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Knowledge, Attitude and Practice of Mothers towards Typhoid Fever Disease

Taha N. Sadeq[1] *MSc (Community Medicine),* **Rasha K. Jabar**[2] *BSc (Biology)*

[1]Dept. of Public Health, [2]Dept. of Health Promotion, Al-Kadhimiyia Pediatrics Hospital, Baghdad, Iraq

Abstract

Background Typhoid fever is endemic in Iraq. Hot weather and the frequent interruptions of electricity and water supply during the summer months have resulted in increased incidence. Increased health and disease awareness and improved attitude of residents do indeed reduce the prevalence of typhoid.

Objective To assess the mothers' knowledge, attitude and practice on typhoid fever.

Methods A cross sectional study was conducted at Al-Kadhimiya Pediatrics Hospital. Data collection took place from 10th April 2015 till 20th October 2015. Sample size was (267). Sampling method was based on convenience method. P value <0.05 was considered significant. Statistical analysis was done using SPSS software version 20.

Results Sample size was 267 (N=267). Only 1 (0.4%) of the mothers had low score, 54 (20.2%) of the mothers had average score, 147 (55.1%) of the mothers had good score, 65 (24.3%) of the mothers had very good score. There was a weak, positive correlation between age of mothers in years and overall knowledge, attitude and practice score, a weak, negative correlation between number of children and overall knowledge, attitude and practice score. Also, there was statistically significant association between mothers' educational levels and their knowledge, attitude and practice category. A statistically significant association between mothers' occupational status and their knowledge, attitude and practice category was found.

Conclusion There are wide spread wrong beliefs about typhoid fever in relation to exposure to sunlight.

Keywords Knowledge, attitude, practice, typhoid fever

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List of abbreviation: SPSS: statistical package for social science

Introduction

Typhoid fever is an acute bacterial infection, characterized by constitutional symptoms like prolonged pyrexia, prostration and involvement of spleen and lymph nodes. It does not cause life-long or even sufficiently prolonged immunity. Second attack often occurs. The disease is caused by *Salmonella typhi*. Transmission is by contaminated food, unboiled milk, vegetables or water. Housefly plays a significant role by carrying bacilli from urine or stools of an active sufferer or a carrier to food [(1)].

In many resource, limited countries, where hygiene and sanitation are poor, typhoid fever is endemic and constitutes a major health problem [(2)]. Typhoid fever is endemic in Iraq. Hot weather and the frequent interruptions of electricity and water supply during the summer months have resulted in increased incidence. As a result, numerous interventions were

implemented to prevent and control outbreaks. In 2007, 2008, 2009 and 2010, a total of 36,208, 58,247, 49,113 and 49,139 suspected cases of typhoid fever were reported, respectively [3].

The typhoid fever has negative socio-economic impact to the majority of the patients who require several weeks to recover, and hence is a major public health concern [4]. Incidence of typhoid can be reduced through improved sanitation and hygienic behavior and access to clean water. Increased health and disease awareness and improved attitude of residents do indeed reduce the prevalence of typhoid [4].

This study aimed to assess the mothers' knowledge, attitude and practice on typhoid fever at Al-Kadhimiya Pediatrics Hospital in Baghdad, Iraq.

Methods

A cross sectional study was conducted at Al-Kadhimiya Pediatrics Hospital. The hospital is a (120) bed, secondary center of referral that serves mainly Al-Kadhimiya region and the north parts of Baghdad. Data collection took place from 10th April 2015 till 20th October 2015. Sample size was (267) respondents (mothers) who were accompanying their children either as a consultation visit to the outpatient clinic or staying in the hospital ward as an attendant to their admitted children. Sampling method was based on convenience method.

