

Assessment of Knowledge and Risk Perception towards Typhoid Fever among Communities in Mendida Town, Ethiopia 2018

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Abstract

Introduction: Typhoid fever is transmitted by the feco-oral route through ingestion of contaminated food or water that contain *Salmonella typhi*. Poor knowledge and risk perception towards typhoid fever contributed to the prolonged transmission of diseases in the community.

Objective: The aim of this study was to assess knowledge and risk perception of the community towards typhoid fever in Mendida 2018.

Material and Method: Community based cross-sectional study design was conducted in Mendida town Ethiopia, Systematic Random sampling technique was used. Data was collected through face to face interview using structured questionnaires and also analyzed, using SPSS version 16. Statistical significance of $P < 0.05$ with 95% CI, was checked to identify association by multivariate analysis.

Results: From a total of 423 respondents 260 (61.5%) were female and the remaining 163 (38.5%) were male. Concerning knowledge towards typhoid fever majority 270 (63.8%) have good knowledge towards typhoid fever. Concerning risk perception status 216 (51%) of the respondents have poor risk perception towards typhoid fever.

Conclusion: The study revealed that above half of the respondents have good knowledge towards typhoid fever. However, the risk perception status of the respondents towards typhoid fever is poor.

Recommendation: Supportive supervision for health extension workers in order to strengthen effective health education to the community on the causes of the diseases and possible preventives measure.

Keywords: Knowledge; Risk Perception; Typhoid Fever

Abbreviations

AFI: Acute Febrile Illness; AOR: Adjusted Odd Ratio; BSC: Bachelor of Science; CI: Confidence Interval; COR: Crude Odd Ratio; FMOH: Federal Minister of Health; NGO: Non-Governmental Organization; OPD: Out patient Department; WG: Water Ground

Introduction

Background

Typhoid fever is one of the leading causes of morbidity and mortality across the world [1].

In the United States the incidence of typhoid fever in 1920 and 2006 were 35,994 and 314 respectively. Because of improved sanitation and successful antibiotic treatment, the prevalence has steadily decreased. Now a day in the United States; most cases of typhoid fever arise in international travelers. The average yearly incidence of typhoid fever per million travelers is 2.2 [2].

In Europe in 2014 the highest incidence rates of typhoid fever were reported by France (0.65 cases per 100,000 population), the United Kingdom (0.55 per 100,000) and Denmark (0.48 cases per 100,000). The majority (85%) of cases were acquired while travelling, almost exclusively in countries outside the Europe. Seven countries did not report any cases of typhoid fever. (Cyprus, Hungary, Iceland, Latvia, Malta, Romania and Slovakia [3].

Typhoid fever is a systematic infection caused by gram negative bacteria called *Salmonella typhi*. The diseases is transmitted by the feco-oral root though ingestion of contaminated food or water that contain *Salmonella typhi*. The Clinical symptoms of typhoid fever are: sustained fever, severe headache, malaise, anorexia, nonproductive cough, bowel disturbance commonly constipation. Serious complication such as intestinal perforation, cerebral dysfunction and slight deafness also can appear. Typhoid fever is diagnosed by detecting the *Salmonella typhi* bacteria in sample of blood or stool. Typhoid fever occurs predominantly in association with poor sanitation and lack of clean drinking water [4].

In South east Asia and Central South reported numbers of cases are more than 100 per 100,000 persons per year Pakistan is located highly endemic region and highest incidence rate 451.7 per 100,000 persons per year of typhoid fever [5].

In Africa it is estimated about a total of 400,000 cases occur annually with an incidence of 50 per 100,000 persons per year [6].

Statement of the Problem

Estimates for the year 2000 suggest that there are approximately 21.5 million infections and 200,000 deaths from typhoid fever globally each year [4].

The study conducted in South Asia suggests that the incidence of the disease is highest in children aged less than 5 years, with higher rates of complications and hospitalization. Despite appropriate treatment, some 2 - 4% of infected children relapse after initial clinical response to treatment [7]. Other study results show that typhoid fever causes' pain, suffering and deaths, that reduces human energies and makes individual less able to cope with life [8,9].

In Ethiopia in 2012, the prevalence rate of typhoid fever was 29% with the incidence rate of 46 cases per 10000 residents per year [10].

