ORIGINAL ARTICLE

Knowledge and Attitude of Rheumatic Heart Disease among Nursing Mothers in Nigeria

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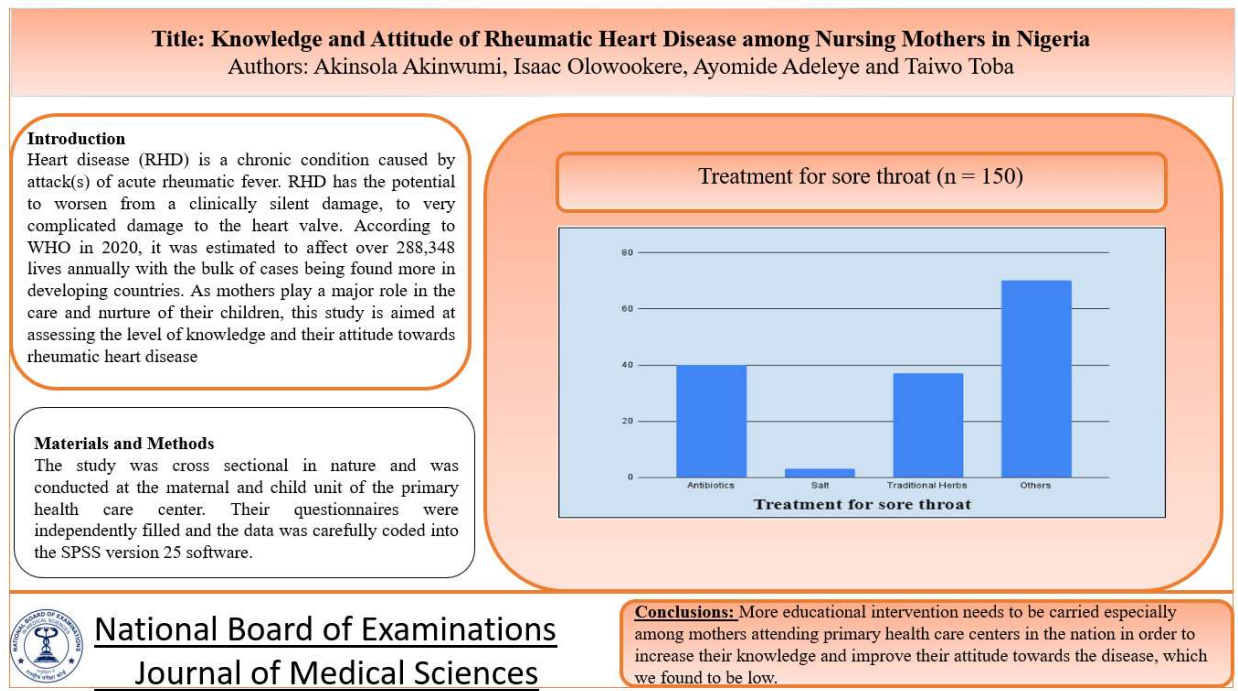
Abstract

Introduction: Rheumatic heart disease (RHD) is a chronic condition caused by an attack of acute rheumatic fever. It has the potential to worsen, from clinically silent damage to very complicated damage to the heart valve. According to the WHO, in 2020, it was estimated to affect over 288,348 lives annually, with the bulk of cases being found in developing countries. As mothers play a major role in the care and nurture of their children, this study is aimed at assessing their level of knowledge and their attitude towards rheumatic heart disease. **Method:** The study was cross-sectional in nature and was conducted at the maternal and child units of a primary health care center. The questionnaires were independently filled out by the respondents, and the data was carefully coded into the SPSS version 25 software. **Results:** In this study, a total of 150 nursing mothers were reached. In terms of age distribution, the age group 26–30 years old (38%) made up most of the population, and 92% of the total population were married. In terms of education, 50.7% had completed their secondary school education. Overall, the assessment of the level of knowledge of the participants was 86%, 9.3%, and 4.7%, categorized as poor, fair, and good, respectively. **Conclusion:** More educational intervention needs to be carried out, especially among mothers attending primary health care centers in the nation, in order to increase their knowledge and improve their attitude towards the disease, which we found to be low.

