

A close-up photograph of a bouquet of flowers. The bouquet features several large, vibrant pink roses in various stages of bloom, interspersed with numerous small, delicate white flowers, likely baby's breath. The flowers are set against a soft, out-of-focus background. The word "WELCOME" is printed in a bold, white, sans-serif font across the center of the image, partially overlapping the roses.

WELCOME

Presented By:

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Title:

Demographic study of enteric fever in a tertiary care hospital (DMCH) in Bangladesh

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Enteric fever is the most common febrile illnesses encountered by the physicians in Bangladesh.

It represents a major burden of disease in the communities- due to lack of pure drinking water and adequate sanitation.

***S. typhi* is a major cause of enteric fever in Bangladesh .**

More than 27 million cases of enteric fever occur world wide in each year with 2,16,000 deaths.

The incidence is highest (>100 cases per 1,00,000 population per year) in south central and south-east asia.

Risk Factors:

- ❖ Where there is neither safe water supply nor adequate sanitation.
- ❖ Through faecal contamination of water and food.
- ❖ Through enteric fever patients or carriers excreting *Salmonella*.
- ❖ Carriers such as food handlers are an important source of transmission.

Effects of intervention regarding risk factors:

Enteric fever has disappeared from the developed countries with good sanitation.

But it still remains a major public health problem in many developing countries including Bangladesh **due to lack of environmental sanitation including sewage disposal & safe *water* supplies.**

It is endemic in many developing countries with occasional outbreaks of epidemic.

RATIONALE OF THE STUDY

In our country there are limited study regarding the demography and risk factors of enteric fever.

The study was conducted so that, if the risk factors of enteric fever can be detected it will enable the physician of all level to take a good decision for prevention of enteric fever.

Objective:

General Objectives:

- Demographic study of enteric fever in a tertiary care hospital (DMCH).

Specific Objectives :

- To show the relation of poor sanitation and lack of access to clean drinking water with the incidence of enteric fever.
- To show relation between dietary habit and maintenance of personal hygiene before developing typhoid fever.
- To assess the socio-economic characteristics of the patients.

MATERIALS & METHODS

- **Type of Study:**

Hospital based cross sectional observational study.

- **Place of study :**

Dhaka Medical College Hospital (all Indoor Medicine Units and Medicine out patient department.)

MATERIALS & METHODS (contd.)

- **Study Population :**

Patients (Both male and female aged 16-60 years admitted or attending the outpatient department in DMCH.

- **Total Sample size: 50.**

- **Sampling technique: Purposive sampling.**

MATERIALS & METHODS (contd.)

- **Data collection**: All data were collected by using a preformed data sheet (CRF - Case record form).
- **Data Analysis**: Statistical analysis was done by SPSS (Service for package social service) programme.

- **Inclusion criteria:**

- (i) Fever for more than 5 days with culture positive *Salmonella typhi* or *paratyphi*.

- (ii) One or more of the following signs: abdominal pain, nausea, vomiting, diarrhoea, headache, splenomegaly, hepatomegaly or rose-spot.

- (iii) Provides informed consent.

- (iv) Age between 16 to 60 years.

- **Exclusion criteria:**

- 1) Person not giving informed consent.

- 2) Patient taking antibiotic (sensitive for enteric fever) within last 4 days of screening for enrollment.

- **Study Duration:** Six months.
- **Study Procedure:** Patients presented in Medicine outpatient department and admitted in indoor were purposively selected for enrollment. Individuals fulfilling the inclusion criteria were enrolled in the study. Informed consent was obtained accordingly. Those who were suspected to have enteric fever were treated by the concerned physician working in outdoor and indoor accordingly.

For indoor patients, blood was collected by the investigator and for outdoor cases, the patient was sent to the microbiology department of DMCH for blood culture and sensitivity.

- **Blood collection procedure:** Blood sample was collected before giving any antibiotic. Collected sample was initially cultured in automated blood culture machine for 24 hours. Then subcultured in MacConkey agar plate aerobically overnight for *Salmonella typhi* or *paratyphi*.