The diseases have a great impact on productivity, social and other aspects of life. It became a serious threat to Public health especially in economically poor countries where level of hygiene is below standards and sanitary conditions are poor [11].

According to the result of Marie-Rosette Nahimana, poor knowledge and low risk perception towards typhoid fever contributed to the prolonged transmission of diseases in the community [12].

In Ethiopia in 2011 according to the FMOH health and health related indicators the mortality rate from typhoid fever for male and female are 2% and 3% respectively. Also from the total Hospital admission causes typhoid fever accounts 2% [13]. Similarly, in the study area, in 2016 according to the health institutions reports typhoid fever was on the top of ten morbidity causes registered in the area. However, the knowledge and risk perception of the community towards typhoid fever was not known in the study area.

Significance of the Study

So far FMOH developed community mobilization Strategy in the grass root level through health extension workers to enhance the knowledge and risk perception of the community towards communicable diseases, like, typhoid fever. However; changes are not satisfactory because the prevalence of typhoid fever is still high in the country (29%). In Ethiopia there is no published research conducted on the knowledge and risk perception of community related to typhoid fever. Similarly in the study area there is no evidence data on the knowledge and risk perception related to typhoid fever. Therefore this study can help to fulfill the knowledge gap and improve their knowledge and perception level related to typhoid fever through the district health office and also it serves as a literature for other researcher.

Objectives of the Study

General objective

To assess knowledge and risk perception of the community towards typhoid fever in Mendida town north shawa zone of Oromia region Ethiopia 2018.

Specific objectives

- To determine the knowledge of the community towards typhoid fever.

Methodology

Study area

The study was conducted in North shawa zone of Oromia region Mendida town. Administratively the town has only one kebele. Agro-climatically, it is classified as Dega, it has an elevation of the 2,840m from sea level. The town is located 157 km from Addis Ababa the Capital city of Ethiopia. Regarding the health facilities in the area there are one health center, one Clinic and one Pharmacy. Regarding educational facilities there are one kinder garden, two elementary schools, one high school, one preparatory school and one technical school. According to the information revealed from Municipal office of Mendida town the total population of the town is 12540 from which 5900 male and 6640 female and. The total number of households is 2148 [26].

Study period

The study was carried out from April 1/03/ 2018 to May 30/05/2018.

Study design

A community based cross-sectional study design method was conducted.

Source population

All permanently residing individuals in the community aged 18 years and above.

Study population

All individuals who were selected randomly in the selected kebele.

Study unit

All individuals who were selected randomly in the selected households.

Inclusion and exclusion criteria

Inclusion criteria

- All selected individuals whose age was 18 years and above.
- Permanent resident of the study area.

Exclusion Criteria

- Those who were physically and mentally incapable to be interviewed.

Sample size determination

Sample size was determined by using the formula for a single population proportion for cross sectional study with the following assumptions proportion value(p) = 50% to obtain maximum sample size at 95% certainty and a maximum discrepancy of + 5% between the sample and the population, the size of the sample was determined by the formula:

$$n = \frac{(Z_{\alpha/2})^2 p (1-P)}{d^2} = \frac{(1.96)^2 * 0.5 (1 - 0.5)}{(0.05)^2} = 384$$

Where n= minimum sample size needed

p= Proportion (50%)

Z= Significance level at confidence interval of 95%

d= Margin of error (0.05)

$Z_{\alpha/2}$ = Value of standard normal distribution corresponding to significant level of alpha (α) 0.05 which is 1.96.

Total sample size was calculated by adding 10% for non-response rate.

Thus $384 * 10\% = 423$.

Sampling procedure

There are five ketenes in the kebele and three ketenes was selected by the lottery method. Based on the number of households in each ketene the total sample size 423 was distributed proportionally to find the number of study sample in each ketene. According to the availed data obtained from mendida administrative office the total house hold in three ketena was 1303. Keteana one, 400, ketene two 433, ketene three 470. Thus, the proportional allocation of samples, 130 sample was from ketene one, 140 sample was from ketene two, 153 sample was from ketene three. The final sample was selected by list of the households by systematic random sampling technique.

Study variables

Dependent variable

- Knowledge of typhoid fever.
- Risk perception of typhoid fever.

