A Study on Prevalence of Diarrhoeal Diseases among under five Children in Kanchipuram Town

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Abstract

Aim and Background: In the present study was to investigate that the study on prevalence of Diarrhoel disease among under five children in Kanchipuram town. Diarrhoeal diseases are a major cause of hospitalizations and child deaths globally. Together they account for approximately one in six deaths among children younger than five years. In India more than 2.3 million annual deaths among children, about 334 000 are attributable to diarrhoeal diseases. Materials and Methods: This is a cross sectional study was conducted to know the prevalence of diarrhoeal diseases among under the age of five Years children in Kanchipuram town. This study was carried out in 10 wards of kanchipuram town. In the present study mullti stage sampling system were used. Results: The total sample studied was 1138 under five children. In which 601 (52.8%) were male children and 537 (47.2%) were female children. It was observed in the study that diarrhoea in children is higher in joint family (33.0%) when compared the nuclear family (22.2%). The association was found to be statistically significant. Conclusion: In the present study we conclude that diarrhoeal diseases have been on an increase in families with young mothers, overcrowding and poor immunization. Hence it is advisable exclusive breast feeding for minimum of 6 months.

Keywords: Diarrhoel disease, Children, Immunization.

INTRODUCTION

Globally the under-five population in 1950 was 335million and for mid-2010 was 642 million according to United Nations population division estimates [1]. In India, Sample Registration System (SRS) shows the under-five population to be 9.7 % for the year 2012 [2]. India is home to the largest number of children in the world, significantly larger than the number in China. The country has 20 per cent of the 0-4 years children population of the world. The number of live births in the country is estimated to be 27 million as per United Nations International Children's Emergency Fund (UNICEF) report 2011 [3].

Over the past few decades, global, regional, national, and local efforts to improve child health have been immensely successful in slashing child mortality worldwide; rates of child mortality have consistently decreased each year since the 1990s.

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However, deaths of children under the age of five still surpassed six million in 2012, the majority of which were from preventable causes as per Pneumonia-Diarrhoea-Progress-Report 2013 [4]. The term, "Diarrhoeal diseases", should be considered only as a convenient expression – not as an nosological or epidemiological entity – for a group of diseases in which diarrhoea is a predominant symptom. Acute diarrhoea is rivaled in importance only by respiratory infection as a cause of morbidity on a worldwide scale. In India acute diarrhoeal disease accounts for about 8 per cent of deaths under five age group during the year 2011 about 10.6 million cases with 1293 deaths were reported in India [5,6].

Diarrhoeal disease is a leading cause of child mortality and morbidity in the world, and mostly results from contaminated food and water sources. Worldwide, 780 million individuals lack access to improved drinking water and 2.5 billion lack improved sanitation. Diarrhoea due to infection is widespread throughout developing countries [7,8]. According to the World Health Organization report (2013) on diarrhoeal disease, Globally Diarrhoeal disease is the second leading cause of death in children under five years old. It is responsible for killing around 7, 60,000 children every year. Diarrhoea can last several days, and can leave the body without the water and salts that are necessary for survival. Most people who die from diarrhoea actually die from severe dehydration and fluid loss. Children who are malnourished or have impaired immunity as well as people living with HIV are most at risk of life-threatening diarrhea [8].The Tamilnadu Social Development Report (2000) has compaild the trend in under fivemortality rates in Tamilnadu. The report says that in 1871, Tamilnadu had an U5MR of 189. But in 1992-93, as per the National Family Health Survey, the rate had substantially come down to 87, compared to the Indian average of 109. Tamilnadu held the 5th rank in India. In 1995, the rate had come down to 66 [9].

Diarrhoea is the most important public health problem connected to water and sanitation and can be both "waterborne" and "water-washed". In recent decades, a consensus developed that the key factors for the prevention of diarrhoea are sanitation, personal hygiene, availability of water and good quality drinking water; and that the quantity of water that people have available for hygiene is of equal or greater importance for the prevention of diarrhoea as the bacteriological water quality.

Materials and Methods

A cross sectional study was conducted to know the prevalence of diarrhoeal diseases among under five children in Kanchipuram town. As per provisional reports of Census India, total population of Kanchipuram in 2011 is 164,265, were as under-five population is 14,464, during the period from September 2018 – August 2019. The children's were selected under the age of five years constituted the study population with consent from respective parents. This study was approved from the Institutional Ethical Committee.

Sampling Method

In the present study have Multi stage sampling like two stage random sampling method.

