To study the causes and hygiene practices of diarrhoea

Mamta Jaiswal

Abstract
In general Diarrhoea is caused by a gastrointestinal problem, but may be a symptoms of some underlying ailment such as irritable bowel syndrome, diverticular disease, bowel cancer, celiac disease etc. Diarrhoea caused by enteric infection is a major factor in morbidity and mortality worldwide. An estimated 2 - 4 billion episodes of infectious diarrhea occur each year and are occur in especially prevalent in infants. This study reviewed literature on diarrhoeal disease causes, control in infants and children in India from literature published in PubMed, Google search engine and other databases on the internet. Data were described in terms of determinants, management and intervention strategies, preventive strategies, Role of home scientist to control diarrhoea, knowledge of home remedies to mother etc.

Keywords: Diarrhoea, mortality, morbidity, home-remedies, infection

1. Introduction
Diarrhoea is characterized by frequent, watery bowel movements, often accompanied by stomach cramps, abdominal pain and gas. Diarrhoea may be of various colors and contain mucous, blood or pus. In general Diarrhoea is caused by a gastrointestinal problem, but may be a symptoms of some underlying ailment such as irritable bowel syndrome, diverticular disease, bowel cancer, celiac disease, pancreatitis, hyperthyroidism, crohns disease, dysentery, AIDS or ulcerative colitis, among others. It is therefore, important to discover the cause of the Diarrhoea. Diarrhoea is considered to be one of nature's defense systems used to help rid the body of toxins and poisons as quickly as possible. It is important to know what diarrhea does to the body besides the obvious effects. The salivary glands in the mouth, the mucous membrane in your stomach, and the liver and pancreas produce saliva which is used in the digestive process to break down food.

When diarrhea strikes the saliva is lost and the digestive process is interrupted. In addition, diarrhea depletes the body of important minerals (potassium, magnesium, chloride, sodium and calcium) called electrolytes, needed for good health. Without these minerals one may feel weak, tired, depressed, have an abnormal heart rhythm, and become dehydrated.

Objectives
• To identify the causes of diarrhea.
• To identify hygiene and sanitation in food habits in daily life.

Research Methodology
This chapter deals with the research procedures applied in conducting the present study. For convenience, the research methodology has been discussed under the following three subheads
• Research design
• Data gathering procedure and statistical techniques used

Research design
It comprises of the following sub-parts
1. Locale of the study
2. District under study
3. Selection of the slums
4. Sample of respondents
5. Pilot study
6. Pre-testing of instruments
7. Tools and data collection
8. Statistical analysis of data

I. Locale of the study
Uttar Pradesh was chosen as locale of the study. This was done with the intention that U.P. is a major state of the country and diarrhoea is a major problem of the state as well as the country.

II. District under study
District Kanpur was purposively selected for this study because Kanpur city is a big city and Population of this city is very high and there are more pollution and cases of diarrhea occur more in this city.

III. Selection of the slums
Kanpur city is divided in six zones and every zone have slums. Present investigation was carried out in 6 urban slums of Kanpur city.

Selection of children
After having prepared a list of children from each slum out of 300, 50 children were randomly selected from each 6 zones in Kanpur city.

Pilot study
Prior to finally deciding the title of the project a pilot survey of the area was conducted. This gave an idea about the place of the study and nature of the samples.

Pre-testing of instruments
Before collecting the data from the finally selected sample of 300, 50 children were identified other than those included in the final sample of respondents. These children’s mother were interviewed with the help of schedules and questionnaires developed for collecting the data.

Tools and data collection
The necessary evidence were collected in line with the objective of the study. All the 300 children respondents were inclusively approaches by the researcher. By personal contact, all the respondents mother were interviewed with the help of schedule for the study.

