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Assess The Knowledge Regarding The Prevention And Management Of Typhoid Fever

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ABSTRACT

Background: Typhoid fever is a potentially life-threatening illness caused by Salmonella Typhi, a Gram-negative bacterium. Typhoid fever, also known as enteric fever.Typhoid is most common in India

Objectives: Assess the knowledge of adults residing in the selected community area of waghodia regarding prevention of typhoid fever. Assess the knowledge of adults residing in the selected community area of waghodia regarding management of typhoid fever. Determine the association of knowledge of adults residing in the selected community area of waghodia regarding prevention with selected socio-demographic variables. Determine the association of knowledge of adults residing in the selected community area of waghodia regarding management of typhoid fever with selected socio-demographic variables.

Materials and Methods: A descriptive, non-experimental quantitative study was conducted among 100 adults aged 18 years and above from the Waghodia community in Vadodara, selected through purposive sampling. Data were gathered using investigator-designed tools, including a socio-demographic questionnaire and structured knowledge questionnaires on the prevention and management of typhoid fever.

Results: The findings revealed that the majority of participants had average knowledge, followed by good knowledge, and none had poor knowledge regarding both prevention and management of typhoid fever. The mean knowledge score for prevention was 5.10, and for management, it was 4.64, indicating a moderate level of knowledge among participants. The chi-square test showed no significant association between demographic variables and knowledge of prevention. However, a significant association was observed between educational qualification and knowledge of disease management.

Conclusion: The study concluded that adults in the selected community area possessed moderate knowledge regarding the prevention and management of typhoid fever. Educational qualification was significantly associated with better knowledge related to disease management.

KEYWORDS: *Typhoid fever, Knowledge, Prevention, Management, Community area*

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1. INTRODUCTION

Typhoid fever, or enteric fever, is a systemic infection caused mainly by Salmonella Typhi, a Gram-negative bacillus. Named by Pierre Louis in 1829, its bacterial cause was identified by Karl Eberth in 1880 and cultured by Georg Gaffky in 1884 [1]

Typhoid remains endemic due to contaminated water, poor sanitation, and unsafe food. It spreads via the fecal-oral route, with cases increasing during the monsoon [2] Flies, fingers, feces, and fomites are thought to be the "4 Fs" that spread S.

Typhi [3] Typhoid is most common in India [4] and more prevalent than in many neighboring countries, emphasizing the urgent need for stronger preventive measures.[5]

The incubation period of typhoid fever is 7–14 days. Symptoms like fever, cold, lethargy, malaise, anorexia, nausea, abdominal pain, dry cough, myalgia, and diarrhea typically begin afterward. Later signs may include an enlarged liver (hepatomegaly), splenomegaly, and a coated tongue [6]

The gold standard for diagnosing typhoid fever is still blood culture, specifically the isolation of *Salmonella Typhi* from the blood. A serological test called the Widal test is widely used due to its affordability and ease of use [7] Treatment mainly uses sensitive antibiotics, including azithromycin, ciprofloxacin, and chloramphenicol [8]

Complications of typhoid fever include intestinal perforation, gastrointestinal bleeding, myocarditis, cholecystitis, hepatitis, acute kidney injury, pneumonia, encephalopathy, DIC, and anemia [9]

Typhoid control relies on robust surveillance and enhanced water, sanitation, and hygiene (WASH) practices. Early diagnosis and treatment help prevent its spread. WASH strategies, initiated in 1990, are part of Sustainable Development Goals (SDG) Goal 6, aiming to ensure access to clean water and sanitation for all.[10] The typhoid conjugate vaccine (TCV) is recommended for all ages due to its long-lasting protection. WHO recommends combining vaccination with improved sanitation, clean water, health education, and trained healthcare workers for effective control [11]

To implement effective preventative and therapeutic approaches, it is essential to comprehend the disease's burden and the variables that contribute to its development and transmission [12]