As long as the accompanying adult agreed to participate, she was included (All included unless refused). Data gathering instrument was done using a questionnaire developed by the researchers based on literatures review. There were 22 questions in all and the questionnaire was administered in Arabic and included sociodemographic variables (4 questions): age of mother in years, number of children, occupational status, educational level. Questions to assess their knowledge level included (10 questions): causative agent of typhoid fever, typhoid fever as a cause for headache, food and water role in transmitting typhoid fever, exposure to sunlight and typhoid fever, contaminated hands transmit typhoid fever, typhoid fever transmission through air droplets, typhoid fever transmission through Kissing from infected person, typhoid fever transmission by shaking hands, subclinical typhoid fever cases and typhoid fever vaccination. Questions regarding mothers' attitude included (4 questions): Knowing the symptoms, typhoid fever will help to see the doctor in time or not, immediate treatment will prevent typhoid fever complications or not, using doctors prescribed medicine is important for the patient to recover from typhoid infection or not, seeking professional medical help immediately in case of typhoid fever infection suspicion. Questions regarding mothers' practice included (4 questions): washing hands during the day, eating food from street food vendors, washing fruits and vegetables with water before eating and heating cold food before consumption.

Overall knowledge, attitude and practice score were ranged from (0-18 score) and categorized as the following: (Less than 9=Low score), (9-11=Average score), (12-14=Good score), (More than or equal 15= Very good score).

Ethical considerations: verbal consent was obtained from all mothers before the questionnaire was administered by personal interview. The questionnaires were anonymized.

Statistical analysis

Data analysis was done through descriptive and inferential statistics. Descriptive statistics were reported as mean, frequencies and percentages. Age of mothers in years was reported as mean and standard deviations, mothers' occupational status was reported as frequency and percentage, mothers' educational level was reported as frequency and percentage. Each mothers' answer was reported as frequency and percentage and then categorized based on their occupational status and educational level.

Inferential statistics were as follows: A Pearson product-moment correlation was used to determine the relationship between age of mothers in years, number of children and their overall knowledge, attitude and practice score. Chi-square test was used to determine association between mothers' educational level and their knowledge, attitude and practice category. P value <0.05 was considered significant. Statistical analysis was done using SPSS software version 20.

Knowledge, attitude and practices of the mothers was treated as dependent (outcome variable) while sociodemographic characteristics were treated as independent variables.

Results

Sample size was 267 (N=267), mean age of mothers in years was (32.31±11.112), mean number of children was (3.68±2.507). As shown in table 1; 235 (88%) of them were unemployed, 101 (37.8%) of them were primary school graduate.

Knowledge answers

215 (80.1%) of the mothers answered correctly the question about the causative agent of typhoid fever, 264 (98.9%) of the mothers answered correctly the question about headache as a sign of typhoid fever, 231 (86.5%) of the mothers answered correctly the question about typhoid fever transmission through food and water, 218 (81.6%) of the mothers answered wrongly the question about sunlight role in typhoid fever, 194(72.7%) of the mothers answered correctly the question about typhoid fever transmission through contaminated hands, 158 (59.2) of the mothers answered correctly the question about typhoid fever transmission through air droplets, 124(46.4%) of the mothers answered wrongly the question about the role of kissing in typhoid fever transmission, 188(70.4%) of the mothers answered correctly the question about typhoid fever transmission through shaking hands, 129(48.3%) of the mothers answered wrongly the question about carrier state of the disease, 163(61%) of the mothers did not knew that there is a vaccine for typhoid bacteria.

Attitude answers

262 (98.1%) of the mothers will see the doctor in time if they Knew the symptoms typhoid fever, 252(94.4%) of the mothers will seek Immediate treatment to prevent typhoid fever complications, 16(6%) of the mothers will not use the doctors prescribed medicine to recover from typhoid infection, 12(4.5%) of the mothers will not seek professional medical help if they suspect of typhoid fever infection.

Practice answers

Only 3 (1.1%) of the mothers was not wash their hands during the day, 73 (27.3%) of the mothers did eat from street food vendors, only 4 (1.5%) of the mothers were not always wash fruit and vegetables with water before eating, 18 (6.7%) of the mothers did not usually heat cold food before consumption.

Overall knowledge, attitude and practice score

As shown in Table 1; only 1(0.4%) of the mothers had low score, 54 (20.2%) of the mothers had average score, 147 (55.1%) of the mothers had good score, 65(24.3%) of the mothers had very good score.

As shown in (table 2), there was a weak, positive correlation between age of mothers in years and overall knowledge, attitude and practice score, which was statistically not significant ($r = 0.061$, $n = 267$, $p = 0.319$).

