danger of encountering protozoa-explicit contaminations and a low degree of training is a harmful factor for encountering nematode disease [15]. Pregnant women with a low degree of education have higher chance of encountering anemia due to worms contrasted with pregnant women with a more elevated level of instruction since information on worm disease will influence their health level [16].

In light of the after effects of the investigation of 39 respondents who were positive for worm contamination, it was indicated that 8 respondents (20.5%) experienced anemia, 20 respondents (51.3%) had their hemoglobin levels inside typical cutoff points and 11 respondents (28.2%) did not check their hemoglobin levels. It was influenced by some pregnant women who were as yet in their first trimester and some pregnant women did not set out to have themselves checked during the coronavirus pandemic. Maternal latency in antenatal emerged insufficient screening which might prompt avoidance or the board of issues during pregnancy and postponed groundwork for conveyance.

The after effects of the investigation are not the same as different examinations which express that just 24% of the example populace have frailty and the majority of them are in the third trimester, the reason cannot be resolved whether it is because of worm invasion or because of physiological causes with worm pervasion [17]. Pregnant women who experience anemia will affect mothers and children, like an untimely birth, low birth weight, baby mortality, and the danger of labor [18]–[20].

Treatment of worms of anemia should likewise be possible by consuming iron tablets which have a defensive impact of supplementation against anemia distributed free to ANC, however in the examination, there was an issue of mothers who were less dynamic in visiting ANC amid the coronavirus pandemic. The Indonesian government has put forth attempts to forestall worms by giving mass counteraction of worms however it is simply given to kids under five, pre-school, and school-age children.

Treatment of intestinal worms in pregnant women can likewise be given during ANC, yet for the treatment of worms, for example, albendazole and mebendazole in pregnant women, it is important to counsel a specialist in advance to see the seriousness and whether to devour deworming medication so as not to endanger the womb and fetus [3]. Different investigations have additionally uncovered that albendazole treatment is not suggested for gatherings of pregnant women and kids under 2 years old [21]. From a meta-examination of four randomized controlled preliminaries, the utilization of anthelminthic in pregnancy did not altogether influence anemia, low birth weight, or perinatal mortality [15].

Treatment of worm contaminations in pregnant women has the advantages and disadvantages of seeing the substance of the medication and the impacts it gives during pregnancy. Further, huge scope contemplates are expected to set up the advantages of anthelminthic treatment during pregnancy.

4 Limitations

The limitation of this study is that not all pregnant women will be able to participate in the Gatak Health Center's work area during the pandemic period. This is because some pregnant women have not yet received prenatal care, and pregnant women are afraid to go to the health service for fear of contracting COVID-19. This resulted in less-than-optimal screening for helminth infections in pregnant women.

5 Conclusion

This study examines the spread of intestinal worm disease in pregnant women. The outcomes showed that there were pregnant women who were decidedly contaminated with worms and experienced anemia. The pervasiveness obtained was 16.8%, even though it was as yet in the low class, worm disease is exceptionally hindering to pregnant women since it can meddle with the interaction of retention of supplements other than it can likewise cause anemia. If the mother suffers from anemia, it will influence the state of the mother and the fetus, like an untimely birth, low birth weight, and dangers during labor, either bleeding or operative measures. With the increasing incidence

of anemia in pregnant women, preventive medical examinations can be supplemented with helminthiasis to prevent infection and, in the event of an infection, treated promptly to avoid complications during pregnancy and childbirth.

Acknowledgement. We would like to thank all of the mothers who participated in this study and everyone who helped initiate this study, we also thank the midwife in charge of the Gatak Health Center and the team and Bachelor of Nursing Programs, Faculty of Health Sciences, Muhammadiyah Surakarta University for funding.

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