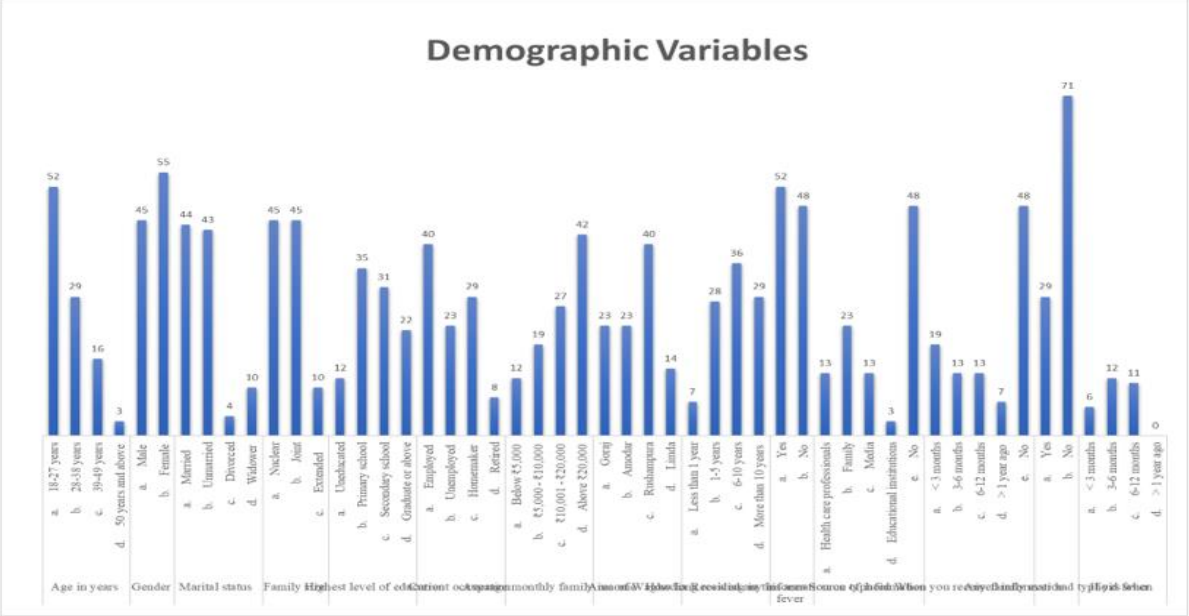
2. MATERIAL AND METHODS

The study adopted a quantitative research approach with a descriptive (non-experimental) design and was conducted among 100 adults aged 18 years and above residing in the selected community area of Waghodia, Vadodara. Participants were selected through purposive sampling. Data were collected using three tools developed by the investigators: a socio-demographic questionnaire, a structured knowledge questionnaire on the prevention of typhoid fever, and another structured knowledge questionnaire on its management. The test-retest reliability of the structured knowledge questionnaire was found to be 0.764, indicating acceptable reliability. Data were analyzed using SPSS version 25, applying both descriptive and inferential statistics. Findings revealed that, in terms of knowledge regarding prevention of typhoid fever, 63% of participants had average knowledge, 37% had good knowledge, and none had poor knowledge. The knowledge scores ranged from 1 to 10, with a mean of 5.10, a median of 5, and a standard deviation of 1.72, indicating moderate knowledge with low variability. Regarding management of typhoid fever, none of the participants had poor knowledge; scores ranged from 1 to 9, with a mean of 4.64, a median of 5, and a standard deviation of 1.72, suggesting moderately consistent knowledge levels. Chi-square tests were used to assess the association between knowledge on typhoid prevention and demographic variables, which included age, gender, marital status, type of family, education level, occupation, monthly income, area of residence, duration of residence, prior information received about typhoid, source and timing of that information, and history of typhoid in the family. No significant associations were found ($p < 0.05$). However, analysis of knowledge regarding management of typhoid fever using the Chi-square test or Fisher's Exact Test revealed a statistically significant association with the highest level of education ($p < 0.05$), while all other demographic variables remained non-significant.

3. RESULTS

According to the study's objectives, the data were compiled in a Microsoft Excel spreadsheet and then analyzed using descriptive and inferential statistics in SPSS.