Independent variables

- Age,
- Sex,
- Education status,
- Occupation,
- Income,
- Family size,
- Number of room,
- Hygiene,
- Sanitation,
- Water source,
- Previous Typhoid infection.

Data collection tools and procedure

Data was collected through face to face interview by structured questionnaire which was adopted and modified from different reviewed literatures [14,16,17,19,26]. The questionnaire was translated into the Amharic (national language) and back to English. Household was selected from each ketena with K-interval of 3 house at each ketena and the first household was taken randomly then other house was selected every three, For households' with more than one eligible individual in one household, only one person was selected using lottery method although in the event of a household with no eligible individual, the immediate next house hold (HH) was interviewed. Revisit of three times was made in case where eligible respondents were not available at the time of the data collection then if not available the next house hold was interviewed.

Data quality control

The quality of data was assured by properly designed and pre-tested of the questionnaire, 1one day training was given for data collectors and supervisors about the data collection procedures, categorization and coding of the questionnaire was done. The collected data was reviewed and checked for completeness every day and the necessary feedback had offered to data collectors in the next morning before the actual procedure.

Data Processing and analysis

After data collection, it was checked visually for completeness and coded. The corresponding code number was written carefully at each margin and entered using EPI INFO version 7 and has exported to SPSS version 16 statistical software packages for analysis. Descriptive statistics of different variables was determined and also the associations between dependent and independent variables were tested by logistic regression model. The variables that had p value < 0.25 at bivariate analysis were incorporated to multivariate analysis and at multivariate analysis variables with p value < 0.05 were considered as having statically significance. Result was presented in the form of tables, figure, chart and summary.

Ethical considerations

Ethical clearance had obtained from Debre Birhan University Medicine and Health Science Institution, College of Health Science Nursing department CBE office. Informed consent had obtained oral from each participant after explanation was given by data collectors regarding to the purpose of the study what study they were involved in.

Dissemination of the result

Recommendation was forwarded after the data analysis based on the findings conclusion. The results of this study was submitted to or disseminated to University of Debre Berhan institute of medicine and College of Health Science, department of nursing, Abichu and gneaworeda health desk, education desk and health institutions in the area. The result has been presented during thesis defense as a partial fulfillment of undergraduate BSC nurse.

Operational definition

The overall knowledge, and risk perception were estimated by taking the mean of the score.

- **Good knowledge:** Participants who scored mean (> 7.37) for knowledgeable questions.
- **Poor knowledge:** Participant who scored less than or equal to mean (< 7.37) for knowledgeable questions.
- **Good risk perception:** Participant who scored mean (> 6) for risk perception question.
- **Poor risk perception:** Participant who scored less than or equal to mean (< 6) for risk perception question.

Results

Socio-demographic characteristics of study population

A total of 423 households were included in this study with 100% respondents rate out of which 260 (61.5%) were female and 163 (38.5%) were male. Majority 87 (20.6%) of the respondents were in the age group of 25 - 29 years. Regarding educational status 118 (27.9%) was secondary school. Concerning economic status majority 155 (36.6%) of the respondents monthly income of family was laid between 601-1650. Regarding their religion, majority 339 (80.1%) were orthodox Christian followers (Table 1).

Variables	Frequency	Percent
Age		
18 - 19	37	8.7
20 - 24	84	19.9
25 - 29	87	20.6
30 - 34	47	11.1
35 - 39	53	12.5
40 - 44	30	7.1
45 - 49	28	6.6
50 - 54	26	6.1
55 - 59	10	2.4
60 - 64	9	2.1
65 - 69	4	
70 - 74	5	
≥ 75	3	
Last level of education		
Can't read and write	63	14.9
Can read and write	48	11.3
Primary school	98	23.2
Secondary school	118	27.9
certificate	21	5
Diploma and above	75	17.7
Main Occupation		
Farmer	32	7.6
Housewife	131	31
Government E	94	22.2
Merchant	91	21.5
Students	64	15.1
Daily laborer	11	2.6
Monthly Income		
≤ 600	102	24.1
601 -1650	155	36.6
1651 - 3200	114	27
3201 - 5250	40	9.5
5251 - 7800	10	2.4
> 7801	2	

Marital status		
Single	114	27
Married	268	63.4
Divorced	25	5.9
Widowed	16	3.8
Family size		
1 - 2	98	23.2
3 - 4	224	53
5 - 6	77	18.2
7 - 8	22	5.2
≥ 9	2	
Religion		
Orthodox	339	80.1
Catholic	70	16.5
Protestant	12	2.8
Muslim	2	
Number of room		
1	186	44
2	159	37.6
≥ 3	78	18.4

Table 1: Socio demographic characteristics of the respondents mendida town Ethiopia 2018.

