

# The Level of Maternal Knowledge and the Incidence of Ascariasis in School-Age Children

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## Abstract

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**Background:** Ascariasis disease occurs most often in school-age children. This is because school-age children often come into contact with the soil. School-age children are also the highest group infected with worms which are transmitted through the soil. Many cases of worms are found in the ascariasis worm group.

**Objective:** The purpose of the study was to determine the relationship between the level of maternal knowledge and the incidence of ascariasis in school-age children in Ambon.

**Methods:** This type of research was quantitative research with a cross-sectional approach. The sample size in this study was 75 respondents which was collected with total sampling technique. The analysis test employed the Chi-square test.

**Results:** This study found that the mothers' level of knowledge about ascariasis was in low category, which was 61 (81.3%) respondents, and most school-age children suffer from ascariasis infection, amounting 59 (78.7%) respondents. Furthermore, the mother's level of knowledge had a significant relationship with ascariasis infection with a p-value of 0.199 ( $>0.05$ ), indicating that there was no relationship between the mother's knowledge level and the incidence of ascariasis infection.

**Conclusion:** There is no relationship between maternal knowledge and the incidence of ascariasis infection.

**Keywords:** Ascariasis; maternal knowledge; school-age children

## Introduction

Knowledge is familiarity, awareness, or understanding of facts, information, descriptions, or skills, acquired through experience or education. Knowledge can refer to the theoretical understanding of an object. It can be obtained implicitly with practical skills, expertise, or explicit with theoretical understanding of a subject and can be adjusted formality or systematically (Oxford dictionary, 2018). Low knowledge of mothers will have an impact on poor parenting of mothers towards children, especially parenting styles that can prevent the child from helminthic infections (Murti et al., 2016).

In 2019, WHO reported that more than 24% of the world's population or about 1.5 billion people have worms. This number is a soil-borne worm infection or called soil transmitted helminthiasis (STH), such as *ascaris lumbricoides* where the infection of this worm is called ascariasis. WHO noted that infections caused by worms are spread in tropical and subtropical countries including Indonesia (WHO, 2019).

The prevalence of ascariasis in Maluku was 55.48%. The prevalence of Ascariasis in each Puskesmas in Maluku Province in 2016 was 51.7% in Rijali Health Center, 51.6% at Poka Health Center, 56.88% at Masohi Health Center, and 88.79% at Amahai Health Center. The prevalence of ascariasis in Ambon is 51.67% and Central Maluku Regency is 57.89%. The type of worms that are commonly found in Maluku was roundworms (*ascaris lumbricoides*) (Pemantauan Penyakit Kecacingan di Provinsi, 2016).

Ascariasis disease is most common in school-age children. It is because school-age children often make contact with the ground. School-age children are also the highest group infected with worms whose transmission is through the soil. There are many cases of worms

from the worm group ascariasis. Soil transmitted helminth infection can occur due to ingestion of worm eggs from the soil or ingestion of active larvae in the soil through the skin (Hanif et al., 2017).

According to the preliminary data, it was found that ascariasis sufferers in the research setting experienced an increase. In 2019, a total of 60 cases of ascariasis infection suffered by school age children where boys were 32 cases and girls were 28 cases. Meanwhile, in 2020, the total of ascariasis infection were 56 cases where the boys were 38 cases and girls were 18 cases. In 2021, a total of 68 cases of ascariasis infection where boys were 38 cases and girls were 30 cases.

The research setting was indeed a densely populated and slum area, so it was highly possible to transmit the worm *ascaris lumbricoides*, especially in school-age children. Ascariasis in this area was quite concerning. The disease is an infectious disease whose risk factors are affected by sanitation such as the use of inappropriate latrines will cause pollution to the soil with feces around the yard, the availability of landfills, and the availability of clean water can increase the risk of ascariasis in this area. Additionally, this area was less conducive to unhealthy behavior from the community such as defecating in any place such as in rivers, gardens, and throwing garbage out of place, and children playing barefoot, not washing hands after playing and before eating, dirty children's nails, and dirty water sources, which can cause ascariasis it happens. Poor sanitation will have a negative impact on children's health in in this area. The role of parents, especially mothers, is a model of behavior for children, including in healthy living behavior, especially the behavior of preventing ascariasis. Lack of knowledge and awareness of mothers in paying attention to child hygiene causes children to also not pay attention to their own hygiene (Kumala, 2016).

according to the background above, the researcher was interested in investigating the relationship between maternal knowledge and the incidence of ascariasis in school-age children in Ambon.