Frequency and Percentage Distribution of Demographic Variables
N=100



It indicates that most participants aged 18–27 years (52%) and a slightly higher proportion of females (55%). Nearly equal numbers were married (44%) and unmarried (43%). Both nuclear and joint families accounted for 45% each. Most had primary (35%) or secondary education (31%), and 40% were employed. A significant number (42%) had a monthly income above ₹20,000. Participants mainly resided in Rushampura (40%), with most living in the area for 6–10 years (36%). Over half (52%) had received information on typhoid, mainly from family, healthcare professionals, or the media. About 29% had a family history of typhoid, mostly within the past 6 months.

Table 1: Distribution of the level of knowledge of adults residing in the selected community area of Waghodia regarding prevention of typhoid fever. N=100

Level of knowledge	f	%	Score range	Median	Mean	SD
Poor knowledge	0	0	1-10 9	5	5.10	1.72
Average knowledge	63	63				
Good knowledge	37	37				

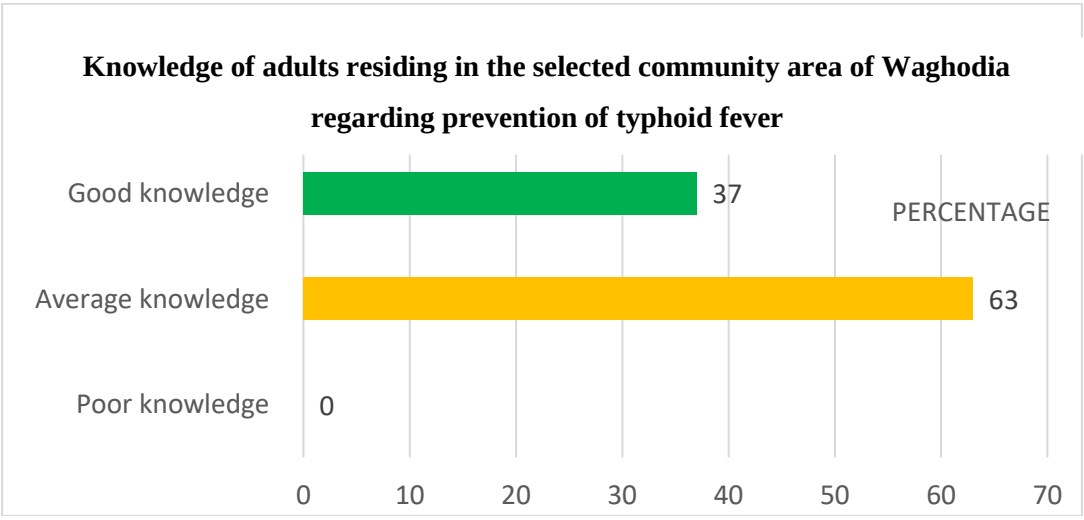


Table 1: Distribution of level of knowledge of adults residing in the selected community area of Waghodia regarding prevention of typhoid fever. The majority of participants (63%) had average knowledge, while 37% had good knowledge. None showed poor knowledge (0%). The knowledge scores ranged from 1 to 10, with a median of 5, a mean of 5.10, and

a standard deviation of 1.72, indicating moderate knowledge with low variability among participants.

Table 2: Distribution of the level of knowledge of adults residing in the selected community area of Waghodia regarding management of typhoid fever N=10

Level of knowledge	f	%	Score range	Median	Mean	SD
Poor knowledge	0	0	1-9 8	5	4.64	1.72
Average knowledge	75	75				
Good knowledge	25	25				

Table 2: Distribution of the level of knowledge of adults residing in the selected community area of Waghodia regarding management of typhoid fever. None of the participants had poor knowledge (0%). The score range was 1–9, with a median of 5 and a mean of 4.64. The standard deviation was 1.72, indicating moderately consistent knowledge levels across participants.