Knowledge of the respondents towards typhoid fever

From a total of four hundred twenty three (423) household respondents majority 277 (65.5%) knew that typhoid fever is caused by germ. Concerning transmission majority 392 (92.7%) of the respondents have answered typhoid fever is transmitted by eating contaminated food. Regarding sign and symptom most of 390 (92.2%) of the respondents have answered head ache. Concerning the way of prevention majority 366 (86.5%) answered drinking boiled water, and about 327 (77.3%) have answered hand washing (Table 2).

Variables	Frequency	Percent
Typhoid fever caused by germs		
Yes	277	65.5
No	146	34.5
Typhoid fever transmitted by drinking contaminated water		
Yes	372	87.9
No	51	12.1
Typhoid fever transmitted by Eating contaminated food		
Yes	392	92.7
No	31	7.3
Fever the symptom of typhoid fever infection		
Yes	326	77.1
No	97	22.9

Loss of appetite symptoms of typhoid fever infection		
Yes	314	74.2
No	109	25.8
Head ache, symptoms of typhoid fever		
Yes	390	92.2
No	33	7.8
Hand washing prevent typhoid fever infection		
Yes	327	77.3
No	96	22.7
Drinking boiled water prevent typhoid fever infection		
Yes	366	86.5
No	57	13.5
Proper disposal of waste prevent typhoid fever infection		
Yes	354	83.7
No	69	16.3

Table 2: Knowledge of the respondents towards typhoid fever Mendida Ethiopia 2018.

Over all knowledge of the respondents towards typhoid fever

To determine the overall knowledge of the community towards typhoid fever the mean Score of knowledge questions was used. From all study participants 63.8% have good knowledge and 36.2% have poor knowledge.

Risk perception level of the community towards typhoid fever

From a total of four hundred twenty three (423) house hold respondents majority 374 (88.4) perceived that typhoid fever is a serious diseases. Concerning the transmission about half 212 (50.1%) of the respondents do not know that infected person can transmit the diseases to the health person and also above half 274 (64.8%) of the respondents perceived that exposure to sun light contribute for typhoid fever and also majority 342 (80.9) agree that lack of hand washing practice contribute to typhoid fever infection (Table 3).

Overall risk perception status of the respondents towards typhoid fever

To determine the overall risk perception status of the community towards typhoid fever the mean Score of risk perception questions was used. From all house hold study participants 216 (51.1%) have poor risk perception and 207 (48.9%) have good risk perception.

History of previous exposure of typhoid

Regarding history of previous exposure of typhoid fever From a total of 423 house hold respondents majority 272 (64.3) reported that have not got typhoid fever in the last six month, while 151 (35.7) reported having got typhoid fever, the way of conforming was laboratory 125 (29.6), by health professional 25 (5.9%) and by other 1.

Water source and sanitation

Majority 383 (90.5% of the respondents obtained drinking water from pipe line, only 98 (23.2%) of the respondents treat their drinking water. Regarding hygiene majority 408 (96.5%) of respondents wash their hand by soap and water after utilization of toilet facility. Majority 403 (71.2%) of the respondents have private toilet, from them 301 (71.2%) had pit latrine type of toilet. Concerning west dispos-

Variables	Frequency	Percent
Typhoid fever is a serious disease		
Yes	374	88.4
No	49	11.6
Exposure to sun does not contribute to typhoid fever infection		
Yes	149	35.2
No	274	64.8
Infected person transmit the diseases to health person		
Yes	211	49.9
No	212	50.1
Lack of enough and reliable water sources contribute to typhoid fever		
Yes	359	84.9
No	64	15.1
Poor sanitation practices contribute to typhoid fever infections		
Yes	353	83.5
No	70	16.5
Lack of hand washing practices contributes to typhoid fever		
Yes	342	80.9
No	81	19.1
Lack of pit latrines in each home contributes to typhoid fever		
Yes	361	85.3
No	62	14.7
Eating un washed raw vegetables contribute to typhoid fever		
Yes	392	92.7
No	31	7.3

Table 3: Risk perception towards typhoid fever among community mendida, Ethiopia 2018.