## Methods

### Study Design

This type of research was quantitative research with a cross-sectional approach.

### Samples/Participants

The population in this study was mothers who had school-age children in a hamlet in Ambon City, totaling 75 people. The sample size in this study was 75 respondents. In this study, the sampling technique used was total sampling. According to Sugiyono (2018), total sampling is a sampling technique where all members of the population are sampled if the population is less than 100.

### Instruments

This study used maternal knowledge questionnaire consisting of 10 items, adapted from Fadhillah and colleague (2019). This questionnaire has been tested for validity and reliability, which means that the questionnaire was valid. Also, the observation sheet was utilized to see whether or not there were signs and symptoms of ascariasis that experienced by school-age children.

### Data Collection

This study was conducted in 2021 in Ambon. Data were obtained directly by researchers.

### Data Analysis

All data were analyzed using the SPSS statistical program. Descriptive statistics were used to analyze the participants' characteristics. The Chi-square tests were used to determine the relationship between mothers' level of knowledge and ascariasis incidence.

### Ethical Considerations

This research has obtained a research permit from the investment office and one-stop services of the Ambon city government with number: 967/DPMPSTSP/X/2021.

## Results

Table 1 showed that most mothers were in age category of 36-45, accounting for 37 (49.3%) respondents and the children were mostly 6-10 years, amounting 59 (78.7%) respondents. Most respondents were female, amounting 42 (56%) respondents, had education level of senior high school, accounting for 35 (46.7%) respondents, and worked as civil servant, consisting of 22 (29.3%) respondents.

Table 1 Distribution of respondent characteristics

Characteristics	Category	n	%
Mother's Age (years)	26-35	20	26.7
	36-45	37	49.3
	46-55	18	24.0
Children's Age (years)	6-10	59	78.7
	11-12	16	21.3
Gender	Male	33	44.0
	Female	42	56.0
Education Level	Elementary school	7	9.3
	Junior high school	10	13.3
	Senior high school	35	46.7
	Bachelor Degree	23	30.7
Occupation	Unemployed	17	22.7
	Civil servant	22	29.3
	Housewife	20	26.7
	Laborer	16	21.3

Table 2 depicted that most respondents had low knowledge level about ascariasis, accounting for 61 (81.3%) respondents and the occurrence of ascariasis in children dominated, which was 59 (78.7%) children.

Table 2. Frequency distribution of mother's knowledge level and ascariasis occurrences

Variabel	n	%
<b>Level of mothers' knowledge</b>		
Enough	14	18.7
Low	61	81.3
<b>Ascariasis occurrence</b>		
Yes	59	78.7
No	16	21.3
<b>Total</b>	<b>75</b>	<b>100.0</b>

Table 3 showed that mothers who had enough knowledge about ascariasis had children with ascariasis as many as 11 (91.7%) people and merely one (8.3%) child did not suffered from ascariasis. Meanwhile, mothers who had low knowledge about ascariasis had children suffering from ascariasis as many as 47 (75.6%) people and 16 (25.4%) children did not suffer from ascariasis. Furthermore, according to the Chi-square test, the p-value was 0.199 (>0.05), indicating that there was no correlation between mothers' knowledge level and ascariasis occurrence.