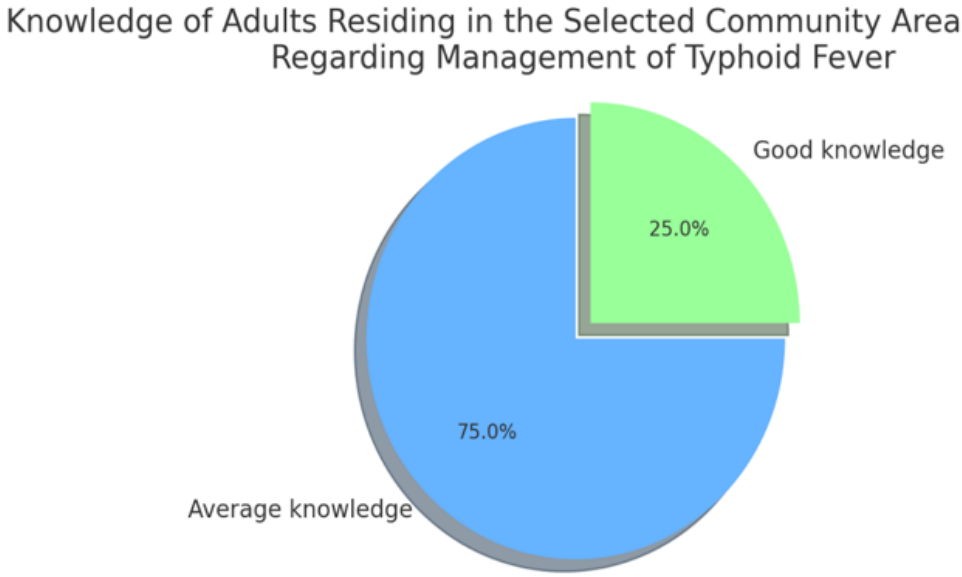


Table 3. Association between knowledge of adults residing in the selected community area of waghodia regarding prevention of typhoid fever with demographic variables.

N=100

S. No	Demographic Variables	Knowledge		χ^2 value	df	p value
		Average	Good			
1	Age in years 18-27 years 28-38 years 39-49 years 50 years and above	 32 17 13 1	 20 12 3 2	3.705	3	0.295^{NS}
2	Gender Male Female	 25 38	 20 17	1.945	1	0.163^{NS}
3	Marital status Married Unmarried Divorced Widower	 22 29 4 8	 22 13 0 2	7.438	3	0.059^{NS}

4	Family size Nuclear Joint Extended	 23 31 9	 22 14 1	3.526	2	0.238^{NS}
5	Highest level of education Uneducated Primary school Secondary school Graduate or above	 7 23 19 14	 5 12 12 8	0.265	3	0.966^{NS}
6	Current occupation Employed Unemployed Homemaker Retired	 22 16 22 3	 18 7 7 5	5.813	3	0.121^{NS}
7	Average monthly family income Below ₹5,000 ₹5,000 - ₹10,000 ₹10,001 - ₹20,000 Above ₹20,000	 9 15 17 22	 3 4 10 20	4.846	3	0.183^{NS}
8	Area of waghodia Goraj Amodar Rushampura Limda	 13 19 21 10	 10 4 19 4	6.527	3	0.089^{NS}
9	How long residing in this area Less than 1 year 1-5 years 6-10 years More than 10 years	 5 18 21 19	 2 10 15 10	0.648	3	0.885^{NS}
10	Received any information on typhoid fever Yes No	 32 31	 20 17	0.099	1	0.753^{NS}
11	Source of information Health care professionals Family Media Educational institutions	 9 12 9 2 31	 4 11 4 1 17	1.658	4	0.789^{NS}
12	When you received information < 3 months 3-6 months 6-12 months > 1 year ago No	 10 8 8 6 31	 9 5 5 1 17	2.501	4	0.644^{NS}
13	Any family ever had typhoid fever Yes No	 20 43	 9 28	0.624	1	0.430^{NS}

14	If yes when < 3 months 3-6 months 6-12 months > 1 year ago No	 3 9 8 -- 43	 3 3 3 -- 28	1.804	3	0.614^{NS}

Table 3 The chi-square test showed no significant association ($p < 0.05$) between the knowledge of adults in Waghodia regarding typhoid fever prevention and any demographic variables, including age, gender, marital status, family type, education, occupation, income, area, duration of stay, prior information, source/timing of information, or family history of typhoid fever.

Table 4 Association between knowledge of adults residing in the selected community area of waghodia regarding management of typhoid fever with demographic variables.