Keywords: Rheumatic Heart Disease, Nursing Mothers, Knowledge, Attitude, Nigeria

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Graphical Abstract

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Introduction
Heart disease (RHD) is a chronic condition caused by attack(s) of acute rheumatic fever. RHD has the potential to worsen from a clinically silent damage, to very complicated damage to the heart valve. According to WHO in 2020, it was estimated to affect over 288,348 lives annually with the bulk of cases being found more in developing countries. As mothers play a major role in the care and nurture of their children, this study is aimed at assessing the level of knowledge and their attitude towards rheumatic heart disease

Materials and Methods
The study was cross sectional in nature and was conducted at the maternal and child unit of the primary health care center. Their questionnaires were independently filled and the data was carefully coded into the SPSS version 25 software.

Treatment for sore throat (n = 150)

Treatment for sore throat

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Conclusions: More educational intervention needs to be carried especially among mothers attending primary health care centers in the nation in order to increase their knowledge and improve their attitude towards the disease, which we found to be low.

Introduction

Rheumatic heart disease (RHD) is a chronic condition caused by one or more attacks of acute rheumatic fever [1]. RHD has the potential to worsen from clinically silent damage to very complicated damage to the heart valve, with the mitral valve being the most commonly damaged valve, followed by the aortic and tricuspid valves accordingly. Without proper care and attention, heart failure may occur. Rheumatic fever (RF), the cause of RHD, develops due to an abnormal autoimmune response to group A streptococcus (GAS) bacterial infection that causes sore throat [3,4]. Acute rheumatic fever is mostly common among children 5–15 years of age; however, on rare occasions, it also affects adults 30 years of age and older [4]. Rheumatic heart disease, according to the WHO in 2020, is estimated to affect over 288,348 lives annually. It has also been estimated that there are 282,000 new cases of RHD each year, with the bulk of these cases being found in developing countries. A study by Carapetis et al. [5] revealed that as much as 80% of the total cases of RHD were from developing countries. At present, there is no cure for rheumatic heart disease, and the cause of its precursor disease, group A streptococci, is easily transmitted like other infections of the respiratory tract [6], especially in crowded spaces. If this infection is poorly treated or not treated at all, between two and three weeks, it can lead to the development of rheumatic fever, the precursor disease to RHD [7].

However, there are various strategies used to prevent and manage the development of RF. These strategies include primordial prevention, which involves the provision of better housing structures and management to prevent overcrowding [8].

Primary prevention, on the other hand, deals with the rapid identification and treatment of group A streptococcus infections. Intramuscular benzathine penicillin G is widely used in primary prevention [9]. Secondary prevention, also known as long-term management, involves the recurrent administration of antimicrobials to prevent the recurrence of acute rheumatic fever [8]. This administration occurs at an interval of three to four weeks. Various studies have been developed to access the knowledge of RHD and RF. One of these was carried out by Nkoke et al. in Cameroon, which showed that over 70% of its participants did not know the cause of sore throats or what its complications could lead to. In the same population, over 80% did not know what RHD was [10]. In Saudi Arabia, a study was also carried out among parents to assess their knowledge of RHD and RF. This study showed that only about 40% of parents had good knowledge about RHD [10]. As mothers play a major role in the care and nurture of their children, this study is aimed at assessing the level of knowledge and their attitude towards rheumatic heart disease among nursing mothers attending the primary health center in Osun State, Nigeria.

To the best of our knowledge, no study of such has been carried out, and the paper aims at filling this gap.

Methodology
Study design and setting
The study was cross-sectional in nature and was conducted at the maternal and child sections of the primary health care center in Ilesha, Osun State, Nigeria. This primary health care center serves as a first point of contact for medical services, especially for pregnant women and nursing mothers within the region, due to its central location.

Participants and data collection
The study was made up of nursing mothers who attended the primary health care center and brought their children for various reasons (immunization, medical checkup, consultation, etc.) and who agreed to participate in the study. Verbal consent was obtained after the objectives and benefits of the study were briefly explained. The participants independently filled out their questionnaire while under observation by the investigator. The investigator provided guidance to those who did not understand the question nor needed help.

The questions were divided into two parts. Part A assessed the socio-demographic information of the nursing mothers, which included their age, level of education, and occupation. Part B was used to evaluate the nursing mother's level of knowledge and attitude toward rheumatic heart disease. Most of the questions were on a three-point categorical scale: yes, no, and don't know.