Table 3. Relationship between mothers' level of knowledge and the incidence of ascariasis

Knowledge	Incidence of ascariasis					
	Yes		No		Total	
	n	%	n	%	N	%
Enough	11	91.7	1	8.3	12	100.0
Low	47	74.6	16	25.4	63	100.0
Total	58	77.3	17	22.7	75	100.0
Chi-square test						<b>p= 0,199</b>

## Discussion

This study found that most respondents had low knowledge level about ascariasis. One of the factors that cause a child to be infected with ascariasis is the low level of knowledge of the mother. The condition of a low level of maternal knowledge will affect the lack of attention or poor parenting of mothers, especially in terms of how to maintain cleanliness and health. With poor maternal parenting, it will have a negative impact on the lack of knowledge and behavior to maintain hygiene and health for children and children, which can prevent children from ascariasis infection (Dede, et al, 2016).

Furthermore, most children in this study experienced ascariasis. Students in primary school age are most vulnerable to suffer from ascariasis as they mostly spend time playing outdoor. Unmaintained hygiene or a dirty environment can be one of the factors that can facilitate the spread of worm infections. In addition, there is still a lack of understanding about worms both causes, signs and symptoms, and how to prevent them (Double, et al 2019).

This study found that there is no association between mothers' knowledge level and ascariasis occurrence. However, although no relationship found between the level of maternal knowledge and ascariasis infection by the researcher, it does not mean that we can simply exclude these parameters, because in this study it was found that the level of maternal knowledge had a significant relationship with Ascariasis infection, significant value ( $p = 0.199 < 0.05$ ) which means that there is a relationship between the mother's level of knowledge and the incidence of ascariasis. The differences that occur in this study with previous studies can be caused by different regional conditions or research locations.

In addition, differences in the location of this study can affect the difference in research results because health conditions in Central Java and Manado City tend to be better with health conditions in Maluku. Another thing that causes the difference in results in this study with previous studies is the factors that affect the level of knowledge of mothers, as well as the sources of knowledge obtained by mothers. Based on Suhartono study (2015), there are five sources that will shape human knowledge, namely belief, testimony of others, experience, reason, and intuition. Based on this statement, it is very reasonable if there are differences in the level of knowledge of respondents in this study with previous studies, considering that different regional conditions will also affect the source of knowledge of mothers in this area.

## Conclusion

This study found that the mothers' level of knowledge about ascariasis is in low category and most school-age children suffer from ascariasis. Furthermore, the mother's level of knowledge had no significant relationship with ascariasis infection.

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## References

- Abdeltawabi, M. S., N. E. Seddik, dan H. K. Salem. 2017. World wide epidemiology of helminths infection. *Human Helminthiasis*. 4-7
- Aprilita, M., 2016. Hubungan Kebersihan Kuku Tangan Dengan Infeksi Soil Transmitted Helminths (STH) Pada Siswa SD Negeri 126 Kelurahan Sukamulya, Kecamatan Sematang Borang, Kota Palembang. *Universitas Sriwijaya, Palembang*. 5, 114–120. <https://doi.org/10.23886/ejki.5.8229>.
- Annisa, S., Dalilah, dan Chairil Anwar. 2018. Hubungan Infeksi Cacing Soil Transmitted Helminths (STH) dengan Status Gizi pada Siswa Sekolah Dasar Negeri 200 Kelurahan Kemasrindo Kecamatan Kertapati Kota Palembang. *Majalah Kedokteran Sriwijaya*, Th. 50 Nomor 2, April 2018. <https://ejournal.unsri.ac.id/index.php/mks/article/download/8553/4541>.

