



Effectiveness Of Information Booklet On Knowledge Regarding, Clinical Presentation, Management And Prevention Of Typhoid Fever Among Women

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Abstract

Background

Typhoid fever remains one of the main cause of morbidity and mortality worldwide. Delayed presentations to clinics, usage of suboptimal tests and inappropriate diagnostic facilities are the hindering factors in controlling the spread of enteric fevers in India. Typhoid fever is common in areas with lack of safe drinking water and poor sanitation. The causative agent is either waterborne or food borne for this gastrointestinal infection. The onset and severity of the disease mainly depends on the virulence of the organism and the infective dose. Access to safe water and adequate sanitation, hygiene among food handlers and typhoid vaccination are all effective in preventing typhoid fever. **Aim:** To assess the effectiveness of information booklet on knowledge regarding, clinical presentation, management and prevention of typhoid fever among women of selected rural community areas at Indore, M.P. **Method and Materials:** A quantitative research approach with a pre-experimental one-group pre-test and post-test design was used for the study. The setting of the study was selected villages in Indore, Madhya Pradesh. By using the non-probability purposive sampling technique 301 women were selected. A self-structured questionnaire was used to assess the demographic data and knowledge regarding clinical presentation, management and prevention of typhoid fever. The pre-test knowledge was evaluated on day 1 and information booklet was administered on knowledge regarding clinical presentation, management and prevention of typhoid fever among women and on the 7th day after intervention post-test knowledge was evaluated. The data analysis was done using descriptive and inferential statistics. **Result:** In the pretest, 23(7.6%) participants had obtained poor grade, 169 (56%) participants had obtained average grade, 105 (34.9%) participants had obtained good grade and 4(1.3%) participants had obtained excellent grade. In the posttest, none of participants had obtained poor grade, 65 (21.6%) participants had obtained average grade, 202(67.1%) participants had obtained good grade and 34 (11.3%) participants had obtained excellent grade. The intervention was very effective in increasing the knowledge of the participants. The mean pretest knowledge score was 14.46 ± 4.54 and mean posttest knowledge score was 19.73 ± 4.04 . The obtained "t value = -31.363 in knowledge was higher than the table value at $p=0.001$. The difference was found to be statistically significant ($p=0.001$), showing a significantly higher mean posttest score in comparison to the mean pretest score. The information booklet was effective in increasing the knowledge grade of the participants. **Conclusion:** The findings of the study showed, information booklet was effective in increasing the knowledge of women regarding clinical presentation, management and prevention of typhoid fever. **Keywords:** Knowledge, clinical presentation, management, prevention, typhoid fever, women.

Introduction

Typhoid fever is a life-threatening infection caused by the bacterium *Salmonella Typhi*. It is usually spread through contaminated food or water. Urbanization and climate change have the potential to increase the global burden of typhoid¹. An estimated 11–21 million cases of typhoid fever and 200,000 deaths occur worldwide each year. An estimated 5 million cases of paratyphoid fever occur worldwide each year. An estimated 5,700 infections of *Salmonella Typhi* occur among people in the United States each year; an estimated 620 of these people are hospitalized². The mothers' knowledge and practice regarding care of their children with typhoid fever were unsatisfactory³. Out of 100 samples 41(41%) had inadequate knowledge, 51(51%) had moderate knowledge and 8(8%) had adequate knowledge. Over all percentage of patient and care givers (41%) had moderate knowledge regarding prevention and management of typhoid fever⁴.

Need of the study

Typhoid fever is a global health and pervasive problem throughout the world, especially in developing countries. Typhoid fever is a very common infectious disease with a hugely devastating mortality and morbidity in India. more than half of mothers' knowledge and practice regarding care of their children with typhoid fever found unsatisfactory⁵. About 44.6% of peoples were affected by typhoid at least once in their life, 57.0% of persons said that typhoid problem is more during summer season as compared to other seasons⁶.