OBSERVATION AND RESULTS

Table I: Age distribution of the study patients (n=50)

Age in years	Number of patients (n=50)	Percentage
≤ 20	20	40.0
21-30	24	48.0
31-40	3	6.0
41-50	2	4.0
> 50	1	2.0
Mean \pm SD	25.6\pm15.7	
Range (min - max)	(16-60)	

Table II: Sex distribution of the study patients (n=50)

Sex	Number of patients (n=50)	Percentage
Male	24	48.0
Female	26	52.0

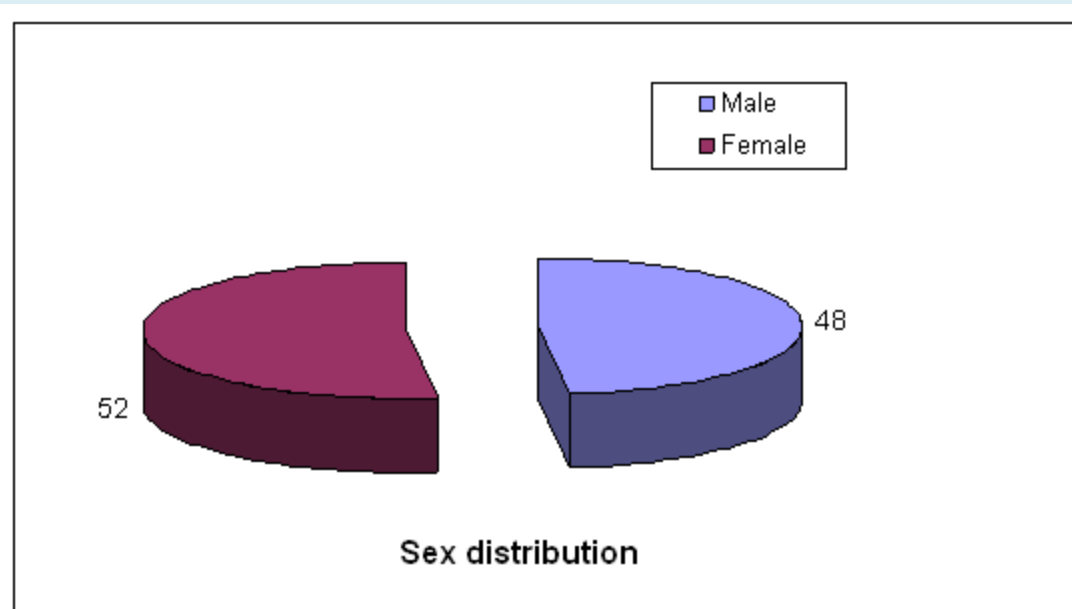


Fig 2: Pie diagram

**Table III: Occupational prevalence of study patients
(n=50)**

Occupation	Number of patients (n=50)	Percentage
Garments Worker	13	26.0
Student	12	24.0
House Wife	7	14.0
Worker/Day Laborer	8	16.0
Service	5	10.0
Businessmen	5	10.0

Table IV: Educational status (n=50).

Educational status	Number of patients (n=50)	Percentage
Illiterate	3	6.0
Primary	21	42.0
Secondary	18	36.0
Graduate	8	16.0

**Table V: Socio- economic status of study patients
(n=50)**

Socio-economic	Number of patients (n=53)	Percentage
Lower Class	22	44.0
Middle	20	40.0
Upper	8	16.0

Table VI: Rural and Urban distribution of the study patients (n=50)

Residence	Number of patients (n=50)	Percentage
Urban	33	66.0
Sub-urban/Slum area	9	18.0
Rural	8	16.0

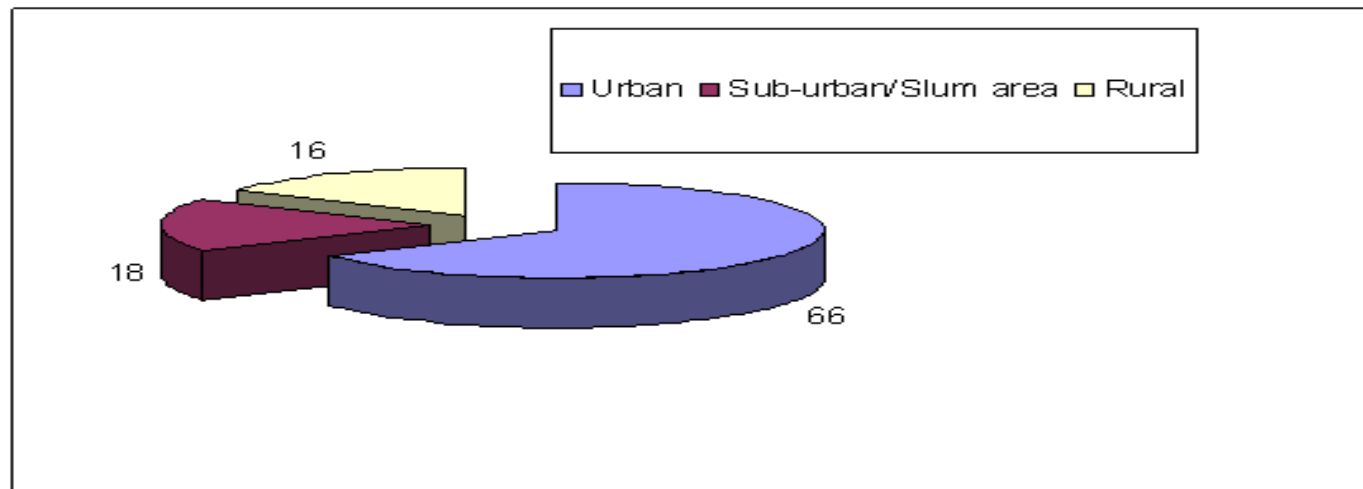


Fig 3: Pie diagrams

Table VII: Distribution of study patients according to dietary history before illness (4 weeks) (n=50)