- Ayu Thabita Agustus Werdiningsih, Kili Astarani (2016) Peran Ibu Dalam Pemenuhan Kebutuhan Dasar Anak Terhadap Perkembangan Anak Usia Prasekolah Jurnal STIKES Volume 5, No. 1, Juli 2012
- Centers for Disease Control and Prevention. 2019. Ascariasis. <https://www.cdc.gov/dpdx/ascariasis/index.htm>
- de Lima Corvino, D. F. dan S. Horrall. 2019. Ascariasis. Dalam Stat Pearls. Treasure Island (FL): Stat Pearls Publishing.25: 487-490.
- Derek, C., Kalesaran, A., Kandou, G., Masyarakat, F. K., & Ratulangi, U. S. (2017). Hubungan Antara Faktor Sosiodemografi Dengan Infeksi Cacing Usus Di Sd Negeri 58 Manado. *Kesmas*, 6(3), 1–8.
- Diyantini N. K, Ni Luh P & Sagung M. L. (2015) Hubungan karakteristik dan kepribadian anak dengan kejadian bullying pada siswa kelas V di SD “X” di kabupaten Badung. Fakultas Kedokteran Universitas Udayana Denpasar. ISSN: 2303-1298
- Handayani, D., Ramdja, M., dan Nurdhianti, I.F. 2015. Hubungan Infeksi Soil Transmitted Helminths dengan Prestasi Belajar pada Siswi SDN 169 di Kelurahan Gandus Kecamatan Gandus Kota Palembang. *Majalah Kedokteran Sriwijaya*. <http://eprints.unsri.ac.id/>.
- Irvan Hanif, Moch. Yunus, et al. 2017. Gambaran Pengetahuan Penyakit Cacingan Pada Wali Murid SDN 1,2,3 dan 4 Mulyoagung, Kecamatan Dau Kabupaten Malang, Jawa Timur. 1–7. <https://doi.org/10.1080/01612840.2018.1453000>
- Kobayashi, Y. dan J. Tsuyuzaki. 2018. *Ascaris lumbricoides* discharge from the mouth. *Case Reports in Gastroenterology*. 12(1):153–157.
- Merdekawati, D. (2017). Analisis peran ibu terhadap pencegahan ascariasis anak prasekolah Wilayah Kerja Puskesmas Tahtul Yaman Kota Jambi. *Riset Informasi Kesehatan*, 6(1), 1–17.
- Oliva w. (2017). Prevalensi derajat infeksi dan factor resiko trichuris trichiura pada peternak sapi potong di desa Ronggo Kecamatan Jaken Kabupaten Pati. Fakultas Kedokteran Hewan Institut Pertanian Bogor. <http://repository.ipb.ac.id/handle/123456789/89305>
- Merdekawati, D. (2017). Analisis peran ibu terhadap pencegahan ascariasis anak prasekolah Wilayah Kerja Puskesmas Tahtul Yaman Kota Jambi. *Riset Informasi Kesehatan*, 6(1), 1–17.
- Safitri, S. D., Nofita, E., & Pertiwi, D. (2017). Faktor yang berhubungan dengan kejadian Ascariasis pada murid SD 27 Olo Kota Padang. *Jurnal Kesehatan Andalas*, 6(2), 253. <https://doi.org/10.25077/jka.v6i2.687>
- Semuel, Sandy and Maxsilrmanto. 2014. Anaysis of risk factors for infection models round worm (*Ascaris lumbricoides*) on elementary school students in arso district of the keerom regency, Papua. *Jurnal Epidemiologi dan penyakit bersumber binatang*. Vol 5 (1): 35-42.
- Shah, J. dan A. Shahidullah. 2018. *Ascaris lumbricoides*: a startling discovery during screening colonoscopy. *Case Reports in Gastroenterology*. 12(2):224–229.
- Tambunan, Y.R., 2019. Hubungan Higiene Personal dengan infeksi Parasit Usus Pada Siswa SDN 060889, SDN 060894, dan SDN 060831 Medan. Universitas Sumatera Utara, Medan.
- WHO. Maret 2019. Soil Transmitted helminth infections. <https://www.who.int/news-room/fact-sheets/detail/soil-transmitted-helminth-infections>
- Yuliana, E. (2017). Analisis Pengetahuan Siswa Tentang Makanan yang Sehat dan Bergizi Terhadap Pemilihan Jajanan di Sekolah. Diakses dari [http://repository.ump.ac.id/4114/3/Erlin%20Yuliana\\_BAB%20II.pdf](http://repository.ump.ac.id/4114/3/Erlin%20Yuliana_BAB%20II.pdf)