About 81% of the general practitioners diagnose typhoid most of the time by clinical examination alone, without taking any support from any laboratory investigation. 83% of our general practitioners give supportive care most of the time. 65% of the general practitioners

most of the time and 26% always, that is 91% highly prefer to apply empirical antibiotic. 93% of general practitioners always 5% most of the time order for Widal test. Again only 3% of general practitioners order for blood culture and that also occasionally, while 97% never do so. Some often noteworthy findings in our study include 92% of general practitioners do not use thermometer, 69% do not count pulse rate, 88% do not even think of brady/tachycardia, 86% do not inspect tongue, 98% do not inspect rose spots, 77% do not palpate abdomen and 65% do not look for hepatosplenomegaly⁷. The overall prevalence of *S. Typhi* was 25.7%. The highest seroprevalence was observed among the age group of 30-34 years (33.3%) and patients with no education. The misconception on the route of TF transmission was observed in 13.5-36.7% of participants⁸.

The prevalence of typhoid fever was significantly associated with rural residence (8.4%). As compared to the urban resident, the rural resident was 3.6 times more likely found to have culture-confirmed typhoid fever. The prevalence of typhoid fever was significantly associated with those patients whose water source was spring 7 (12.3%) and river 7 (13.2%). All of those study participants who used treated water were culture negative. Fever for ≥ 5 days, abdominal pain, and skin rash independently predicted blood culture-confirmed typhoid fever⁹. 46% (20) participant said that typhoid fever is a rare disease, 46.15% (24) said that typhoid fever is more prone on a group of elderly people, 67.30% (35) participants said that typhoid fever was retransmitted by exposure to contaminated environment, 80.75% (42) all participants were said that an animal can spread typhoid fever¹⁰.

Inhabitants of rural areas numbered 36.2% while 63.8% were from urban areas. . Out of the study population, 57.7% had good knowledge while 42.3% had poor knowledge. 49.7% and 35.5% denied, or did not know the importance of food handlers and hand contact with patients in the spread of typhoid fever respectively. Poor knowledge was prevalent among rural residents 52.9%¹¹. All patients and caregivers had negative attitude toward typhoid fever. The study recommended that education at programs should be organized for patients and caregivers regarding management and prevention of typhoid fever¹².

A study to assess the knowledge regarding typhoid fever and its prevention among high school students at selected schools in Mangaluru was conducted and the findings of the study showed that the most of the subject (16%) had moderate knowledge, 49% had inadequate knowledge and 35% had adequate knowledge¹³. The socio-environmental factors that influence the respondents' health-seeking behaviour for typhoid treatment were the decision of parents on the type of treatment they can receive as well as the cost of the treatment. The study further revealed that of the respondents who have had typhoid fever in their lifetime, less than half sought treatment in hospitals. This study recommends that good healthcare-seeking behaviour health promotion programmes should be targeted at parents since they are stakeholders in the healthcare-seeking decision-making of adolescents¹⁴.

So, there was a need to conduct the study among women in rural community area. Hence, the researcher found that it is important to assess the effectiveness of information booklet on knowledge regarding associated factors, clinical presentation and prevention of typhoid fever among women. This strategy was empirically evaluated for its efficacy in increasing the knowledge of women, so there was a need to conduct this study.

PROBLEM STATEMENT:

A study to assess the effectiveness of information booklet on knowledge regarding, clinical presentation, management and prevention of typhoid fever among women of selected rural community areas at Indore, M.P.

OBJECTIVES:

1. To assess the pre-test knowledge regarding, clinical presentation, management and prevention of typhoid fever among women.
2. To assess the post-test knowledge regarding, clinical presentation, management and prevention of typhoid fever among women.
3. To assess the effectiveness of information booklet on knowledge regarding, clinical presentation, management and prevention of typhoid fever among women.
4. To find out the association of pre-test knowledge score with selected socio-demographic variable.

HYPOTHESIS:

RH₁: There will be significant difference between pre test and post test knowledge regarding clinical presentation, management and prevention of typhoid fever among women at the level of $p \leq 0.05$.

RH₂: There will be significant association of pre test knowledge regarding clinical presentation, management and prevention of typhoid fever among women with selected socio demographic variables at the level of $p \leq 0.05$.

