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Original article

Maternal knowledge and practices regarding amoebiasis in Kut City, Middle Iraq

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Abstract

Amoebiasis is a real public health problem and a major public health threat in many regions, particularly in developing countries. The present study was conducted to assess mothers' levels of knowledge about this parasitosis. A cross-sectional study was carried out on mothers whose children were suffering from amoebiasis and who consulted on an ongoing basis at seven basic healthcare centers in the city of Kut during the period from June 1, 2022, to September 31, 2022. The results show that the average age of the mothers was 24.8 years (standard deviation = 6.46) and that the 20–29 age range presented the highest percentage (73.3%). In terms of level of education, a higher percentage of mothers had an average level of schooling (39.2%). More than half of the mothers were employed; 39.2% of them were in the public sector and 21.7% in the private sector. The results showed that 65.8% and 72.5% of mothers expressed low knowledge (61.25; SD = 11.43) and low practice (30.68; SD = 9.300), respectively. Levels of knowledge and practice were unsatisfactory among mothers of children with amebiasis. This study highlights the importance of raising mothers' awareness of amoebiasis. Efforts should be made to improve knowledge and provide the necessary support to ensure better diagnostic and therapeutic management of children with amoebiasis.

Keywords: Amoebiasis, prevention, foodborne diseases, childhood diarrhea

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1. Introduction

The city of Kut is the center of the Wasit governorate (Iraq). This governorate, which has a dry desert environment with summer temperatures well in excess of 40 °C, is centered on the town of Kut. In winter, rainfall is scarce but abundant. The Tigris River, which flows through the provinces, is the governorate's main source of water [1]. Therefore, malnutrition, water- and food-borne infections, respiratory disorders, and heat stress are frequent, and this is linked above all to climate change [2]. Amoebiasis remains a real public health problem in developing countries and a real threat to health in these regions, where poverty and economic difficulties are still present [3]. Amoebiasis is one of the three most common parasitic diseases in the world, after malaria and bilharzia, and affects more than 50 thousand people worldwide, with 100,000 cases of death per year [4]. Amoebiasis occurs due to the ingestion of contaminated water and food by a parasitic pathogen called Entamoeba histolytica [5].

The most likely sources of E. histolytica infection in Iraq are human sewage contamination of different drinking water sources, which happens when untreated sewage is dumped directly into rivers or when sewage pipes or septic tanks leak, contaminating groundwater and drinking water networks.

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The percentage of amoebiasis-contaminated tap water and sewage in Baghdad, the capital of Iraq, was 10% and 30%, respectively. The high incidence of amoebiasis (17.8%) reported by village residents [6, 7]. Iraq now has a 20.6% recorded incidence of E. histolytica/dispar [8]. An amoebic colitis, an amoebic dysentery, and an amoebic liver abscess can all result from an E. histolytica infection [9]. Regardless of the setting or resources they have access to, mothers everywhere play a crucial role in feeding and caring for their children. This includes recognizing disease symptoms and giving the child the right amount and kind of liquid feed, all of which are essential for child survival [10]. According to several studies, very few mothers are aware of the right diet, causes, symptoms, management, and preventative techniques for childhood diarrhea [11]. This study aimed to assess mothers' knowledge and practices concerning amoebiasis.

2. Material and methods

Study design and period: A cross-sectional study was conducted on mothers whose children were suffering from amoebiasis and attending primary health care centers in Kut City from June 1st, 2022, until September 31st, 2022.

Study setting and sampling: We used a software package developed by the World Health Organization (WHO) to estimate the sample size for health studies.

To calculate the sample size for this study, we assumed that 55% of mothers of children with amoebiasis are appropriately informed (p = 0.5), with an acceptable degree of imprecision of 7% (D = 0.07). Consequently, 120 mothers were included in the study. Of the 29 primary health care centers in Kut City, the study was carried out in seven, selected by the systemic random sampling method. The study used convenient sampling techniques and included 120 mothers aged between 20 and 40 years.