Stage 1: In Kanchipuram town there are 52 wards in which 10 wards were selected by random sampling method

Stage 2: list of the wards in Kanchipuram were provided by the Municipality. The number of children in the age group of 0-5 years for each ward was also provided. A house to house visit in each ward was made and a list of families with under five children was serially numbered. This formed the sampling frame.

Data Collection

At the time of the visit, a self-introduction to the mother and other family members was made, the purpose and the importance of the study was explained to them and their oral consent was obtained. During the visit, mothers age, occupation, literacy, socioeconomic status of the family, number of members in the family, type of family, type of house, cultural practices (pre-lacteal and colostrum feeding), practice of breast feeding personal hygiene were recorded. Name, age, sex, Immunization status of the child, was recorded in the pre-coded proforma. The verification of records like immunization cards and birth certificates were made wherever available.

All mothers were given health education about diarrhoea, nutrition, feeding, use of ORS during diarrhoea, education on health and hygiene practices.

Contributing Factor Assessment Questionnaire

As stated, the study used the Pre designed, pre tested, and semi structured interview schedule. This questionnaire was designed to elicit information about family demographic and socioeconomic characteristics, including the following; age of the mother and child, occupation and literacy status of the mother, sex of the child, education and occupation of head of the family, family income , total members, number of children, type of family and type of house. Information on birth weight, place of birth, pre lacteal feeds, colostrum, exclusive breastfeeding, duration of breastfeeding, complimentary feeding, bottle feeding, immunization status, source of drinking water, hygiene practices like hand washing, boiling the water, sanitary latrine, open air defecation, garbage waste disposal and presence of house flies were recorded.

Descriptive Variables

The demographic variables were those of age of mother and child, sex of the child, mother's occupation and education, education and occupation of head of the family, monthly income of family, total members in the family, total children in the family, and type of house. The variables for contributing factors were birth weight, pre lacteal feeds, colostrum, exclusive breastfeeding, duration of breastfeeding, complimentary feeding, bottle feeding,

immunization status, and hygiene practices.

Analysis

Number and codes were assigned to each variable and later, data entry was done in an Excel spread sheet (Microsoft Windows 2010). Data was then transformed to SPSS software Package for social science (version 21.0). Descriptive statistics was used to present the data. Chi-square analysis was used to compare the baseline demographic variables. P-value < 0.05 was considered statistically significant.

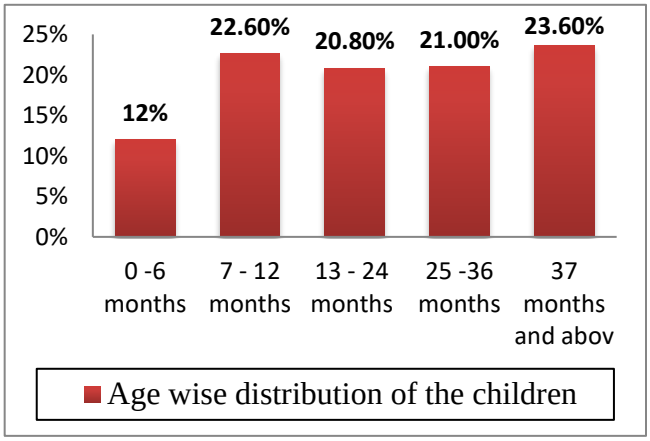
Results

This study was carried out in 10 wards of Kanchipuram town. The total sample studied was 1138 under five children. In which 601 (52.8%) were male children and 537 (47.2%) were female children.

Distribution by age of the children

In the present study 12% (137) of children belonged to the age group of 0-6 months, 22.6% (257) of child belonged to age group of 7-12 months, 20.8% (237) of child belonged to age group of 13-24 months, 21% (239) of child belonged to age group of 25-36 months and 23.6% (263) of them belonged to age group of 37 months and above. (Figure 1)

Figure 1: Distribution by age of the children



Distribution of children by birth weight

Table.1 indicates that distribution of children by body weight. In this study 141 (12.4%) children were born with low birth weight.

Birth weight of the Children	Frequency	Percentage
Below 2.5kgs	141	12.4%
2.5kgs and above	997	87.6%
Total	1138	100%

Distribution of children by pre lacteal feeding

In this study it was observed that pre lacteal feeds were given to 31 (2.7%) children (Table.2)

Table.2 Distribution of children by pre lacteal feeding

Pre lacteal feeding	Frequency	Percentage
Given	31	2.7%
Not given	1107	97.3%
Total	1138	100%

Distribution of children by colostrum feeding

In the present study almost 98.2 %(1118) of children were given colostrum (Table 3).