The test also showed (Table 3) that there was a weak, negative correlation between number of children and overall knowledge, attitude and practice score, which was statistically not significant ($r = -0.089$, $n = 267$, $p = 0.148$).

Chi square test showed (table 4) that there was statistically significant association between mothers' educational levels and their knowledge, attitude and practice category ($X2=29.816$, $P=0.039$). Chi square test (Table 5) had also showed that there was statistically significant association between mothers' occupational status and their knowledge, attitude and practice category ($X2=13.458$, $P=0.004$).

Table 1. Descriptive statistics of the study population

Parameter		Mean	Std. Deviation	N
Age of mother in years		32.31	11.112	267
Number of children		3.68	2.507	267
		Frequency	**Percent**	**Total**
Occupational status	Unemployed	235	88.0	267
	Employed	32	12.0	100

Table 2. Correlation between age of mother in years and overall score of the study population

Parameter	Pearson Correlation	Sig. (2-tailed)	N
Age of mother in years Overall score	0.061	0.319	267

Table 3. Correlation between number of children and overall score overall score of the study population

Parameter	Pearson Correlation	Sig. (2-tailed)	N
Number of children Overall score	-0.089	0.148	267

Table 4. Distribution of the overall score category in relation to the mothers' educational level and its association according to Chi square test

Educational level		Overall score category				Total	Df	Chi square value	P value
		Low score	Average score	Good score	Very good score				
Illiterate	Count	0	9	22	9	40	١٨	29.816	0.039
	Expected Count	0.1	8.1	22.0	9.7	40.0			
can read and write	Count	0	7	12	1	20			
	Expected Count	0.1	4.0	11.0	4.9	20.0			
Primary school	Count	0	22	55	24	101			
	Expected Count	0.4	20.4	55.6	24.6	101.0			
Intermediate school	Count	1	12	29	6	48			
	Expected Count	0.2	9.7	26.4	11.7	48.0			
Secondary school	Count	0	4	15	13	32			
	Expected Count	0.1	6.5	17.6	7.8	32.0			
Institute	Count	0	0	8	5	13			
	Expected Count	0.0	2.6	7.2	3.2	13.0			
College graduate	Count	0	0	6	7	13			
	Expected Count	.0	2.6	7.2	3.2	13.0			
Total	Count	1	54	147	65	267			
	Expected Count	1.0	54.0	147.0	65.0	267.0			

Table 5. Distribution of the overall score category in relation to the mothers' employment status and its association according to Chi square test

Occupational status		Overall score category				Total	Df	Chi square value	P value
		Low score	Average score	Good score	Very good score				
Unemployed	Count	1	51	134	49	235	3	13.458	0.004
	Expected Count	0.9	47.5	129.4	57.2	235.0			
Employed	Count	0	3	13	16	32			
	Expected Count	0.1	6.5	17.6	7.8	32.0			
Total	Count	1	54	147	65	267			
	Expected Count	1.0	54.0	147.0	65.0	267.0			

Discussion

In the current study, (79.4%) of the mothers achieved above average score, this high score could be explained by the fact that typhoid fever in endemic in Iraq. In 2007, 2008, 2009 and 2010, a total of 36,208, 58,247, 49,113 and 49,139 suspected cases of typhoid fever were reported, respectively [3].

The Iraqi Annual Health Reports issued by the Iraqi Ministry of Health reported that there are only 709 [5], 2030 [6] and 1250 [7] in the years 2013, 2014 and 2015 respectively. In a sharp decline in case reporting from 2010 and 2009 Annual Health Reports, which reported 49,139 and 49,113 cases of typhoid fever respectively in Iraq [8].

The more typhoid fever cases found in a community the more chance the casual person may acquires knowledge about the disease in through contact with medical services such as health centers, hospitals and private clinics. A previous study in Iraq, which was carried out by reviewing the medical records of 1702 children under 5 years suspected clinically to have typhoid fever during the period from the beginning of January till the end of December 2000, concluded that out of 1702 serum specimens, 546 (32.1%) proved to be positive for typhoid and paratyphoid fever and indicated that this disease is an important heath problem in this area [9].