Data collection: Mothers were sent a questionnaire designed to assess their knowledge and practices regarding amoebiasis. The questionnaire consisted of three parts. The first part concerned demographic characteristics. The second part concerns their knowledge and contains 50 questions covering five topics (amoebiasis, symptoms, mode of contamination, risk factors, course of the disease, diagnostic methods, and prevention). The third part included 20 questions on mothers' practices. A three-point Likert scale was used to classify all questions as yes or no, uncertain always, occasionally, or never for practice. The calculation of the cut-off point and the mean score were used to assess the total level of knowledge. The correct answer received a score of 2, while the incorrect answer received a score of 1. The scores for each item were added together, and the total was divided into three levels. The result is an average score for each part, which is [poor=20-33.33, moderate=33.34-46.66, good=46.67-60] for practices and [low=50-66.66, moderate=66.67-83.33, high=83.34-100].

Eligibility criteria: Mothers who volunteered to participate in the study and who have lived in Kut city for at least six months, despite having varying levels of education. Individuals taking part in the pilot study Moreover, mothers who scored higher than 85⁄100 on the pretest are excluded from the study sample.

Statistical analysis: Data analysis was carried out using SPSS (version 26) and Excel 2013. Descriptive data were presented as frequencies and percentages. For comparisons, the T-test and ANOVA were used. The significance level was set at 0.05.

3. Results

The results in Table 1 show the characteristics of our study population, with a mean age of 24.8 years (SD=6.46). The age range of 20–29 years recorded the highest percentage (73.3%). In terms of level of education, a higher percentage of mothers had an average level of schooling (39.2%). Mothers were employed in the public sector (39.2%) and in the private sector (21.7%). In terms of socio-economic status, the majority of mothers had a moderate socio-economic level (73.3%). Moreover, 67.5% of mothers live in urban areas. With regard to the number of family members, 65.8% of mothers have fewer than five members at home.

Table 2 shows the overall response of the mothers. The results demonstrated that 65.8% and 72.5% of mothers expressed poor knowledge (61.25; SD=11.43) and poor practices (30.68; SD=9.300), respectively.

Table 1. Mothers' Socio-Demographic Characteristics.

Variables	Classification	n.	%
Age /years	>20	10	8.3
	20-29	88	73.3
	30-39	12	10.0
	≤ 40	10	8.3
	24.8 ± 6.46		
Education level	Read and write	14	11.7
	Elementary school	16	13.3
	Middle school	47	39.2
	preparatory	24	20.0
	College	19	15.8
Occupation	Government employ	47	39.2
	Private employ	26	21.7
	Students	10	8.3
	Housewife	37	30.8
Economic	Poor	20	16.7
	Moderate	88	73.3
	High	12	10.0
Residents	Urban	81	67.5
	Rural	39	32.5
Family size	<5	79	65.8
	≥5	41	34.2

Table 2. Overall Mother's Knowledge and Practices.

Variables	Rating	n.	%	M (±SD)
Knowledge level	Poor (50-66.66)	79	65.8	61.25±11.43
	Moderate (66.67-83.33)	34	28.3	
	Good (83.34-100)	7	5.8	
Practices	Poor (20-33.33)	87	72.5	30.68±9.30
	Moderate (33.34-46.66)	25	20.8	
	Good (46.67-60)	8	6.7	

SD= Standard Deviation

Table 3 shows that there were significant statistical differences in knowledge between mothers concerning their education level (F=14.82; p 0.00). For other demographic characteristics, no statistical associations were found.

In Table 4, the current results showed that there were statistically significant differences in practices between mothers concerning their education level (F=4.10; p=0.00), economic status (F=1.40; p=0.05), and residence (F=2.32; p=0.03), while for other demographic items, no statistical association was found.

4. Discussion

Several studies have investigated the importance of education and awareness-raising among mothers whose children are infected with amoebiasis.