Variables	Frequency	Percent
What is the main source of your drinking water?		
Pipe line	383	90.5
Public stand point	40	9.5
Always treat your drinking water?		
Yes	98	23.2
No	325	76.8
Mainly how do you treat drinking water?		
Boiling	58	13.7
Chemical (Chlorine, bishangari)	40	9.5
Wash hands by soap and water before praparing food		
Yes	400	94.6
No	23	5.4

Wash your hands by soap and water before meal		
Yes	388	91.7
No	35	8.3
Is there private latrine facility for the family		
Yes	403	95.3
No	20	4.7
If yes what is the type of latrine		
Pit latrine	301	71.2
VIP	87	20.6
Water wash	15	3.5
No private functional latrine where does the family use		
Open field	18	4.3
Relative latrine	1	
Public (communal)	1	
Wash hands by soap and water after using the toilet		
Yes	408	96.5
No	15	3.5
Place to store wastes at house hold level		
Yes	313	74.0
No	110	26.0
There separate container for different types of waste		
Yes	285	67.4
No	28	6.6
Is the container covered		
Yes	183	43.3
No	130	30.7
Where do you dispose solid waste at the end		
Open field	212	50.1
Local pit	137	32.4
Municipality	34	8.0
Compost	40	9.5
Where do you dispose liquid wastes at the end		
Open field	241	57.0
Local pit	112	26.5
Link to sewage system	70	16.5

Table 4: Water supply and sanitation mendida Ethiopia 2018.

al system majority 313 (74%) of the households have place for waste disposal at their compound. Concerning the end disposal of waste about half 212 (50.1%) of the respondents dispose solid waste on open field. Regarding liquid waste again more than half 241 (57%) of the respondents dispose on open field.

Multivariate association between socio demographic and community knowledge towards typhoid fever

In multivariate analysis from the socio demographic factor number of room was associated with community knowledge towards typhoid fever. Therefore the respondents those who had room one in their living house had 5.36 time {AOR = 5.36, 2.151; 95% CI (2.742 - 10.489)}, more likely to have good knowledge towards typhoid fever compared to those who had more than one room in their living room and also those respondents who had two room in their living house had 2.151 times {AOR = 2.151; 95% CI (1.147 - 4.035)} more likely to have good knowledge towards typhoid fever compared to those who had more than 2 room number in the living house (Table 5).

Variables	Knowledge (n = 423)		P-value	AOR (95% CI)
	Good	Poor		
Age				
18 - 24	44 (16.2%)	37 (24%)	.201	.512 (183 - 1.430)
25 - 34	112 (41.4%)	46 (30%)	.466	1.385 (.577 - 3.321)
35 - 44	57 (21.1%)	34 (22.2%)	.391	1.482 (.603 - 3.643)
45 - 54	41 (15.1%)	21 (13.7%)	.561	1.330 (.509 - 3.477)
>= 55	16 (5.9%)	15 (9.8%)	.561	1
Monthly income				
≤ 600	63 (23.3%)	39 (25.4%)	.395	.669 (.265 - 1.689)
601 - 1650	97 (35.9%)	58 (37.9%)	.866	1.076 (.460 - 2.514)
1651 - 3200	76 (28.%)	38 (24.8%)	.990	.995 (.446 - 2.220)
>= 3201	34 (12.5%)	18 (11.7%)	.397	1
Educational status				
Read and write	32 (11.85%)	16 (10.4%)	.951	1.038 (.317 - 3.404)
Can't read and write	32 (11.85%)	31 (20.26)	.192	.472 (.152 - 1.460)
Primary school	65 (24%)	33 (21.5%)	.731	.832 (.293 - 2.365)
Secondary school	73 (27%)	45 (29.4%)	.860	.913 (.333 - 2.506)
Certificate	13 (4.8%)	8 (5.2%)	.350	.571 (.176 - 1.848)
Diploma and above	55 (20.3%)	20 (13%)		1
Occupation				
Farmer	15 (5.5%)	17 (11.1%)	.200	.315 (.054 - 1.840)
Housewife	74 (24.4%)	57 (37.2%)	.244	.380 (.075 - 1.936)
Government employee	67 (23.7%)	27 (17.6%)	.732	.724 (.114 - 4.590)
Merchant	63 (23.3%)	28 (18.3%)	.498	.563 (.107 - 2.965)
Student	42 (15.5%)	22 (14.3%)	.995	1.005 (.176 - 5.741)
Daily laborer	9 (3.3%)	2 (1.3%)		1
Room number				
1	145 (53.7%)	41 (26.7 %%)	.000	6.627 (3.414 - 12.862)
2	91 (33.7%)	68 (44.4%)	.008	2.274 (1.244 - 4.157)
> 3	34 (12.5%)	44 (28.7%)	.806	1.