Method and Materials:

The present study was aimed to assess the efficacy of informational booklet on knowledge regarding clinical presentation, management and prevention of typhoid fever among women of selected rural community areas at Indore. A quantitative research approach with a pre-experimental one-group pre-test and post-test design was used for the study. The setting of the study was selected villages in Indore. By using the non-probability purposive sampling technique 301 women were selected. A self-structured questionnaire was used to assess the demographic data and knowledge clinical presentation, management and prevention of typhoid fever. The pretest knowledge was evaluated on day 1 and information booklets were administered regarding clinical presentation, management and prevention of typhoid fever and on the 7th day after intervention post-test knowledge was evaluated. The data collection technique used was paper and pencil test. The data analysis was done using descriptive and inferential statistics.

Result and Discussion

Section I: Distribution of participants according to socio-demographic variables

49 (16.3%) participants were in the age group of 18-22 years; 63 (20.9%) were in the age group 23-27 years; 44 (14.6%) were in the age group 28-31 years; 49 (16.3%) were in the age group 32-36 years; 35 (11.6%) were in the age group 37-42 years; and 61 (20.3%) were in the age group 43 years and above. Most of the patients were in the age group 23-27 years.

All the 301 (100%) participants were Hindus. 201 (66.8%) participants were married; and 100 (33.2%) were unmarried. 86 (28.6%) participants had done their primary education; 74 (24.6%) had done their middle schooling; 74 (24.6%) had done their high schooling; 14 (4.7%) had done their higher secondary; 35 (11.6%) had done their undergraduation; and 18 (6%) had done their postgraduation. Most of the participants were poorly educated.

95 (31.6%) participants were from nuclear family; 181 (60.1%) were from joint family; and 25 (8.3%) were from extended family. 234 (77.7%) participants had a family size of 1 to 9 members; and 67 (22.3%) had a family size of 10 or more members. Most of the participants had a family size of 1 to 9 members. 15 (38.2%) participants were employed and 186 (61.8%) were unemployed. Majority of the participants were unemployed.

200 (66.4%) participants had a social support from their parents; 58 (19.3%) from their friends; 6 (2%) from their relatives; and 37 (12.3%) from their neighbours. Most of the participants had a social support from their parents. 246 (81.7%) had a good health status; while 55 (18.3%) had a poor health status. Most of the participants had a poor health status. 59 (19.6%) participants responded positively that their family members had suffered with typhoid; while 242 (80.4%) had responded negatively. Most of the participants had responded negatively.

Section II- To assess the effectiveness of information booklet on knowledge regarding clinical presentation, management and prevention of typhoid fever among women.

Table No. 1
Comparison of pre- and post-test knowledge grades

(N=301)

S. No.	Knowledge Grades	Pretest		Posttest	
		No.	%	No.	%
1.	Poor (0-8)	23	7.6	0	0.0
2.	Average (9-16)	169	56.1	65	21.6
3.	Good (17-24)	105	34.9	202	67.1
4.	Excellent (25-34)	4	1.3	34	11.3
	Total	301	100.0	301	100.0

The above table shows the comparison of pre- and post-test knowledge grades. In the **pretest**, 23 (7.6%) participants had obtained poor knowledge grade; 169 (56.1%) had obtained average knowledge grade; 105 (34.9%) had obtained good knowledge grade; and 4 (1.3%) had obtained excellent knowledge grade. In the **posttest**, none of the participants had obtained poor knowledge grade; 65 (21.6%) had obtained average knowledge grade; 202 (67.1%) had obtained good knowledge grade; and 34 (11.3%) had obtained excellent knowledge grade. The intervention was helpful in improving the knowledge grade of the participants.

