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Original Article

Knowledge and attitude regarding toxoplasmosis among pregnant women attending Banadir hospital antenatal clinic

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Abstract

Background Toxoplasmosis is a common condition that occurs worldwide in most birds and warm-blooded mammals, including humans. In most cases, toxoplasmosis does not have any symptoms. This is because a healthy immune system is usually able to defend the body from the parasite and prevent it from causing illness.

Objectives The objective of this study was to assess the knowledge and attitude toxoplasmosis among pregnant woman attending at ANC Benadir Hospital, Mogadishu, Somalia.

Methodology A hospital-based cross-sectional study was conducted among pregnant women attending at Banadir hospital ANC with sample size of 352 and purposive non-purposive sampling technique was used, structured questionnaire was used for data collection and data was analyzed by using SPSS (20).

Result The Study was found that the majority of women 51.7% had average level of knowledge regarding toxoplasmosis, while majority of studied 79.5% had positive attitude and 20.5 negative attitude. A moderate positive correlation was found between knowledge score and attitude score of pregnant women.

Conclusion Based on the results of this study, pregnant women had average knowledge toward toxoplasmosis. Study recommended to reduce complication of toxoplasmosis to the pregnant women pregnant women should provide an educational program about toxoplasmosis infection and measures of prevention. Nursing and midwifes are two health personnel's working in the community should be equipped with adequate knowledge and skill to educate the women on breast self-examination. The study suggests further study about practice toward breast self-examination.

Keywords: Knowledge, Attitude, Pregnancy, Toxoplasmosis,

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Introduction

Toxoplasma gondii is an intracellular opportunistic parasite that causes toxoplasmosis.[1] It has a wide range of mammalian hosts and is transmitted by ingestion of food contaminated with oocysts from an infected cat, ingestion of undercooked meat containing cysts, transplacental transmission and gardening without gloves or through contact with soil. This parasitic infection is a neglected disease out of five parasitic infections which have been classified as a concern to public health by Center for disease control (CDC) or a member of TORCH group infectious agents; consisting of Rubella, Cytomegalovirus, Herpes viruses and Treponema pallidum, which causes infection of the fetus transplacentally with congenital abnormalities, and even fetal loss both in humans and animals.[2]. Although most infected patients are asymptomatic, *T. gondii* infections have been found to be associated with fetal death, malformation or abortion in pregnant women and reproductive loss in animals.[3].

Toxoplasmosis is a curable but potentially fatal disease and its long-term complications following congenital infection and its capacity to cause life-threatening opportunistic infections in immunosuppressed conditions is a major problem in most communities with a high prevalence of T. gondii infection (4)

This parasite has a wide host range, infecting most warm-blooded species but the life cycle is completed only in felis (2) humans usually become infected by ingesting of raw or undercooked meat containing tissue cysts, drinking of unpasteurized milk, ingestion of vegetables contaminated with soil, water and food with sporulated oocysts shed-cat faece.[5]. The infection in humans can be acquired by three primary routes: [1] ingestion of tissue cysts in raw or undercooked infected meat; [2] ingestion of food or water contaminated with sporulated oocysts shed in the feces of an infected cat; and [3] congenitally, across the placenta from the mother to the fetus when she is infected through one of the previous two routes during pregnancy.[6]

In a review by Pappas *et al*., [7] it was found that globally, the seropositivity of *T. gondii* rates range from <10% to >90%. According to study, there is a high seropositivity rate of *T. gondii* infection among pregnant women in African and Arab countries, with African countries having a higher seropositivity (11%–83.6%) than Arab countries (7%–67.5%).[8].

The overall prevalence of seropositive toxoplasmosis among pregnant women in Africa was 51.01% [9], 61.4% in Saudi [10], 81.8% in Ethiopia [11] and 51.79%[12]. Therefore, this study aimed to assess the knowledge and attitude regarding toxoplasmosis among pregnant women attending at Banadir hospital antenatal clinic (ANC).

Methodology

A hospital based cross-sectional study design was conducted among pregnant women attended at

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ANC Benadir hospital from December 2020 to May 2021

Sample size was calculated using single proportional formula with the estimated seroprevalence of T. gondii among pregnant women (35.5 %) from a study conducted in Ethiopia[13]; the 95 percent confidence level is 0.05 (the level of significance), and the value of Z at / 2 is 1.96; and d is the confidence interval 5%. Hence, the ultimate sample size was 352 pregnant women. Participants were chosen by using a purposive non-probability sampling technique. A structured questionnaire was utilized as a tool for data collection, and the questions were designed to assess the knowledge and attitude regarding toxoplasmosis among pregnant women. It comprises three sections: Section A contains items pertaining to sociodemographic variables, Section B contains items pertaining to toxoplasmosis knowledge, and Section C contains questions pertaining to toxoplasmosis attitude.

Data was entered and analyzed using SPSS version (20.0). Descriptive statistics were used to calculate the demographic data of the study participants. Furthermore, the correlation test was used, p-value < 0.05 was considered as statistically significant.

The Jamhuriya University of Science and Technology's ethical committee granted approval for this study. The subjects were informed that they could withdraw from the study at any time, that their information would be kept anonymous, and that the gathered information would only be used for scientific purposes. Moreover, each participant's verbal consent was obtained when the study's aims were explained to participants.

Results

Sociodemographic Characteristics of the Study Participants

A total of 352 completed questionnaire were included in the final analysis with a response rate of 100%. Of them 112 (31.8%), were aged 25-34 followed by 45-49 101(28.7%). The majority of the respondents were married 198(56.3%), with Quran 227(64.5%). The majority were house wife 235(66.8%).