N=100

S. No	Demographic Variables	Knowledge		χ2 value	df	p value
		Average	Good			
1	Age in years 18-27 years 28-38 years 39-49 years 50 years and above	 39 21 13 2	 13 8 3 1	0.548	3	0.908^{NS}
2	Gender Male Female	 33 42	 12 13	0.121	1	0.728^{NS}
3	Marital status Married Unmarried Divorced Widower	 30 35 2 8	 14 7 2 2	4.113	3	0.250^{NS}
4	Family size Nuclear Joint Extended	 32 35 8	 13 10 2	0.681	2	0.711^{NS}
5	Highest level of education Uneducated Primary school Secondary school Graduate or above	 8 29 18 20	 4 6 13 2	9.308	3	0.025*
6	Current occupation Employed Unemployed Homemaker Retired	 30 17 23 5	 10 6 6 3	0.969	3	0.809^{NS}
7	Average monthly family income Below ₹5,000 ₹5,000 - ₹10,000 ₹10,001 - ₹20,000 Above ₹20,000	 8 16 18 33	 4 3 9 9	2.590	3	0.459^{NS}
8	Area of waghodia Goraj Amodar Rushampura Limda	 19 18 28 10	 4 5 12 4	1.469	3	0.689^{NS}
9	How long residing in this area Less than 1 year					

	1-5 years 6-10 years More than 10 years	5 22 26 22	2 6 10 7	0.398	3	0.941^{NS}
10	Received any information on typhoid fever Yes No	 42 33	 10 15	1.923	1	0.166^{NS}
11	Source of information Health care professionals Family Media Educational institutions No	 10 19 11 2 33	 3 4 2 1 15	2.488	4	0.647^{NS}
12	When you received information < 3 months 3-6 months 6-12 months > 1 year ago No	 15 12 9 6 33	 4 1 4 1 15	3.894	4	0.421^{NS}
13	Any family ever had typhoid fever Yes No	 25 50	 4 21	2.736	1	0.098^{NS}
14	If yes when < 3 months 3-6 months 6-12 months > 1 year ago	 4 11 10 50	 2 1 1 21	4.278	3	0.233^{NS}

Table 4. The chi-square test revealed that only the highest level of education had a significant association ($p < 0.05$) with the knowledge of adults in Waghodia regarding typhoid fever management, while all other demographic variables showed no significant association ($p < 0.05$).

4. DISCUSSION

The study aimed to evaluate the knowledge regarding prevention and management of typhoid fever, with the analysis and interpretation of data collected from 100 adults residing in the selected community area of Waghodia. Descriptive and inferential statistics were used to analyze socio-demographic data and structured knowledge questionnaires.The results revealed that the majority of participants had average knowledge, followed by good knowledge, and none showed poor knowledge in both prevention and management aspects. The mean knowledge score for prevention was 5.10 and for management was 4.64, indicating moderate knowledge levels among participants. According to the chi-square test, no significant association was found between demographic variables and knowledge regarding the prevention of typhoid fever. However, there was a significant association between education level and knowledge regarding the management of typhoid fever. All other variables, including age, gender, marital status, family type, occupation, income, and source of information, were found non-significant in both areas.

5. CONCLUSION

The study concluded that adults residing in the selected community area had moderate knowledge regarding the prevention and management of typhoid fever. Although none of the respondents exhibited poor knowledge, educational qualification was found to be significantly associated with better knowledge in disease management. This finding highlighted the importance of educational background in influencing health awareness. The results implied a need for ongoing health education, particularly among populations with lower educational levels. Community-based awareness programs focusing on personal hygiene, safe water Practices, early detection, and proper disease management should be emphasized to reduce the burden of typhoid in the community.

DISCLAIMER
The study was not funded by any internal or external agency, but rather by the authors' efforts.

CONSENT AND ETHICAL APPROVAL
From the institutional research and ethical committee, the necessary ethical approvals were acquired to conduct a study (PUIECHR/PIMSR/00/081734/82353), and the participants' specific informed consent was also acquired.

CONFLICT OF INTERESTS
The Authors have declared that no competing interests exist.

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