Another study from Kirkuk, Iraq during the period 2001-2004 with a sample size of 5055 had concluded that typhoid fever is highly distributed in Kirkuk city (38.57%) [10].

A study from Nigeria (which was about was about food vendors in primary school) showed that 54.6 % (N=174) with good knowledge about typhoid fever among food vendors in primary schools [11].

This study is in agreement with a study from Kenya, which revealed that majority (88.3%, N=350) had knowledge about typhoid [4]. In the present study, 231(86.5%) of the mothers knew that food and water can transmit typhoid fever infection, this is in agreement with a study from Pakistan [12], which concluded that general community (89%, N=178) was well aware regarding relationship of typhoid fever with unhygienic food and un boiled water. Two hundred and eighteen (81.6%) of the mothers believed that exposure to sunlight is the cause of typhoid fever infection. This high percentage of this wrong belief could be attributed to the fact that both heat exhaustion and typhoid fever cause increase in body temperature, fatigue and headache [13]. Twenty nine percent (29.6%) of the mothers believed that typhoid fever infection can be transmitted through shaking hands; this wrong belief could be due to their perception that typhoid fever infection transmitted through heat conduction by physical contact with infected person. Sixty one percent (61 %) of the mothers did not knew that there is a vaccine for typhoid fever. This result could be due to weak promotional campaigns about vaccination against typhoid fever. Two hundred and sixty four (98.9%) of the mothers answered by "Yes" to washing hands during the day, in agreement to the

study from Pakistan which showed that majority (94%, N=200) of interviewees informed that they and their family members washed hands before eating [12]. A study from Kenya had shown that 69.7% (N=350) of the respondents practiced hand washing [4]. The same study revealed that those who washed their hands did not suffer from typhoid as much as those who did not.

Another study from Kenya has concluded that 187 (85%) of the respondents said that it is not true that lack of hand washing practices in the community is the major cause of the spread of typhoid fever while 33 (15%) of the respondents agreed about this practice [14]. A study from India (N=100) had concluded that the majority (95%) of the participants agreed that hand should be washed before and after meals, while only 32% felt that hand should be washed after defecation. Results showed that 83% of the participants used Water and soap to clean their hands [15].

In the present study, 73 (27.3%) of the mothers admitted they eat food from street vendors, the Pakistani study has showed more than half of the sample (60.5%, N=200) were routinely eat foods sold on carts by vendors which are unprotected from flies and dust [12].

A study from Kenya had shown that eating food from commercial kiosks was a risk factor for Typhoid fever infection as those who ate from such food outlets suffered from typhoid more than those who did not [4]. Another study from Kenya, (N=220) has concluded 136 (62%) of the respondents agreed that poor sanitation practices by the public food vendors is a cause of typhoid fever in the community while 84 (38%) of the respondents said that poor sanitation practices among public food vendors is a cause of typhoid fever in the community [15]. Typhoid fever can spread through irrigation of crops using sewage contaminated with *Salmonella typhi* [16]. In this study, 263 (98.5%) of mothers washed fruit and vegetables with water before eating, this is in agreement with the Pakistani study which has also shown that (95%, N=200) of the sample wash fruits before eating. This study concluded that mothers' educational levels was significantly associated with their knowledge, attitude and practice; a study from Kenya had shown that low education level was a risk factor for typhoid fever infection [4].

Another study from Kenya has also concluded that the probability of having a better understanding of typhoid transmission and control was only significantly increased when the respondent's education level went beyond the primary school level [14].

Although the majority of mothers were above average overall knowledge, attitude and practice score about typhoid fever infection; there were still wide spread wrong beliefs in relation to exposure to sunlight, airdroplet, kissing from infected person, shaking hands, carrier state, vaccination, eating from street vendors.

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Author contributions:

Dr. Sadeq designed and wrote the research article, Jabar collected the data. Both researchers approved the final research results and conclusion.

Conflict of interest

There is no conflict of interest.

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Correspondence to Dr. Taha N. Sadeq
E-mail: contactdrtaha@yahoo.com
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