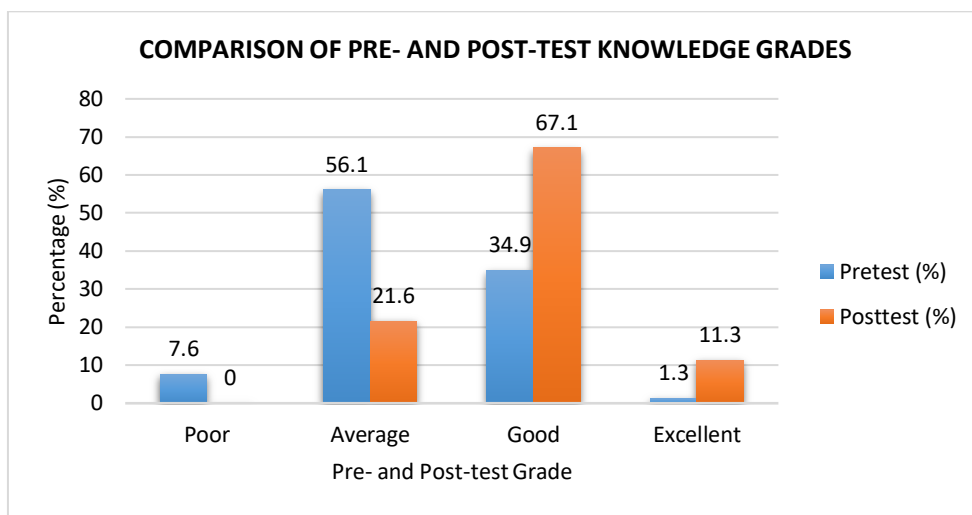


Figure 1: A bar diagram shows the comparison of pre- and posttest knowledge grades

Table No. 2
Comparison of mean pre- and post-test knowledge scores

(N=301)

Pre- and post-test	Number	Mean	SD	't' value, df	P value
Pretest	301	14.46	4.54	-31.353, df=300	0.001*
Posttest	301	19.73	4.04		

Paired 't' test applied. P value=0.001, Significant

The above table shows the comparison of mean pre- and post-test knowledge scores. The mean pretest score was 14.46 ± 4.54 and mean posttest score was 19.73 ± 4.04 . The difference was found to be statistically significant ($P=0.001$). The mean posttest score was significantly higher than the mean pretest score. The intervention was helpful in improving the knowledge of the participants. Hence H_0 is accepted.

Comparison of pre- and post-test knowledge grades domain-wise of the participants:

Comparison of pre- and post-test knowledge grades of the domain clinical presentation

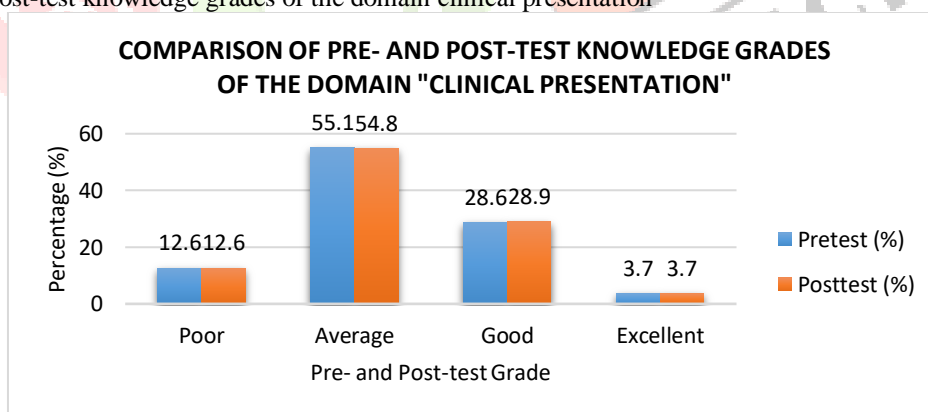


Figure 2: A bar diagram shows the comparison of pre- and posttest knowledge grades

In the **pretest**, 38 (12.6%) participants had obtained poor knowledge grade; 166 (55.1%) had obtained average knowledge grade; 86 (28.6%) had obtained good knowledge grade; and 11 (3.7%) had obtained excellent knowledge grade. In the **posttest**, 38 (12.6%) participants had obtained poor knowledge grade; 165 (54.8%) had obtained average knowledge grade; 87 (28.9%) had obtained good knowledge grade; and 11 (3.7%) had obtained excellent knowledge grade. Only a slight improvement in "Clinical Presentation" domain was seen after intervention.