Table 3. Statistical differences in mothers' knowledge with regard to their socio-demographic status

Knowledge	Variance Source	Sum of Squares	d.f	Mean Square	F-statistic	Sig.
Age	Between Groups	0.06	3	0.02	0.38	0.76
	Within Groups	6.16	116	0.05		
	Total	6.22	119			
Education	Between Groups	2.11	4	0.53	14.82	0.00
	Within Groups	4.10	115	0.03		
	Total	6.22	119			
Occupation	Between Groups	0.11	3	0.04	0.73	0.53
	Within Groups	6.10	116	0.05		
	Total	6.22	119			
Economic status	Between Groups	0.01	2	0.00	0.11	0.89
	Within Groups	6.21	117	0.05		
	Total	6.22	119			
Residence	Between Groups	0.01	1	0.02	0.35	0.55
	Within Groups	6.20	118	0.05		
	Total	6.22	119			
Family size	Between Groups	0.00	1	0.00	0.07	0.79
	Within Groups	6.21	118	0.05		
	Total	6.22	119			

d.f: Degree of freedom Sig: Statistical significant

Table 4. Statistical differences in mother's practices concerning their socio-demographic status.

Practices	Variance Source	Sum of Squares	d.f	Mean Square	F-statistic	Sig.
Age	Between Groups	0.27	3	0.09	1.42	0.14
	Within Groups	25.46	116	0.22		
	Total	25.73	119			
Education	Between Groups	3.21	4	0.80	4.10	0.00
	Within Groups	22.52	115	0.19		
	Total	25.73	119			
Occupation	Between Groups	0.11	3	0.03	0.16	0.92
	Within Groups	25.62	116	0.22		
	Total	25.73	119			
Economic status	Between Groups	0.60	2	0.30	1.40	0.05
	Within Groups	25.13	117	0.21		
	Total	25.73	119			
Residence	Between Groups	0.49	1	0.49	2.32	0.03
	Within Groups	25.23	118	0.21		
	Total	25.73	119			
Family size	Between Groups	0.25	1	0.25	1.16	0.28
	Within Groups	25.48	118	0.21		
	Total	25.73	119			

d.f: Degree of freedom Sig: Statistical significant

Understanding mothers' level of knowledge about this infection is crucial to implementing effective prevention and control strategies. The average age of the mothers was 24.8 years (SD = 6.46), with the 20–29 age group recorded as having the highest percentage (73.3%), with more than half of the women working in the public or private sector. This result is in agreement with those reported by Bogale et al. [12]. The present results reveal that 90% of mothers belong to a poor to average socioeconomic class. This result is consistent with that of Narayana et al. in 2017 [13]. According to family size, 65.8% of mothers have fewer than five members at home, which is also consistent with the findings of Shahrul et al.in 2012 and Al-Yousof et al. in 2022 [14, 15].

This discussion examines the implications of a study that revealed more than half (65.8%) of mothers expressed poor knowledge about amoebiasis. This result comes in line with many studies like Mumtaz et al. in 2014, Abdulla et al. in Yemen in 2021, Saadallah et al. in 2021 in Duhok City, Bhatti et al. in Pakistan in 2019, and Ghasemi et al. in 2013 in Kashan, Iran. [16-20]. However, our results are in discord with the one conducted in Iraq by Mohammed et al. (2018), which showed that mothers had good knowledge in cases of diarrhea in their child. This discordance can be explained by two reasons: the first reason is that the study focuses on symptom management practices, and the second reason is that the majority of mothers have a good level of education (baccalaureate) [21].

This lack of knowledge covers various aspects, such as modes of transmission, symptoms, prevention measures, and modalities of treatment. Our results show the limits of this knowledge, which can have significant consequences for collective and individual health. The high proportion of mothers lacking basic knowledge of amoebiasis has implications for disease prevention. Firstly, greater susceptibility to infection may result from a lack of knowledge about modes of transmission. Mothers who are unaware that amoebiasis is a parasitosis linked to dirty hands and a lack of hygiene rules regarding food and water sources can contribute to the spread of the disease within their family and community. In addition, a limited understanding of symptoms can delay diagnostic and therapeutic management, which can cause serious health complications.

The study findings also highlight the potential impact on treatment outcomes. Mothers with poor knowledge of amoebiasis may not recognize the symptoms in their children, leading to delayed medical intervention. This delay may result in worsened health conditions, increased healthcare costs, and prolonged suffering. Additionally, inadequate knowledge about treatment options may lead to inappropriate self-medication practices or reliance on traditional remedies, which can be ineffective or even harmful.