Dietary history	Number of patients (n=50)	Percentage
Egg (from restaurant)	9	18.0
Uncooked vegetables (Salad)	21	42.0
Fruits (Raw)	10	20.0
Fish or vegetables (Growing sewerage)	5	10.0
Food & Drinks from street vendors	5	10.0

Table VIII: Sanitation facilities (n=50)

Sanitation facilities	Number of patients (n=50)	Percentage
Sanitary latrine	41	82.0
Kachha latrine	6	12.0
Open field	3	6.0

Table IX: Distribution of the patients according to ill housed hold contacts or other affected family members (n=50)

Housed hold contacts or others family members affected	Number of patients (n=50)	Percentage
Yes	21	42.0
No	29	58.0

Table X: Personal hygiene maintenance by the study patient (n=50)

Personal hygiene maintenance	Number of patients (n=50)	Percentage
Hand washing before meal	17	34.0
Hand washing after defecation	33	66.0

Table XI: Source of drinking water (n=50)

Drinking water	Number of patients (n=50)	Percentage
Supply from WASA (Water and Sewerage Authority)	35	70.0
Tube well water	12	24.0
Ice and Drinks from Vendors	2	4.0
Ponds/River Water	1	2.0

**Table XII: History of taking anti-ulcerant
regularly
among the study patients (n=50).**

Taking antiulcerant	Number of patients (n=50)	Percentage
H ₂ blocker	24	84.0
PPI	14	28.0
Antacid	6	12.0
Anti H pylori drugs	6	12.0

Table XIII: Symptoms wise distribution of study patients (n=50)

Symptoms recorded	Number of patients (n=50)	Percentage
Fever	49	98.0
Pain abdomen	27	54.0
Headache	22	44.0
Vomiting	10	20.0
Loose motion	7	14.0
Cough	6	12.0
Constipation	4	8.0
Joint pain	5	10.0
Body ache	4	8.0
Nausea vomiting	1	2.0
Disorientation	0	0.0

Table XIV: Signs recorded (n=50)

Signs recorded	Mean \pm SD	Range (min – max)
Pulse	71.3 \pm 13.4	30-104
Temperature	101.2 \pm 3.1	90-106
	(n=50)	percentage
Coated tongue	17	34.0
Splenomegaly	4	8.0
Hepatomegaly	1	2.0

Table XV: Sensitivity of different drugs to *Salmonella* (n=50)

Sensitive antibiotics	Number of patients	Sensitive	%	Resistant	%
Ceftriaxone	18	17	94.4	1	5.6
Ciprofloxacin	18	12	66.7	6	33.3
Gentamycin	13	10	76.9	3	23.1
Levofloxacin	10	10	100.0	0	0.0
Azithromycin	10	10	100.0	0	0.0
Meropenem	8	8	100.0	0	0.0
Amikacin	8	6	75.0	2	25.0
Amoxicillin	9	3	33.3	6	66.7
Cotrimoxazole	14	3	21.4	11	78.6
Erythromycin	1	1	100.0	0	0.0
Nalidixic acid	2	0	0.0	2	100.0

Table XVI: Blood culture in study patients (n=50)

Blood culture	Positive	Percentage
<i>Salmonella typhi</i>	46	92.0
<i>Salmonella paratyphi</i>	4	8.0

DISCUSSION

In this study it was found that :

- 88% cases were below 30 years of age group with male to female ratio (1 : 1.1).
- Nearly two third (66.0%) of the patients came from urban area, 9 (18.0%) came from sub-urban/slum area and rest 8 (16.0%) from rural area.

- Majority (42%) of the patient had primary level education and from lower class.
- Garments workers (26%) and students (24%) were found to be affected more.
- Hand washing before meal only (34% case).

- Food and drinks from street vendors (20% cases),
- Consumption of raw vegetables/fish growing in or contaminated with sewerage (20% cases),
- Patients taking eggs - pouched/liquid (68%) and raw fruits (34%) and salad like uncooked vegetables (42%).
- Patient taking antiulcerants were found more prone to develop enteric fever:
 - (H₂-blocker 48%, PPI 28%, Antacid 12%,
Anti *Helicobacter pylori* drugs 12%).