Table No. 3

Comparison of mean pre- and post-test knowledge scores for the domain “Clinical Presentation”

(N=301)

Pre- and post-test	Number	Mean	SD	‘t’ value, df	P value
Pretest	301	5.72	2.09	-1.417, df=300	0.158, NS
Posttest	301	5.73	2.09		

Paired ‘t’ test applied. P value=0.158, Not Significant

The above table shows the comparison of mean pre- and post-test knowledge scores for the domain “Clinical Presentation”. The mean pretest score was 5.72 ± 2.09 and mean posttest score was 5.73 ± 2.09 . The difference was found to be statistically not significant ($P=0.158$). The intervention was not helpful in improving the knowledge score of these participants for the domain “Clinical Presentation”.

Comparison of pre- and post-test knowledge grades of the domain management

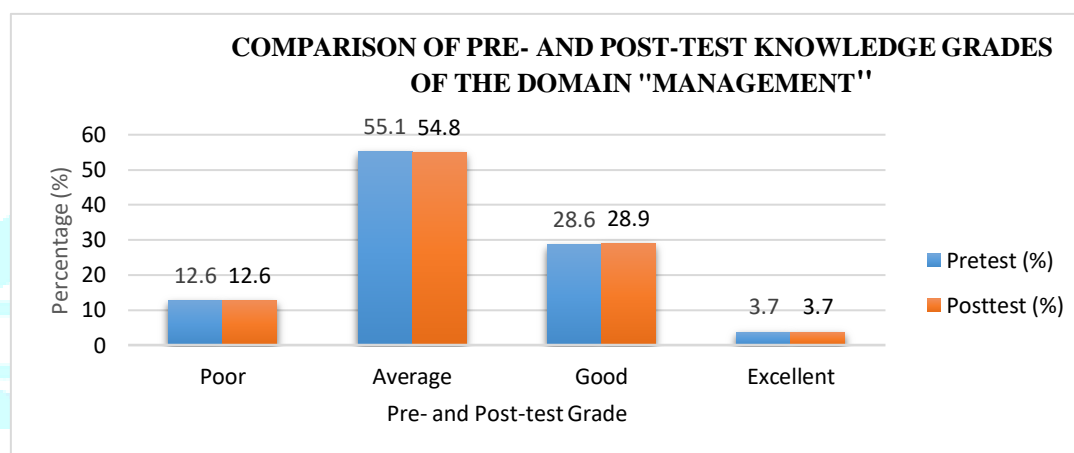


Figure3: A bar diagram shows the comparison of pre- and posttest knowledge grades of the domain “Management”

In the **pretest**, 89 (29.6%) participants had obtained poor knowledge grade; 151 (50.2%) had obtained average knowledge grade; 59 (19.6%) had obtained good knowledge grade; and 2 (0.7%) had obtained excellent knowledge grade. In the **posttest**, 75 (24.9%) participants had obtained poor knowledge grade; 147 (48.8%) had obtained average knowledge grade; 71 (23.6%) had obtained good knowledge grade; and 8 (2.7%) had obtained excellent knowledge grade. An improvement in “Management” domain was seen after intervention.

Table No. 4

Comparison of mean pre- and post-test knowledge scores for the domain “Management”

(N=301)

Pre- and post-test	Number	Mean	SD	‘t’ value, df	P value
Pretest	301	4.78	1.99	-6.359, df=300	0.001*
Posttest	301	5.19	2.11		

Paired ‘t’ test applied. P value=0.001, Significant

The above table shows the comparison of mean pre- and post-test knowledge scores for the domain “Management”. The mean pretest score was 4.78 ± 1.99 and mean posttest score was 5.19 ± 2.11 . The difference was found to be statistically significant ($P=0.001$). The mean posttest score was significantly higher than the mean pretest score. The intervention was helpful in improving the knowledge score of these participants for the domain “Management”.