Sample size
The study was made up of 150 nursing mothers attending the primary health center in Ilesha, Osun State.

Data analysis
The collected data was carefully coded into the SPSS version 25 software. Descriptive and Chi-square analyses were then performed and interpreted accordingly.

In the study, each participant could earn a total of four (4) points based on their knowledge of rheumatic heart disease. Individuals with three to four points were considered to have good knowledge of the disease; those with two were considered to have fair knowledge; and those with one or fewer points were considered to have poor knowledge. For the participants attitude a total of three (3) points were obtainable. The points were grouped as three (3), two (2) and between zero (0) and one (1), corresponding to good, fair and poor attitude respectively.

Results

In this study, a total of 150 nursing mothers were reached. Table 1 shows the sociodemographic characteristics of the group. In terms of age distribution, the age group 26–30 years (38%) made up most of the population; others included 21–25 years (32%), 31–35 years (18.7%), 36–40 years (10%), and 41–45 years (1.3%). 92% of the population were married. In terms of education, 50.7% had completed their secondary school education, 32.7% had completed a diploma, 14.7% had completed university, and only 2% of the population had their education stopped after primary school. It was also discovered that 72.7% worked in the informal sector of the country, 16% in the formal sector, and 11.3% were unemployed. It was also noted that at the time of this study, 44% of the nursing mothers had just one child, the one being nursed.

The assessment of knowledge of rheumatic heart disease is shown in Figure 1 below.

Table 1. Socio-demographic variables of the participants (n = 150)

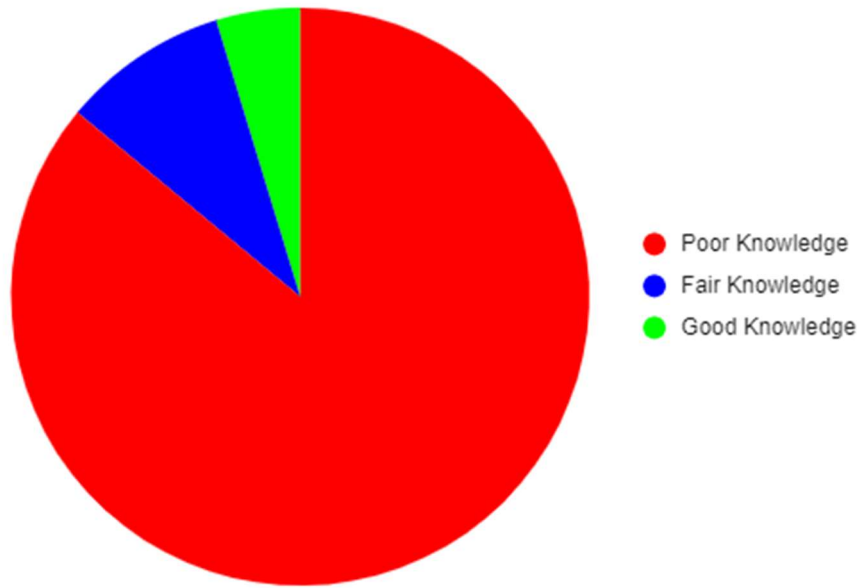| Variable	Category	Frequency	Percentage(%)
Age	21 -25	48	32.0
	26 -30	57	38.0
	31 - 35	28	18.7
	36 - 40	15	10.0
	41 -45	2	1.3
Marital Status	Single	12	8.0
	Married	138	92.0
Education	Primary	3	2.0
	Secondary	76	50.7
	Diploma	49	32.6
	University	22	14.7
Occupation	Government Sector	24	16.0
	Informal Sector	109	72.7
	Unemployed	17	11.3

Figure 1. Overall assessment of the participant's level of knowledge

In this study, 100% of the participants did not know what caused rheumatic heart disease. When asked if it was important to treat streptococcal sore throats, 87.3% of the participants said no, while 12.7% recognized treatment as important and chose yes. It was also noted that 72.7% did not know of any complications that could occur from the poor treatment of streptococcal sore throat. Furthermore, 54% of the participants were unaware of any form of relationship present between streptococcal sore throat and heart disease; 34.7% believed there was no relationship, while 11.3% of the participants in fact believed there was a relationship.