Table 5: Multivariate association between socio demographic and community knowledge towards typhoid fever mendida Ethiopia 2018.

Multivariate association between previous exposure status, water supply, sanitation and knowledge towards typhoid fever

In multivariate analysis only hand washing before preparing food was associated with community knowledge towards typhoid fever. Therefore study participants who practiced hand washing before preparing food were 3.350 times {AOR = 3.350; 95% CI (1.360 - 8.252)} more likely to have good knowledge towards typhoid fever compared to those who had not practicing hand washing before preparing food (Table 6).

Variables	Knowledge		P-value	AOR (95%CI)
	Good	Poor		
	Number+%	Number+%		
Water source				
Pipe line	253 (93.7%)	130 (84.9%)	.388	1.864 (.840 - 4.141)
Public stand point	17 (6.2%)	23 (15%)	.274	1
Treat drinking water				
Yes	68 (25.1%)	30 (19.6%)	.274	1.412 (.645 - 3.092)
No	202 (74.8%)	123 (80.3%)	.009	1
How treat drinking water?				
Boiling	44 (64.7%)	14 (46%)	.747	1.764 (.638 - 4.884)
Chemical (Bishangari)	24 (35.2%)	16 (53.3%)	.711	1
Wash hands before preparing food				
Yes	258 (95.5%)	130 (84.9%)	.009	3.350 (1.360 - 8.252)
No	12 (7.8%)	23 (15%)	.658	1
Wash your hands before meal				
Yes	261 (96.6%)	139 (90%)	.747	1.209 (.381 - 3.830)
No	9 (3.3%)	14 (9.1%)	.711	1
Wash hands after using facility				
Yes	264 (97.7%)	144 (94.1%)	.060	.760 (.179 - 3.233)
No	6 (2.2%)	9 (5.8%)	.442	1
Have a place to store wastes				
Yes	211 (78.1%)	102 (66.6%)	.748	.622 (.034 - 11.341)
No	59 (21.8%)	51 (33.3%)	.658	1
Is the container is covered				
Yes	130 (61.6%)	53 (51.9%)	.516	.379 (.020 - 7.086)
No	81 (38.3%)	49 (48%)	.553	1
Where do you dispose solid waste				
Open field	143 (52.9%)	69 (45%)	.055	2.275 (.981 - 5.276)
Local pit	83 (30.7%)	54 (35.2%)	.587	1.257 (.551 - 2.871)
Municipality	25 (9.2%)	9 (5.8%)	.259	1.870 (.630 - 5.546)
Compost	19 (7%)	21 (13.7%)	.417	1

Table 6: Multivariate association between previous exposure, water supply, sanitation and knowledge towards typhoid fever at mendida Ethiopia 2018.

Multivariate association between socio demographic and risk perception towards typhoid fever

In multivariate analysis from the socio demographic factor educational status and number of room were associated with community risk perception. Therefore the respondents those who can't read and write had 71.5% times {AOR = 0.285; 95% CI (.096 - 0.842)} less likely to have good risk perception towards typhoid fever compared to those educated people and also respondents those who had one room in their living houses had 2.429 times {AOR = 2.429; 95% CI (1.297 - 4.550)} more likely to have good risk perception towards typhoid fever compared to those who had more than 1 room number in the living house (Table 7).