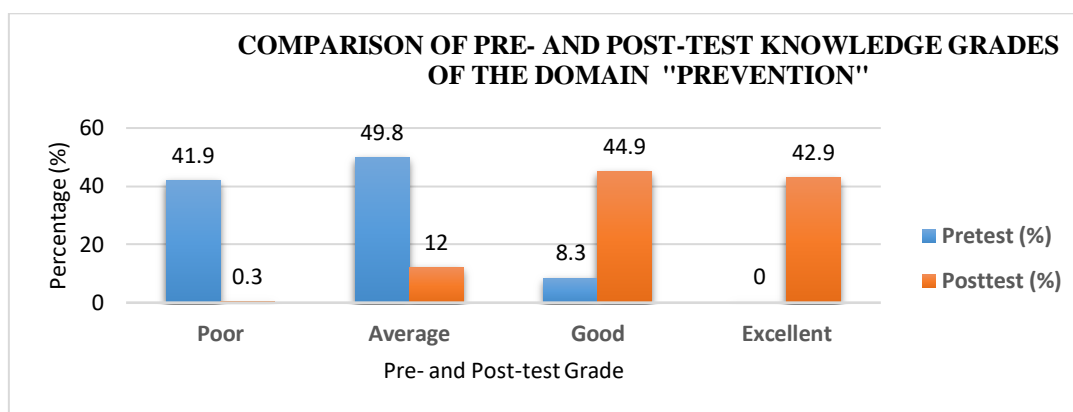


Figure 4: A bar diagram shows the comparison of pre- and posttest knowledge grades of the domain "Prevention"

In the **pretest**, 126 (41.9%) participants had obtained poor knowledge grade; 150 (49.8%) had obtained average knowledge grade; and 25 (8.3%) had obtained good knowledge grade. In the **posttest**, 1 (0.3%) participant had obtained poor knowledge grade; 36 (12%) had obtained average knowledge grade; 135 (44.9%) had obtained good knowledge grade; and 129 (42.9%) had obtained excellent knowledge grade. A vast improvement in "Prevention" domain was seen after intervention.

Table No. 5
Comparison of mean pre- and post-test knowledge scores for the domain "Prevention"

(N=301)					
Pre- and post-test	Number	Mean	SD	't' value, df	P value
Pretest	301	3.93	1.93	-35.590, df=300	0.001*
Posttest	301	8.79	1.93		

Paired 't' test applied. P value=0.001, Significant

The above table shows the comparison of mean pre- and post-test knowledge scores for the domain "Prevention". The mean pretest score was 3.93 ± 1.93 and mean posttest score was 8.79 ± 1.93 . The difference was found to be statistically significant ($P=0.001$). The mean posttest score was significantly higher than the mean pretest score. The intervention was helpful in improving the knowledge score of these participants for the domain "Prevention".

There was an overall significant improvement in the knowledge score after the intervention. On domain wise evaluation, in post-intervention, no significant improvement was seen in the "Clinical Presentation" domain, while a significant improvement was seen in the "Management" and "Prevention" domains. Most of the participants were lacking the management and prevention skill sets, which showed a significant improvement after the intervention. Overall, intervention was very successful in improving the knowledge of the participants.

Table No. 6
Domain wise pre- and post-test comparison of knowledge scores of the participants

(N=301)

S. No.	Knowledge Domain	Pretest				Posttest			
		Mean	SD	F Value	P value	Mean	SD	F value	P value
1.	Clinical Presentation	5.72	2.09	60.0621, df=2	0.001*	5.73	2.09	271.3081, df=2	0.001*
2.	Management	4.78	1.99			5.19	2.11		
3.	Prevention	3.93	1.93			8.79	1.93		

One-way ANOVA test applied.

The above table shows the comparison of mean pre-test and post-test knowledge scores in relation to the knowledge domains. In the pretest, the mean knowledge score in the domain "Clinical Presentation" was 5.72 ± 2.09 ; in the domain "Management", it was 4.78 ± 1.99 ; and

in the domain “Prevention”, it was 3.93 ± 1.93 . In the post-test, the mean knowledge score in the domain “Clinical Presentation” was 5.73 ± 2.09 ; in the domain “Management”, it was 5.19 ± 2.11 ; and in the domain “Prevention”, it was 8.79 ± 1.93 .

In the **pre-test**, the mean knowledge score was highest in the domain “Clinical Presentation” and lowest in the domain “Prevention”. The comparison of mean pre-test knowledge score in relation to the knowledge domains was found to be statistically significant ($P=0.001$), showing that the mean pre-test knowledge score significantly varied in relation to the knowledge domains. In the **posttest**, the mean knowledge score was highest in the domain “Prevention” and lowest in the domain “Management”. The comparison of mean posttest knowledge score in relation to the knowledge domains was found to be statistically significant ($P=0.001$), showing that the mean posttest knowledge score significantly varied in relation to the knowledge domains.