Overall, the assessment of the level of knowledge of the participants was 86%, 9.3%, and 4.7%, categorized as poor, fair, and good, respectively.

Figure 2 below gives a graphical representation of the respondents' attitude towards rheumatic heart disease. We observed that 26.7% preferred using

antibiotics for the treatment of streptococcal sore throat, 2% made use of salt, 24.7% used traditional herbs, and 46.7% made use of other treatment options. Furthermore, it was found that 40%

Of the participants who chose their treatment option based on a prescription from friends, 21.3% got theirs either from doctors or health personnel, while 38.7% self-medicated. When their opinions were sought on the importance of treating streptococcal sore throat with antibiotics, 46.7% of the participants noted that it was; however, 32% disclosed that it was not; however, 21.3% were neutral on this. Based on this, attitude levels were divided into good, fair, and poor, with 16%, 9.3%, and 74.7%, respectively (Fig. 2).

A chi-square analysis test was also carried out in order to better understand the relationship between the various levels of knowledge and the participants sociodemographic characteristics. We found a positive association between age and

knowledge, as participants between the ages of 41 and 45 were significantly associated with a good level of knowledge (c^2 = 41.47; p <0.001). In contrast, no significant association was found among other sociodemographic characteristics (education level, marital status, and occupation) and the levels of knowledge (p > 0.05).

In regard to the sociodemographic characteristics of participants and their attitude, we observed significant relationships between participants' level of education, occupation, and attitude.

Participants who had obtained a university degree were significantly correlated with a fair attitude towards rheumatic heart disease (C^2 = 15.37; p < 0.001).

In addition to this, we observed that those who were employed had significantly poor attitudes towards the disease (C^2 = 9.18; p = 0.002). However, there was no significant relationship between attitude level and other sociodemographic variables such as education level, age, and marital status.
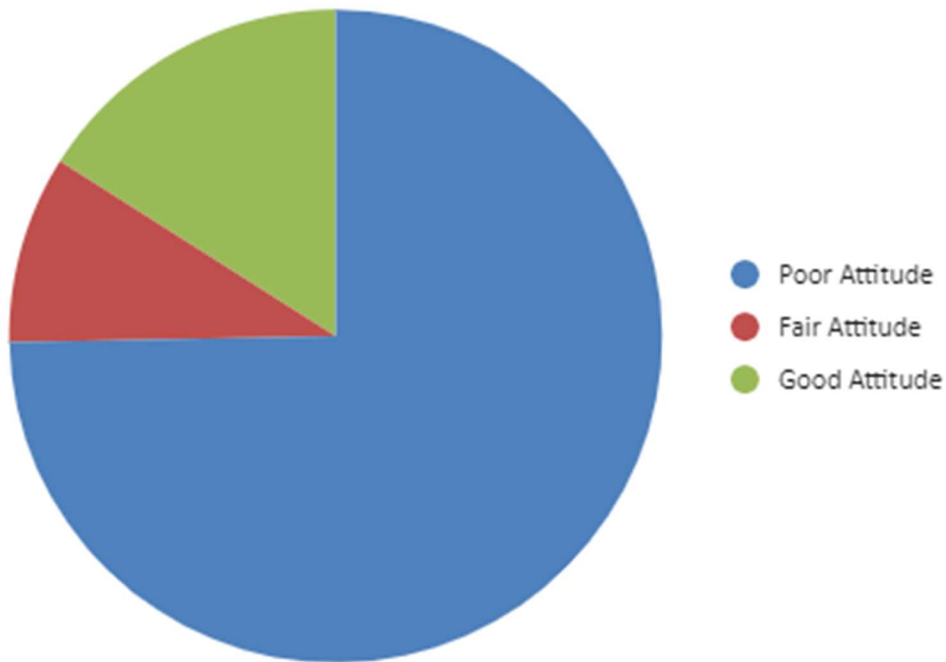