Variables	Risk perception		P-value	AOR (95% CI)
	High	Low		
Educational status				
Read and write	19 (9.1%)	29 (13.4%)	.089	.389 (.131 - 1.157)
Can't read and write	20 (9.6%)	43 (19.9%)	.023	.285 (.096 - 0.842)
Primary school	52 (25.1%)	46 (21.2%)	.331	.622 (.238 - 1.621)
Secondary school	55 (26.5%)	63 (29.1%)	.200	.550 (.220 - 1.374)
Certificate	10 (4.8%)	11 (5%)	.057	.362 (.127 - 1.030)
Diploma and above	51 (24.6%)	24 (11.1%)	.708	1
Occupation				
Farmer	11 (5.3%)	21 (9.7%)	.232	.379 (.077 - 1.859)
Housewife	55 (26.5%)	76 (35.1%)	.227	.415 (.099 - 1.730)
Government employee	60 (28.9%)	34 (15.7%)	.585	.637 (.126 - 3.217)
Merchant	45 (21.7%)	46 (21.2%)	.296	.463 (.109 - 1.962)
Student	28 (13.5%)	36 (16.6%)	.194	.369 (.082 - 1.661)
Daily laborer	8 (3.8%)	3 (1.3%)		1
Room number				
1	106 (51.2%)	80 (37%)	.010	2.429 (1.297 - 4.550)
2	70 (33.8%)	89 (41.2%)	.006	1.474 (.784 - 2.772)
> 3	31 (14.9%)	47 (21.7%)	.228	1

Table 7: Multivariate association between socio demographic and community risk perception towards typhoid fever at mendida Ethiopia 2018.

Multivariate association between risk perception towards typhoid fever and previous exposure, water Source and sanitation

In multivariate analysis previous typhoid infection and treating drinking water were associated with community risk perception towards typhoid fever. Therefore respondents who had history of previous typhoid infection were 38.7% times {AOR = 0.613; 95% CI (0.391 - 0.961)} less likely to have good risk perception towards typhoid fever compared to those who had no history of previous typhoid infection and also the respondents those who treated their drinking water had 2.194 times {AOR = 2.194 ; 95% CI (1.028 - 4.680)} more likely to have good risk perception towards typhoid fever compared to those who didn't treat their drinking water (Table 8).

Variables	Risk perception		P-value	AOR (95%CI)
	High	Low		
Got typhoid fever infection				
Yes	64 (30.9%)	87 (40%)	.033	.613 (.391 - .961)
No	143 (69%)	129 (59.7%)	.594	1
Source of drinking water				
Pipe line	192 (92.7%)	191 (88.4%)	.594	1.231 (.573 - 2.646)
Public stand point	15 (7.2%)	25 (11.5%)	.673	1
Treat drinking water				
Yes	55 (26.5%)	43 (19.9%)	.042	2.194 (1.028 - 4.680)
No	152 (73.4%)	173 (80%)	.654	1
How treat drinking water				
Boiling	31 (56.3%)	27 (62.7%)	.654	.809 (.321 - 2.041)
Chemical (Bishangari)	24 (43.6%)	16 (37.2%)	.538	1
Wash hands before preparing food				
Yes	195 (94.2%)	193 (89.3%)	.344	1.752 (.548 - 5.599)
No	12 (5.7%)	23 (10.6%)	.680	1
Wash your hands before meal				
Yes	202 (97.5%)	198 (91.6%)	.210	1.350 (.324 - 5.627)
No	5 (2.4%)	18 (8.3%)	.629	1
Wash hands after using facility				
Yes	203 (98%)	205 (94.9%)	.680	1.350 (.324 - 5.627)
No	4 (1.9%)	11 (5%)	.210	1
Have a place to store wastes				
Yes	166 (80%)	147 (68%)	.629	1.406 (.825 - 2.397)
No	41 (19.8%)	69 (31.9%)	.605	
Where do you dispose liquid wastes				
Open field	112 (54.1%)	129 (59.7%)	.605	.850 (.460 - 1.572)
Local pit	56 (27%)	56 (25.9%)	.343	.724 (.371 - 1.411)
Link to sewage system	39 (18.8%)	31 (14.3%)	.687	1

Table 8: Association between Previous exposure status, water supply and sanitation and risk perception towards typhoid fever at mendida Ethiopia 2018.