Statistical analysis
Statistical analysis are procedures used in finding out the numerical value of the whole study. The statistical techniques used in the study are as follows:
1. Percentage
2. Arithmetic mean
3. Chi-square test
4. Correlation coefficient
5. Standard deviation

1. Percentage
Single comparisons were made on the basic of the percentage, for drawing percentage, the frequency of a particular cell was multiplied by 100 and divided by total number of respondents in that particular category to which they belonged.

\[
\text{Percentage} = \frac{\text{The sum of all the responses}}{\text{Total number of all the responses}}
\]

2. Arithmetic mean
Arithmetic mean is the average used in the present study symbolically,

- (i) For ungrouped data
  \[
  \overline{X} = \frac{\sum X_i}{N}
  \]

- (ii) For grouped data
  \[
  \overline{X} = \frac{\sum f_i X_i}{\sum f_i}
  \]

where,
- \(X\) = Arithmetic mean
- \(X_i = i^{th}\) variable
- \(f_i = i^{th}\) frequency
- \(\sum f_i = \text{Total frequency}\)

3. Chi-square test
In order to test the independence of two attributes a Chi-square test was applied as

\[
\chi^2 = \sum_{i=1}^{n} \frac{(o_i - E_i)^2}{E_i}
\]

where
- \(o_i = \text{Observed frequency of } i^{th} \text{ cell}\)
- \(E_i = \text{Expected frequency of } i^{th} \text{ cell}\)

In \(x \times c\) contingency table, \(\chi^2\) value is compared at \((r-1) \times (c-1)\) degree of freedom with theoretical value of \(\chi^2\) at 5 percent level of significance.

4. Correlation coefficient
Karl pearson has given a coefficient of correlation for the measurement of linear relationship, which exist between two variables. If \(X\) and \(Y\) are two variables and if \(E(X, Y) \neq 0\) then correlation coefficient \(r\) is

\[
r = \frac{\text{Cov}(X, Y)}{\sqrt{\text{Var}(X) \cdot \text{Var}(Y)}}
\]

or

\[
r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}}
\]

where
- \(\Sigma xy = \left[ \Sigma XY - \frac{\Sigma X \times \Sigma Y}{n} \right] \)
- \(\Sigma x^2 = \left[ \Sigma X^2 - \frac{(\Sigma X)^2}{n} \right] \)
- \(\Sigma y^2 = \left[ \Sigma Y^2 - \frac{(\Sigma Y)^2}{n} \right] \)

and \(n = \text{Sample size}\)
5. Standard deviation (S. D)
It is defined as the square root of the means of the squares of the deviations taken from arithmetic mean

(i) For ungrouped data
\[ \text{S.D.} = \sqrt{\frac{1}{n} \sum (X_i - \bar{X})^2} \]

(ii) For grouped data
\[ \text{S.D.} = \sqrt{\frac{1}{n} \sum f_i (X_i - \bar{X})^2} \]

Finding and Discussion
The empirical results and its discussion have been presented in this chapter. For the purpose of convenience, the finding of the study have been sub-divided under the following heads:-
To identify the causes of diarrhea.
To identify hygiene and sanitation in food habits and daily life.

Table 1: Distribution of families on the basis of food hygiene practices

<table>
<thead>
<tr>
<th>Practices</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate cover</td>
<td>192</td>
<td>64.5</td>
</tr>
<tr>
<td>Paper cover</td>
<td>18</td>
<td>6.0</td>
</tr>
<tr>
<td>Net cover</td>
<td>22</td>
<td>7.3</td>
</tr>
<tr>
<td>None cover</td>
<td>68</td>
<td>22.7</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 1 shows that distribution of families on the basis of food hygiene practices, majority of the respondents have cover food from plate to prevent flies and insects whereas 22.7 percent respondents are not aware about cover to meals in proper way to prevent diarrhoea or other disease. 7.3 percent respondents have used net cover to safe the meals or breakfast. Only 6.0 percent have used paper cover to safe the food. Thus avoid the market food for children where those are kept open.