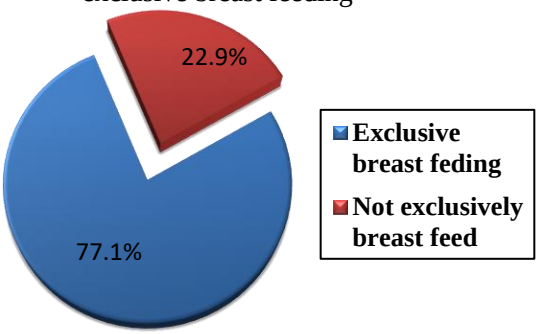
Table.3 Distribution of children by colostrum feeding

colostrum	Frequency	Percentage
Given	1118	98.2%
Not given	20	10.8%
Total	1138	100%

Distribution of child by exclusive breastfeeding

It the present study it was observed that 77.1% (877) of children were exclusively breast feed, 22.9% (261) of children were not exclusive breast feed (Figure 2)

Figure.2. Distribution of children by exclusive breast feeding



Distribution of children by total duration of breast feeding

In this study majority of children43.8% (499) were given breast feeding till the age of 6- 12 months.(Table 4)

Table 4: Distribution of children by total duration of breast feeding

uration of breast feeding	**Frequency**	**Percentage**
Below 6 months	161	14.1%
6-12 months	499	43.8%

13-18 months	294	25.8%
19-24months	127	11.2%

Distribution of children by immunization status

In this study 1086 (95.4%) children were fully immunized till age, 47 (4.1%) children were partially immunized, 5 (0.4%) children were not at all immunized (Table 5).

Table 5: Distribution of children by immunization status

Immunisation status	Frequency	Percentage
Fully immunised till age	1086	95.4%
Partially immunised	47	4.1%
Not immunised	5	0.4%
Total	1138	100%

Prevalence of diarrhoea in last three months

In this present study the prevalence of diarrhoea in under five children in last three months is 26.4%.(Table 6)

Table 6: prevalence of diarrhoea in last three months

Diarrhoea	Frequency	Percentage
Yes	300	26.4 %
No	838	73.6 %
Total	1138	100

Distribution of diarrhoeal episodes

In this present study 300 children had diarrhoea in which 217 (72.3) children had single episode of diarrhoea, 67 (22.3) children had two episodes of diarrhoea and 16(5.3%) children had three episodes in the past three months.(Table 7)

Table 7: Distribution of diarrhoeal episodes

Number of episodes	Frequency	percentage
1	217	72.3%
2	67	22.3%
3	16	5.3%
Total	300	100%

Diarrhoea and Type of family

It was observed in the study that diarrhoea in children is higher in joint family (33.0%) when compared the nuclear family (22.2%). The association was found to be statistically significant. (Table 8).Chi square value= 5.38, df= 2, p> 0.05

Table 8: Diarrhoea and Type of family

Type of family	Diarrhoea in last 3 months		Total
	Yes	No	
Nuclear	155 (22.2%)	543 (77.8%)	698 (100.0%)
Joint family	145(33.0%)	295 (67.0%)	440 (100.0%)
Total	300 (26.4%)	838 (73.6%)	1138 0.0%)

Diarrhoea and Type of house

In the present study, it was observed that percentage of children with diarrhoea was higher among children who were living in a katcha house (32.0%) when compared to children living in a semi pucca house (26.2%) or a pucca house (26.2%). The results shows that the type of house in which the child and family lived did not have any difference in the occurrence of disease (Table 9). Chi square value= 16.06, df= 1, p< 0.05

Table 9: Diarrhoea and Type of house

Type of house	Diarrhoea in last 3 months		Total
	Yes	No	
Pucca	249 (26.2%)	700 (73.8%)	949 (100.0%)
Semi pucca	43 (26.2%)	121 (73.8%)	164 (100.0%)
katcha	8 (32.0%)	17 (68.0%)	25 (100.0%)
Total	300 (26.4%)	838 (73.6%)	1138 (100.0%)

Diarrhoea and Duration of breast feeding

Table 10 shows that as the duration of breast feeding (in months) increases the percentage of children experiencing diarrhoea in the last there months decreases. Only 10.5% of the children had diarrhoea if they were breast fed 25 months and more, compared to 34.5% of children who were breast fed for only 6-12 months. Since the p value is <0.05 its concluded that there is an association between occurrence of diarrhoea and breast feeding.