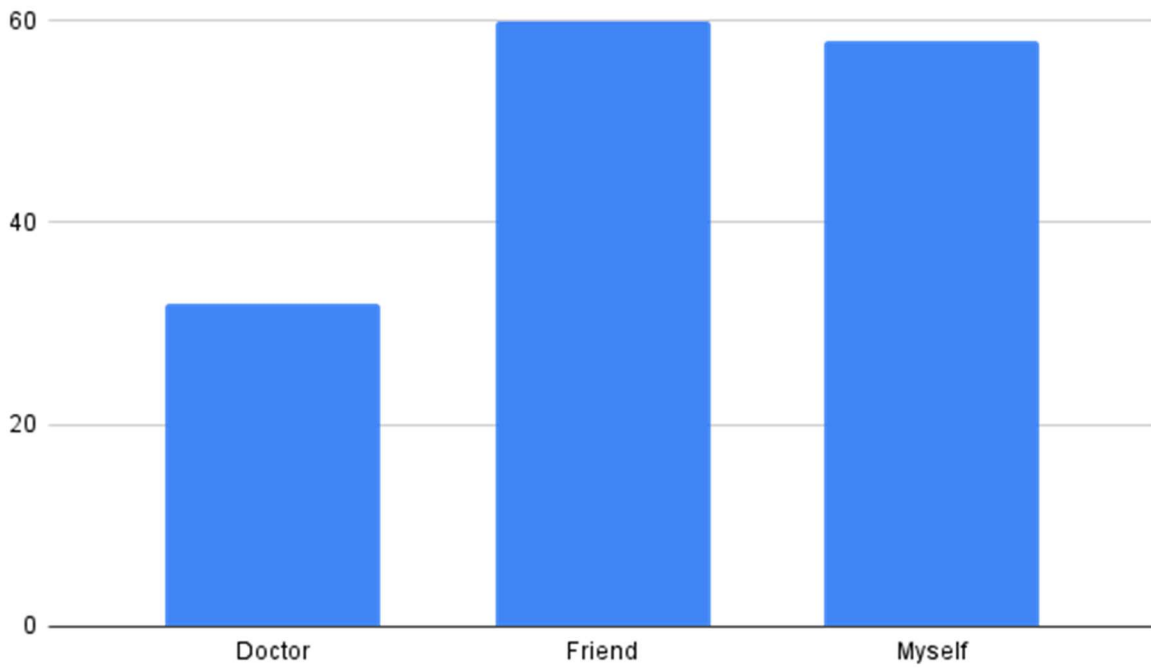Figure 2. Overall assessment of the participant's attitude level

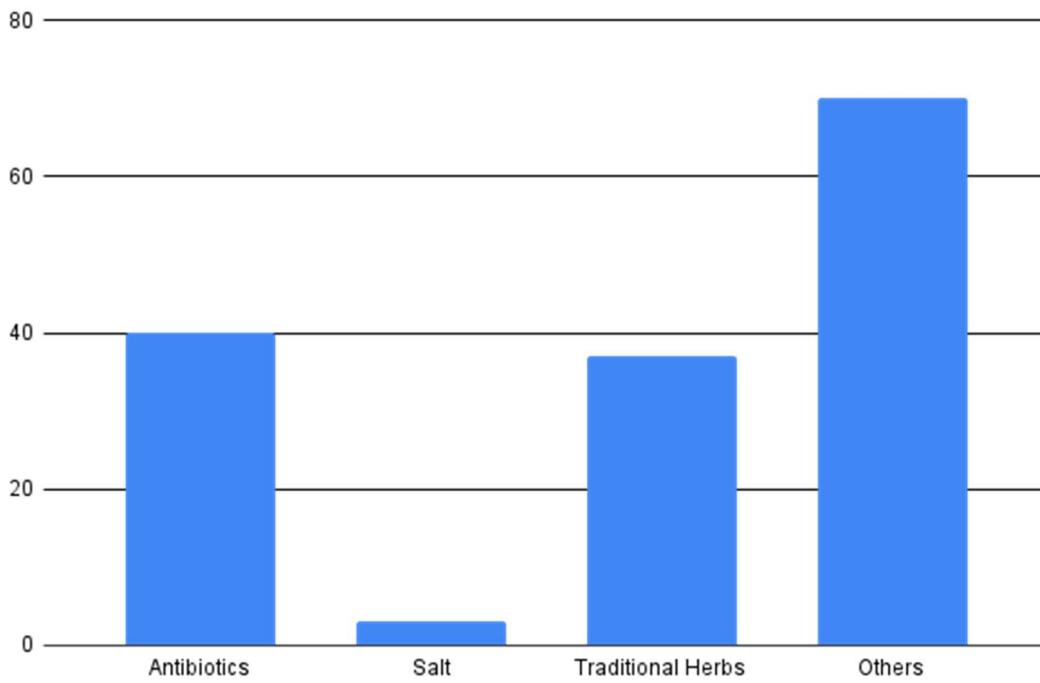Figure 3. Who prescribed the drug used? (n = 150)

Figure 4. Treatment for sore throat (n = 150).