Section III: Association between pre-test knowledge grade and socio - demographic variables

A statistically significant association was seen between health status; and pretest knowledge grades ($P<0.05$); showing that the pretest knowledge grade is dependent on health status of the participants. A statistically significant association was not found between other socio-demographic variables and pre-test knowledge score ($p>0.05$), showing that the pretest knowledge grade is independent of these socio-demographic variables

Discussion:

Majority of the participant 63 (20.9%) were in the age group 23-27 years; all the 301 (100%) participants were Hindus. 201 (66.8%) participants were married; 86 (28.6%) participants had done their primary education; 181 (60.1%) were from joint family; 234 (77.7%) participants had a family size of 1 to 9 members; 200 (66.4%) participants had a social support from their parents; 246 (81.7%) had a good health status and 242 (80.4%) had not suffered with typhoid fever.

In the pretest, 23 (7.6%) participants had obtained poor knowledge grade; 169 (56.1%) had obtained average knowledge grade; 105 (34.9%) had obtained good knowledge grade; and 4 (1.3%) had obtained excellent knowledge grade. In the posttest, none of the participants had obtained poor knowledge grade; 65 (21.6%) had obtained average knowledge grade; 202 (67.1%) had obtained good knowledge grade; and 34 (11.3%) had obtained excellent knowledge grade. The mean pretest score was 14.46 ± 4.54 and mean posttest score was 19.73 ± 4.04 . The difference was found to be statistically significant ($P=0.001$). The mean posttest score was significantly higher than the mean pretest score. The intervention was helpful in improving the knowledge of the participants

The present study is supported by a study which was conducted to assess the effectiveness of Planned Teaching Programme on Knowledge of Mothers of School Aged Children on Prevention of Typhoid Fever (Mutalikdesai S. 2015). The results showed that out of 100 participants Pre-Test findings were 34.6% and 33.4% in experimental and control group respectively. While post-test score were 80.9% and 35.3% in experimental and control group respectively. Hence the post-test Mean knowledge score of the experimental group was significantly higher than the post-test knowledge score of control group. The paired student ‘t’ test value was 53.52 which is highly significant and $p=0.001$ level.

Similarly, another study conducted by S. Mahmoud(2021) to assess the Effect of Educational Program on Improving Mothers' Performance towards Children with Typhoid Fever at Zagazig City. Result showed that the overall pretest knowledge score was improved from 77.7% in pre intervention to 97.1% immediately post intervention.

In present study statistically significant association was seen between health status and pretest knowledge grades ($P<0.05$); showing that the pretest knowledge grade is dependent on health status of the participants. The study is supported by a study conducted by M. H. Gasemto assess the Poor food hygiene and housing as risk factors for typhoid fever in Semarang, Indonesia. Multivariate analysis showed that living in a house without water supply from the municipal network (OR = 29.18; 95% CI = 2.12-400.8) and with open sewers (OR = 7.19; 95% CI = 1.33-38.82) was associated with typhoid fever. In this population typhoid fever was associated with poor housing and inadequate food and personal hygiene. Never or rarely washing hands before eating (OR=3.97; 95% CI=1.22-12.93) and being unemployed or having a part-time job (OR=31.3; 95% CI=3.08-317.4) also were risk factors.

Conclusion

The findings of the study showed, informational booklet was effective in increasing the knowledge regarding clinical presentation, management, prevention of typhoid fever among women. Most of the participants were lacking the management and prevention skill sets, which showed a significant improvement after the intervention. Overall, intervention was very successful in improving the knowledge of these participants. The study recommend that Periodical educational programs should be organized for mothers and adults regarding clinical presentation, management and prevention of typhoid fever to reduce the incidence of typhoid fever and to enhance the health of people.

Limitations

- The study was confined to specific geographical area which imposes a limit on generalization
- Hence practice was not used, which limits the study only to the knowledge area.