Table 10: Diarrhoea and Duration of breast feeding

Duration of breast feeding	Diarrhoea in last 3 months		Total
	Yes	No	
Below 6 months	27 (16.8%)	134 (83.2%)	161 (100.0%)
6-12 months	172 (34.5%)	327 (65.5%)	499 (100.0%)
13-18 months	76 (25.9%)	218 (74.1%)	294 (100.0%)
19-24 months	19 (15.0%)	108 (85.0%)	127 (100.0%)
25 months and above	6 (10.5%)	51 (89.5%)	57 (100.0%)
Total	300 (26.4%)	838 (73.6%)	1138 (100.0%)

Chi square value= 40.43, df= 4, p< 0.05

Discussion

The present study was a cross sectional study done urban population for duration of three months. The study was carried out in 10 wards of Kanchipuram town. The study sample (N = 1138) under five children of both sexes and belonging to all strata of socioeconomic group to assess the magnitude of diarrhoeal disease in the Kanchipuram town. Out of 1138 children, 601 (52.8%) were male children and 537 (47.2%) were female children. The age of the children grouped into 5 groups of specific months and children were almost equally distributed in all age groups expect for the age group of 0-6 months. When socioeconomic status considered 43.2% of the children belonged to middle upper middle class.

The prevalence of diarrhoea in fewer than five children for the last three months was found to be 26.4%. This prevalence of 26.4% is found to be slightly higher when compared to study done by meritonstanly (2009) [10].

In the present study, it was observed that as the age of child increased the percentage of children with diarrhoea decreased significantly. The occurrence of diarrhoea was found to be highest in the age group of 7 – 12 months (45.9%). And comparatively less among children of age 37 months and above (18.7%).

In a cohort study done by Sengupta et.al observed that occurrence of diarrhoea was more in the age group of 6-11 months. The occurrence decreased as the age of the child increased [11]. In a survey on incidence of diarrhoea among under five children done in Alwar, Rajasthan showed that the incidence of diarrhoea was found to be maximum among infant and the minimum in the age of four [12].

A similar study done on the incidence of diarrhoea in Haryana showed that the highest incidence of diarrhoea was in the age group of 1-2 years and lower in the age group of 4-5 years [13]. In this present study, the prevalence of diarrhoea was 26.8% in males and 25.9% in females with no statistically significant difference in the occurrence of diarrhoea between them. A study done in Calcutta on diarrhoea among children also observed no significant association of prevalence of diarrhoea with sex of the child [14]. The same was observed in a study done by Jagvir Singh [15] in a rural community. But studies done in delhi [16] and Varanasi [17] showed a higher prevalence in male children and female children respectively

In the present study, it was observed that the diarrhoeal morbidity was significantly higher in children with partially immunized (42.6%) and not at all immunized (80%) when compared to the fully immunized children(25.4.) A study done with immunization and diarrhoeal morbidity in children could not establish association between diarrhoeal morbidity and immunization. This difference may be due to level of immunization coverage and since most children belonged to lower SES [18]. In the present study, it was observed that out of 31 children who had pre lacteal feeds 19.4% had diarrhoea when compared with the 26.6% who did not get pre lacteal feeds.

Out of 1118 children who received colostrum only 26.6% of children suffered from diarrhoea.34.5% of the children who did not receive exclusive breast feeding suffered from diarrhoea when compared with 23.9% of the children who received exclusive breast feeding. Out of 650 children who were bottle fed 31.2% of children suffered from diarrhoea. The children who were still on breast feeding had less proportion of diarrhoea when compared to the children who were started with complement feeding before 6 months.

A study done by Bhandari N R in various socio economic groups showed that diarrhoeal disease morbidity was higher (64.3%) in artificially fed children when compared with exclusive breast fed (33.1%) and partially breast fed(39.75%) children [59]. In a study done in lucknow, prevalence of diarrhoea in exclusive breast fed children(37.5%) was lower when compared with , partially breast fed(52%) and artificially fed (57.8%) children [20]. A study on prevalence of diarrhoea done by Shah Syed M observed that the children who received no colostrum had a higher incidence of diarrhea [21]. In the present study, it was observed that proportion of diarrhoea was more in children who were living in katcha house (32.0%) when compared to children living in semi pucca house (26.2%) and pucca house (26.2%).

Conclusion

In the present study we conclude that diarrhoeal diseases have

been on an increase in families with young mothers, overcrowding and poor immunization. Hence it is advisable Exclusive breast feeding for minimum of 6 months, To continue breast feeding for a minimum of two years as recommended by WHO, Minimum age of child bearing must be 23 years, Child must be fully immunized, Follow proper sanitary methods like usage of boiled water for drinking, proper cleaning of vessels and usage of soap and water for cleaning hands

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