Table 1: Socio-demographic characteristics of pregnant women

Variables	Category	N #	(%)
Age	15-24	75	21.3
	25-34	**112**	**31.8**
	35-44	64	18.2
	45-49	101	28.7
Marital status	**Married**	**198**	**56.3**
	Divorced	52	14.8
	Widowed	102	29.0
Education	**Quran**	**227**	**64.5**
	Primary	74	21.0
	Secondary	34	9.7
	University	17	4.8
Occupation	Work	117	33.2
	House wife	**235**	**66.8**
	Total	**352**	**100.0**

Knowledge about Toxoplasmosis

Table:2 shows that the majority of participants (61.9 %) reported that they knew about toxoplasmosis. Also, the table reveals that the minority (75 % and 63.4%) of Participants did not know the causative agent and the main host of toxoplasmosis respectively. The result of the study highlighted that majority of participants (41.2%, 17.3 % and 13.1%) answered that toxoplasmosis can be transmitted through direct contact with infected cats, eating or drinking contaminated by parasite and from infected mother to fetus, respectively. The table illustrates that majority of participants (40.3%) underlined that pregnant woman are at risk of developing toxoplasmosis.

Table 2: Participants knowledge towards toxoplasmosis

Knowledge items	N	%
Do you know toxoplasmosis		
Yes	218	61.9
No	134	38.1
Name of toxoplasmosis causative agent		
I don't know	264	75
Toxoplasma Gondi parasite	55	15.6
Toxoplasma Gondi virus	25	7.1
Toxoplasma Gondi bacteria	8	2.3
the main host for toxoplasmosis		
I don't know	223	63.4
The cats	62	17.6
Human being	67	19
Method of transmission		
Direct contact with infected cats	145	41.2
Eating or drinking contaminated by parasite	61	17.3
From infected mother to fetus	46	13.1
From mother to infant through breast feeding	23	6.5
Eating infected uncooked well meat	21	6
Touch the nose or mouth after washing infected	15	4.3
Exposure to patient's cough sneezing	4	1.1
All above	37	10.5
Symptoms of toxoplasmosis		
Symptoms like common cold	172	48.9
Inflammation of lymph nodes	62	17.6
All the above	118	33.5
High risk group of toxoplasmosis		
I don't know	172	48.9
Women during pregnancy	142	40.3
People who suffer from a lack of the body's immunity	24	6.8
Previous infection and formation of anti-bodies	14	4
Effect of toxoplasmosis on fetus		
Congenital anomalies both eyes and brain	129	36.6
Habitual abortion	119	33.8
Intra uterine fetal death	40	11.4
New born death immediately after delivery	28	8
Nothing from the above	36	10.2

Knowledge level among participants

As the table 3 highlighted that the majority of participants, 182 (51.7%), had good knowledge toward toxoplasmosis, nearly half of the participants had poor knowledge of toxoplasmosis, 170 (48.3%).

Table3: participants level of knowledge towords toxoplasmosis

Knowledge level	N#	(%)
Average	182	51.7
Poor	170	48.3
Total	**352**	**100**

Attitude towards Toxoplasmosis

According to the table 3, the majority of participants (83%) agreed that toxoplasmosis can be found in dried meat. On the other hand, the majority of participants (58%) stated they "do not avoid eating frozen meat." Furthermore, 66% of participants said that cooking at a high temperature is necessary. According to 84.9% of respondents believed that touching and playing with cats does not cause toxoplasmosis.

Attitude level towards Toxoplasmosis

The table 4 reveals that most participants had a positive attitude toward toxoplasmosis, 79.5%, and the remaining participants had a negative attitude pertaining to toxoplasmosis, 20.5%.

Table 3: Participants' Attitudes Toward toxoplasmosis

Attitude level	n	%
Positive	280	79.5
Negative	72	20.5
Total	**352**	**100**

Correlation between participant's knowledge and attitude towards toxoplasmosis

Correlation of knowledge and attitudes toward toxoplasmosis among pregnant women attending at ANC Benadir hospital was found to be moderate positive and statistically significant (r= 0.36, p<0.01). this shows that increase in knowledge would lead to positive attitude.

Table 5: Correlation analysis

	Knowledge	p-Value	n
Attitude	0.36	0.01	352

Discussion

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This is the first study of its kind conducted in Mogadishu to assess the knowledge and attitude toxoplasmosis among pregnant woman attending at ANC Benadir Hospital, Mogadishu, Somalia.

The majority respondents 21.3% of the respondents were between the ages 15-24, years the respondents The majority of the respondents 56.3% of respondents were married 66.8% of the respondents were house wife, 33.2% of the respondents' others work, 64.5% of them were qur'anic.

The finding of the study showed that majority of the participants heard about toxoplasmosis 218(61.9%), this study is in line with other study conducted in Egypt(14). The Study was found the majority 51.7%of women had average level of knowledge while 48.3% of women had poor knowledge regarding toxoplasmosis, the results also show that the majority of studied 79.5% had positive attitude while 20.5 had negative attitude. A significant positive correlation was found between women's knowledge level and attitude, indicating that women with moderate knowledge had moderate positive attitudes. This finding is consistent with study conducted by (14)

Conclusion

Women in Banadir ANC clinics had average knowledge about toxoplasmosis infection during pregnancy many women were properly avoiding risk behaviors, without realizing what they are avoiding. In the current study the researchers concluded that there are significant differences between women's knowledge and their socio-demographic characteristics except their marital status. On the other hand, they had a positive attitude regarding toxoplasmosis.

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