The prevalence of poor knowledge among mothers regarding amoebiasis can have broader socioeconomic implications. Amoebiasis can significantly affect a person's ability to work, attend school, and carry out daily activities. Therefore, the lack of awareness and understanding among mothers may indirectly impact the overall productivity and economic well-being of the community. Furthermore, the financial burden associated with treating advanced cases of amebiasis falls not only on the affected families but also on the healthcare system, exacerbating existing resource constraints.

The results of this study revealed that a significant proportion of mothers, specifically 72.5%, exhibited poor practices when it came to dealing with amoebiasis. This comes in agreement with the results of Workie et al. in Ethiopia in 2016, Brown et al. in 2017, and Hayam et al. in 2018 [22–24]. The findings indicate a concerning lack of knowledge or appropriate actions taken by mothers to prevent or manage this health issue. These results raise important questions about the factors contributing to the poor practices observed among the mothers. Possible factors could include a lack of awareness about amoebiasis, inadequate access to healthcare facilities, limited education on preventative measures, or cultural beliefs and practices that may hinder the effective management of the disease.

The findings of the study revealed that there were statistically significant differences in the knowledge of mothers concerning amoebiasis based on their education level. This indicates that the educational background of mothers played a crucial role in their understanding and awareness of amoebiasis. This finding was supported by Wiwi et al. in 2019 [25]. Also, statistically significant differences concerned their education level ($p = 0.004$), economic status ($p = 0.05$), and place of residence ($p = 0.03$). These findings indicate that these factors played a significant role in shaping the practices of mothers when it comes to amoebiasis. These results are supported by the results of Al-Fetori et al. (2022) in Libya [26].

Firstly, the education level of mothers showed a statistically significant difference in their practices regarding amoebiasis ($p = 0.004$). This implies that mothers with different levels of education may adopt distinct practices when it comes to preventing and managing amoebiasis in their households. More educated mothers may have better access to information and resources, enabling them to implement more effective preventive measures and treatment strategies. On the other hand, mothers with lower levels of education may face barriers such as limited awareness, inadequate knowledge, or a lack of resources, which can affect their practices regarding amoebiasis.

Secondly, the economic status of mothers demonstrated a near-statistically significant difference in their practices concerning amoebiasis ($p=0.05$). The current finding agrees with that of E. Salem et al. in Libya in 2017 [27]. This suggests that economic factors may influence the practices of mothers in preventing and managing amoebiasis. Mothers with higher economic status may have greater access to sanitation facilities, clean water sources, and healthcare services, which can contribute to better practices in combating amoebiasis. Conversely, mothers with lower economic status may face challenges in accessing these resources, leading to suboptimal practices in preventing and managing the disease.

Thirdly, the place of residence of mothers exhibited a statistically significant difference in their practices regarding amoebiasis ($p = 0.03$). This comes in agreement with Umuhoza et al. in 2021 in Rwanda [28]. This implies that the location or environment in which mothers live can impact their practices concerning amoebiasis. Factors such as geographical location, urban or rural settings, and access to sanitation infrastructure can influence the practices of mothers. Mothers residing in areas with better infrastructure and healthcare facilities may exhibit more favorable practices in preventing and managing amoebiasis compared to those in underprivileged or remote areas.

5. Conclusion

In conclusion, the level of knowledge of amoebiasis is not satisfactory among mothers of children with this disease. The results of our study also show that there is a statistical association between mothers' level of education, socio-economic status, place of residence, and their level of knowledge of amoebiasis.

The study findings highlight the need for immediate action to improve the practices of mothers regarding amoebiasis. Efforts should be made to enhance knowledge, increase awareness, and provide the necessary support to ensure better health outcomes for both mothers and their children. By addressing this knowledge gap, healthcare professionals and policymakers can enhance disease prevention efforts, ensure timely diagnosis and treatment, and improve overall public health outcomes. Empowering mothers with accurate information about amoebiasis will not only protect their own families but also contribute to the broader goal of reducing the burden of this preventable and treatable disease on society.

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Ethical considerations

A written agreement before the study's execution was taken from the Ministry of Health, Wasit health office, the University of Sousse, Faculty of Medicine of Sousse, and the study participants.

Conflict of Interest

There are no conflicts of interest.

Disclaimer

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