Discussion

Rheumatic heart disease (RHD) is one that can easily be prevented by primary intervention, which involves the use of antibiotics to treat cases of sore throats caused by A streptococcus infection occurs before complications like rheumatic fever, a precursor of rheumatic heart disease, develop. For this to be successful, the public needs to be aware of and have adequate knowledge of rheumatic heart disease. Rheumatic heart disease and fever are more common among children aged 5–15 [4]. It is expected that this age group is still under the care of their parents, especially their mothers; thus, this study was done to assess the knowledge and awareness of rheumatic heart disease among nursing mothers.

The overall knowledge of rheumatic heart disease among nursing mothers in this study was very low, as 86% of the participants had poor knowledge about the disease and only 4.7% possessed good knowledge, while the rest of the participants possessed fair knowledge about the disease. Although our findings are a bit higher, they are similar to the study carried out amongst parents by Almadhi et al., [8], where 80% of the participants had poor knowledge about rheumatic heart disease and 3.6% of the parents had good knowledge. In the study, the poor level of knowledge was attributed to a lack of awareness of the disease and emphasized the importance of raising awareness within the region.

Contradictory to our finding was that by ElTellawy et al. [1], who noted that as much as 40% of its participants possessed good knowledge of rheumatic heart disease. This difference could be due to the increased incidence of cases of rheumatic heart disease in that region, as reported by the authors, who also emphasized the need to create more awareness to combat the rise.

In this study, older participants (≥ 41 years) were found to be significantly associated with good knowledge of the disease. This finding is in tandem with that of other studies, which found that adults ≥ 35 years of age had good knowledge of the disease; however, unlike these studies, ours did not identify any significant association between the participants' level of education, occupation, and knowledge of the disease [8,11].

Two contributing factors to the level of knowledge among the mothers were their knowledge of the cause of rheumatic heart disease and the association between streptococcal sore throat and heart disease. It was observed that none of the participants knew the cause of rheumatic heart disease, and 11.3% believed there was an association between streptococcal sore throat and heart disease. Our findings, however, are in contrast to those conducted in Sokoto, which found about half of its participants unaware of acute rheumatic fever, and over 70% of them knew that there was an association between streptococcal sore throat and heart disease [12]. This disparity could be due to years of practice and attendance at health training, as the study participants were health workers at the primary health center in that city [12].

In our study, participants' attitude level towards rheumatic heart disease was quite low, as more than two-thirds (74.7%) of the participants had a poor attitude. This finding is in contrast to that by Almedhesh [13], who observed an overall positive attitude

level towards the disease among 80% of their participants. A contributing point to participants' attitudes was the importance of treating streptococcal sore throats with antibiotics, to which almost half (46.7%) of the participants in our study affirmed that it was important. This was also similar but slightly higher compared to the assessment by Almedhesh [13] in Saudi Arabia, where 45.2% of the participants agreed to the importance of treatment with antibiotics. Another similarity between our study and that by Almedhesh was in the relationship between sociodemographic characteristics and attitude level. In our study, we found a fair attitude level to be significantly present among participants who had obtained a university degree, while Almedhesh noted that a negative attitude was associated with mothers who had low education. In addition, they also found a negative attitude to be associated with being a new mother and being of a younger age, while ours found it to be associated with participants who were employed. It should be noted, however, that Almedhesh's study made use of binary logistic regression, while our study made use of chi-square in investigating the relationship between sociodemographic characteristics and the attitude level of participants.

Conclusion

Rheumatic heart disease can be prevented easily by the identification and treatment of group A streptococcus infection, which could be presented in the form of sore throats. Since this disease is more common among children 5–15 years of age, expected to be under the care, more educational intervention needs to be carried out, especially among mothers attending primary health care centers in the nation, in order to increase their knowledge and improve their attitude towards the disease, which we found to be low.

Conflict of interest

The authors declare they do not have a conflict of interest.

Funding

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