Table 2: Distribution of respondents on the basis of sanitation and hygiene practices

<table>
<thead>
<tr>
<th>S. No</th>
<th>Sanitation and hygiene practices</th>
<th>Yes</th>
<th>No</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Washing utensils before storage of drinking water</td>
<td>290 (96.7)</td>
<td>10 (3.3)</td>
<td>1.97</td>
</tr>
<tr>
<td>2</td>
<td>Sterilized baby bottles before feeding</td>
<td>22 (7.3)</td>
<td>278 (92.7)</td>
<td>1.07</td>
</tr>
<tr>
<td>3</td>
<td>Presence of sunlight in home</td>
<td>100 (33.3)</td>
<td>200 (66.7)</td>
<td>1.33</td>
</tr>
<tr>
<td>4</td>
<td>Ventilation in home</td>
<td>90 (30.0)</td>
<td>210 (70.0)</td>
<td>1.30</td>
</tr>
<tr>
<td>5</td>
<td>Cleaning hands after toilet</td>
<td>300 (100.0)</td>
<td>-</td>
<td>2.00</td>
</tr>
<tr>
<td>6</td>
<td>Existence of toilet in home</td>
<td>200 (66.7)</td>
<td>100 (33.3)</td>
<td>1.67</td>
</tr>
<tr>
<td>7</td>
<td>Daily change of babies clothes</td>
<td>300 (100.0)</td>
<td>-</td>
<td>2.00</td>
</tr>
</tbody>
</table>
Table 2. Reveals that distribution of respondents on the basis of sanitation and hygienic practices, majority of the respondents were given maximum scores to cleaning hands after toilet and daily change of babys cloths respectively. Second highest rank (1.97) to washing of utensils before storage of drinking water. To prevent diarrhea there should be proper ventilation at home and presence of sunlight in home. As evident in table 5.32 that sanitation and hygiene practices are not satisfactory. While hygiene concerns activities to stop germs from getting into the body. These activities involve village, household and each person. The health worker should discuss these point with all members of village. He should learn from them the local beliefs about diarrhea and encourage those that are harmful and explain why some local practices are harmful.

<table>
<thead>
<tr>
<th>Causes</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial infection</td>
<td>158</td>
<td>52.7</td>
</tr>
<tr>
<td>Food poisoning</td>
<td>50</td>
<td>16.7</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>34</td>
<td>11.3</td>
</tr>
<tr>
<td>Viral infection</td>
<td>15</td>
<td>5.0</td>
</tr>
<tr>
<td>Parasites</td>
<td>9</td>
<td>3.0</td>
</tr>
<tr>
<td>Bottle feeding</td>
<td>22</td>
<td>7.3</td>
</tr>
<tr>
<td>Reaction to medicine</td>
<td>12</td>
<td>4.0</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3 shows that distribution of children according to diarrhoeal causes, 52.7 percent children were suffered Bacterial infection causes diarrhea, bacteria in food or protozoa in water are often the cause other causes 8.0 percent children were having viruses and parasites in food causes diarrhoea. Diarrhoea caused by intestinal parasites also, 16.7 percent children were suffering diarrhoea by food poisoning whereas 11.3 percent children by malnutrition. Diarrhoea is common problem that usually lasts a day or two and goes away on its without any special treatment. However, prolonged diarrhea can be a sign of other problems. People with diarrhea may pass more than a quart of stool a day.
Diarrhoea can cause dehydration. Dehydration is particularly dangerous in children and the elderly, and it must be treated promptly to avoid serious health problems. The main cause of diarrhoea are poor hygiene, lack of clean drinking water, overcrowding, and the trend towards bottle-feeding rather than breastfeeding. Infants who are fed only breast milk seldom get diarrhea.

**Summary and Conclusion**

The study shows that majority of the respondents cover food from plate to prevent flies and insects whereas 22.7 percent respondents not aware about cover to meals in proper way to prevent the diarrhea or other disease. 7.3 percent respondents use net cover to safe the meals or breakfast, only 6.0 percent respondents used paper cover to safe the food.

Majority of the respondents were given maximum scores to cleaning hands after toilet and daily change of baby’s cloths respectively. Second highest rank to washing of utensils before storage of drinking water. To prevent diarrhea there should be proper ventilation at home and proper sunlight in home. Sterilized baby bottles before feeding to keep babies safe from diarrhea, extra and proper cleaning of feeding bottles. Improper sterilization of bottles and nipples can lead to various gastro-intestinal disorder in children.

**References**