Following independent risk factors were identified:

- Consumption of uncooked vegetables like salad (42% case),
- Consumption of poor quality drinking water (70% case),
- Lack of personal hygiene, and
- Chronic gastric acid suppression with medications.

Conclusion:

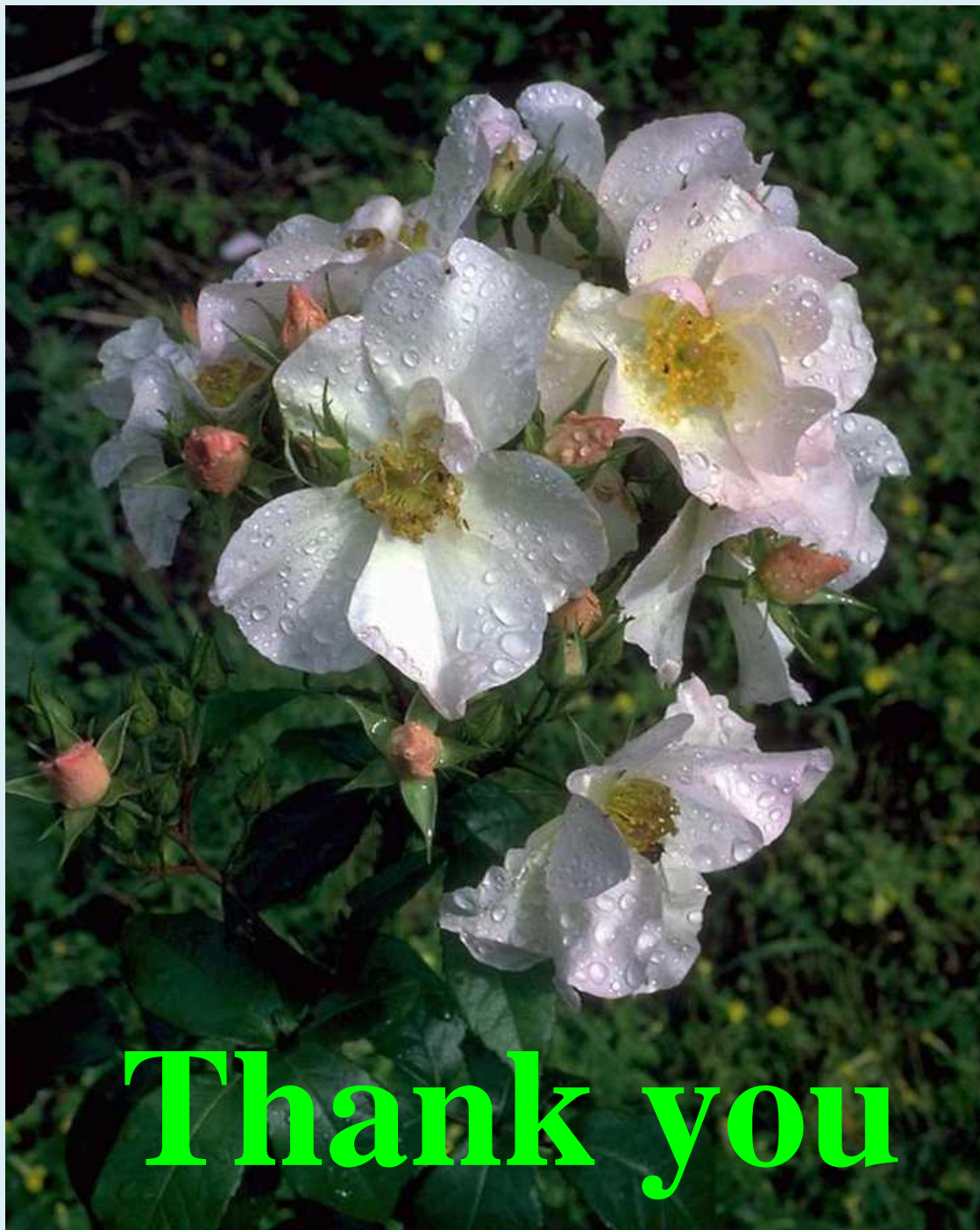
Enteric fever remains an important public health problem, particularly in developing countries like Bangladesh.

Poor sanitation and hygiene together with the absence of clean and safe drinking water contribute to the high prevalence of enteric fever.

The results indicate that

- ❖ Enteric fever were found more in patient from lower socio-economic class,
- ❖ Younger and adolescent age group,
- ❖ Taking poor quality drinking water, contaminated food and drinks, and
- ❖ Lack of personal hygiene.

This study may result in development of more awareness among the physicians to consider the diagnosis and take preventive measure. The findings of this study can provide a few guidelines to the future researchers.



Thank you