Conflict of interest -The authors declare no conflict of interests.

REFERENCE

1. <https://www.who.int/news-room/fact-sheets/detail/typhoid>
2. [Centers for Disease Control and Prevention , National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\) , Division of Foodborne, Waterborne, and Environmental Diseases \(DFWED\) January 12, 2023](#)

3. Abdel-Sadik B.R., et al. .Maternal Awareness Regarding Care of Their Children with Typhoid Fever. Egyptian journal of health care; 2017, Volume 8, Issue 4, Pages 180-189
4. K. Renuka et al. knowledge regarding prevention and management of typhoid fever among patients and care givers attending OPD in government area hospitals at hadrachalam, Telangana. Int. J.Appl Res 2018; 4(1):22-24
5. Abdel-Sadik B.R., et al. .Maternal Awareness Regarding Care of Their Children with Typhoid Fever. Egyptian journal of health care; 2017, Volume 8, Issue 4, Pages 180-189.
6. Muhammad Nadir Naqqash et al.,A Cross Sectional Survey of Community Awareness about Typhoid and its Major Vector Cockroach in Southern Punjab, PakistanMiddle-East Journal of Scientific Research 2014, 21 (4): 602-608.
7. Uttam Kumar Paul1, et. al., Knowledge, Attitude and Practice of General Practitioners Regarding Typhoid Fever. International Journal of Scientific Study2016;3(10):83-86.
8. Mulu W, Akal CG, Ababu K, Getachew S, Tesfaye F, Wube A, Chekol D. Seroconfirmed Typhoid Fever and Knowledge, Attitude, and Practices among Febrile Patients Attending at Injibara General Hospital, Northwest Ethiopia. Biomed Res Int. 2021 Apr 13;2021:8887266. doi: 10.1155/2021/8887266. PMID: 33954201; PMCID: PMC8060073.
9. Habte L, Tadesse E, Ferede G, Amsalu A. Typhoid fever: clinical presentation and associated factors in febrile patients visiting Shashemene Referral Hospital, southern Ethiopia. BMC Res Notes. 2018 Aug 22;11(1):605. doi: 10.1186/s13104-018-3713-y. PMID: 30134970; PMCID: PMC6103867.
10. Das Sima. Knowledge Regarding Typhoid Fever among Mothers of Under 5 Children in Selected Community of Bhaktapur.International Journal of Innovative Science and Research Technology :2020,Volume 5, Issue 10,
11. Naglaa El-Sherbiny, et al., Community based Survey of Typhoid Fever in Fayoum, Egypt. Awareness, Assessment and Food Handlers' AppraisalInternational Journal of Sciences : 2018, 4(01):43-50
12. Mohamed et al.,Assessment of Knowledge and Attitude For patients and their Care Givers Regarding to Typhoid Disease in Outpatient Clinics in Fever Hospitals at Assiut Governorate Assiut Scientific Nursing Journal Vol , (8) No, (20), March, 2020, pp (145-155).
13. Ravi MA, et al. A study to assess the knowledge regarding typhoid fever and its prevention among high school students at selected schools in Mangaluru American International Journal of Research in Humanities, Arts and Social Sciences : 2017; 20(1), 70–73
14. Edejoro O., et al. Socio-environmental Factors Influencing Preferences for Typhoid Fever Treatment Among Secondary School Students in Ikenne, South-West, Nigeria. International Journal of Public Health and Pharmacology : 2021,1(1), 31-42
15. Mutalikdesai S. Effectiveness of Planned Teaching Programme on Knowledge of Mothers of School Aged Children on Prevention of Typhoid Fever in Selected Hospitals of Hassan , Karnataka . Journal of Biology, Agriculture and Healthcare 2015;5(15):22–6.
16. S. Mahmoud, et al. Effect of Educational Program on Improving Mothers' Performance towards Children with Typhoid Fever at Zagazig City. International Journal of Novel Research in Healthcare and Nursing: 2021 Vol. 8, Issue 2, pp: 151-168.
17. M H Gasem. Poor food hygiene and housing as risk factors for typhoid fever in Semarang, Indonesia. Trop Med Int Health. 2001 Jun;6(6):484-90.