Discussion

The community based correctional study conducted among community at Mendida town reveled the socio demographic characteristics of the study participants as follows out of four hundred twenty three participants above half 61.5% were female. Regarding the last educational status of the participants majority 27.9% were secondary school. The result of this study is almost in line with the study done in Nigeria 61% and 20% [11].

In this community based cross sectional study attempted to identify the knowledge and risk perception towards typhoid fever among community at mendida town. Regarding knowledge towards typhoid fever the study found that about 63.8% of the respondents have good knowledge related to typhoid fever. The result of this study is higher than the study done in Zimbabwe 33% [17]. The difference is might be due to the effort of health extension worker implementation in Ethiopia.

Concerning on the transmission majority 92.7% and 87.9% of the respondents know that typhoid fever is transmitted by eating contaminated food and drinking contaminated water respectively. The result of this study is higher than the study done in Tanzania which is 42.5% [14]. The difference is might be due to implementation of health extension worker in the area.

Regarding the causes of typhoid fever about 65.5 % of the respondents knew that typhoid fever is caused by germ. The result of this study is slightly higher than the study done in Elmina in the Central Region of Ghana 49.2% [19]. The difference is might be due to the socio demographic characteristic.

Concerning the sign and symptom of typhoid fever about 74.2% were answered loss of appetite. The findings of this study is higher than the study done in Nigeria 6.3% [18]. The difference is might be due socio demographic characteristic.

Concerning the way of prevention of typhoid fever the majority 366 (86.5%) answered drinking boiling water, who said proper waste disposal were 354 (83.7%), and 327 (77.3%) have answered hand washing. The result of this study is higher than the study done in Zimbabwe 54% drinking water from safe source, 54% washing hand with soap and 30% proper west disposal [17]. The difference is may be due to effort of the health extension worker in the area.

Concerning the risk perception on the transmission of the diseases about 49.9% thought carriers could transmit the disease to others. The result of this study is almost in line with the study done in Elmina Ghana which about half of the respondents thought carriers could transmit the disease to others [19]. The difference is may be due to socio demographic characteristic of the respondents.

Regarding perception on hygiene majority 83.5% of the respondents agree that poor sanitation practices among households in the community contribute to the spread of typhoid fever. The result of this study is slightly higher than the study done in Kenya which was 48% [8]. The difference is may be due to the socio demographic characteristic of the respondents.

Concerning the risk perception towards typhoid fever. The study showed that majority 88.4% of the respondent perceived typhoid fever as serious diseases. The result of this study is slightly higher than the study done in Zimbabwe which were 70% [17]. The difference is may be due to effort of the health extension worker in the area.

Regarding water supply and toilet facility in the study area the result of the study showed that majority 90.5% of the respondents obtained drinking water from pipe line and also about 71.2% of the respondents used pit latrine type of toilet. The result of this study is different from the study done in Kenya 54.6% pipe source for drinking water and 83% used pit latrine [22]. The difference is may be due to the study area.

Regarding treatment of drinking water and the means of treatment the study revealed that only 23.2% treat their drinking water, by different means such as 13.7% used boiling, 9.5% used different chemical. The result of this study is less than the study done in Tanzania 42.5%, 30% and 12.5% respectively [14]. The difference is may be due to the difference in the study area and period.

Concerning hygiene the study result showed that majority 96.5% washed their hand by soap and water after using toilet facility. The result of this study is almost in the same line with the study done in Nigeria 221 (94.0%) [12].

Conclusion

The study revealed that above half of the respondents have good knowledge towards typhoid fever. However, majority have poor risk perception towards typhoid fever. In multivariate analysis education were associated with risk perception towards typhoid fever. Therefore according to this research education has its own contribution for risk perception. In general according to the study the risk perception level of the community is poor. Since knowledge and risk perception are the key factor for the control and prevention of typhoid fever, strengthen the awareness of the community towards typhoid fever is mandatory.

Recommendation

- Local health desk should strengthen supportive supervision for health extension workers in order to strengthen effective health education to the community on the causes of the diseases and possible preventives measures.
- Health institution of the area should include health education program.
- The municipal office of the town should work on the waste disposal system.

Conflict of Interest

None of the authors have any conflict of interest.

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