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Original Research Article

Prevalence of under nutrition among under-5 children in the urban field practice area of a medical college in Muzaffarnagar, Uttar Pradesh

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ABSTRACT

Background: In India, undernutrition in children mal the age of five is a serious public health issue. Despite India's expanding economy, both urban and rural areas still have significant rates of undernutrition-related child mortality. There are hardly many studies that concentrate on cities. In order to determine the prevalence of undernutrition in the urban field practice area of a medical college in Muzaffarnagar, Uttar Pradesh, the current study was conducted. Objective of the study was using World Health Organization (WHO) growth standards, to determine the prevalence of undernutrition among children under the age of five.

Methods: A community-based cross-sectional study was conducted in the urban field practice region of the medical college Muzaffarnagar, India, from August 2022 to November 2022. From 1875 registered families, 400 under-five-year-old children were randomly chosen, and a house-to-house survey was used to collect the study's data. The study's goals were explained to the parents, and their written agreement was obtained. The children who were accessible during the study period had their anthropometric measurements taken in accordance with WHO criteria. For nutritional deficits and other morbidities, the kids were checked. Data analysis was performed using the statistical package for the social sciences (SPSS) 23 programme and the Chi square test.

Results: A total of 400 under 5 were examined by going from house to house, and 257 (64.2%) of them were underweight. Boys had significantly (p=0.001) more undernutrition than girls. In the age range of 49 to 60 months, it peaked.

Conclusions: Children's malnutrition continues to be a problem for public health, especially among underprivileged populations.

Keywords: Prevalence, Under five, Undernutrition

INTRODUCTION

In India, undernutrition in children mal the age of five is a serious public health issue.[1] It has the highest incidence in the entire world and is approximately twice as common there.[2,3]

80% of the world's undernourished children reside in just 20 nations. Nearly 60 million children in India are underweight.[4]

According to UNICEF, inadequate diets, recurrent illnesses, poor breastfeeding habits, the introduction of complementary foods too slowly, and a lack of protein in the diet are the main causes of childhood malnutrition. Health state, taboos surrounding certain foods, growth, and individual dietary preferences are additional factors that affect food intake. Malnutrition can also arise from neglect, irregular mealtimes, insufficient food portions, and inadequate parental education.[5] The Indian government is firmly committed to reaching the sustainable development goals (SDGs) by 2030. SDGs

cover all of these nutrition-related factors, including eradicating hunger, ensuring food security, promoting good nutrition, and fostering sustainable agriculture.[6] The nation will not achieve its SDG aim of reducing child mortality if undernutrition is not successfully reduced.[7]

The Global Hunger Index is released annually by the International Food Policy and Research Institute (IFPRI) (GHI). India is listed as 107th out of 121 countries in the report for 2022.[8] According to the National Family Health Survey 4 (NFHS 4) in India, undernutrition affects 35.7% of children mal the age of five, with 38.4% being stunted and 21% being wasting.[9] The prevalence of undernutrition has not decreased as intended from the National Family Health Survey 1 to the NFHS 4. The comprehensive national nutrition survey report (2016-2018) found that 33% of Indian children under the age of 4 were underweight, 17% were wasting, and 35% were stunted.[7] Undernutrition, including stunting, wasting, and underweight, is a kind of malnutrition described by the United Nations Children's Fund as the "silent emergency".[9-11] Due to barriers to obtaining a healthy, balanced diet and essential health and nutrition services, the number of malnourished children rose dramatically during this COVID-19 epidemic.

In underdeveloped nations, a child's nutritional status is influenced by their socioeconomic situation, their knowledge of illnesses like diarrhoea and acute respiratory infections, their mother's educational level, and the accessibility of clean drinking water.[12] Children who are malnourished are more likely to get sick. Children who are statistically underweight die from illnesses like diarrhoea, measles, malaria, and lower respiratory tract infections. Young children's physical and cognitive development is negatively impacted by undernutrition over time.[13]

Children are vulnerable to undernutrition due to a variety of factors that are present in their daily family environments. Despite India’s growth in the economy, the child mortality rate due to undernutrition is still high in both urban and rural areas. Hence assessment of nutritional status among children is critical in framing health policies.[14]

METHODS

Study design

It was a cross-sectional type of study.

Study setting

The study was conducted in a field practice area among families which were registered at urban health training centre of Muzaffarnagar Medical College, Muzaffarnagar.

Ethical approval

Institutional approval was obtained.

Study subjects

Children of registered families aged 0 months to 60 months were included in the study.

Exclusion criteria

Children between 0 to 60 months whose parents did not give consent and children, between 0-60 months, who were seriously ill were excluded.

Study period

The data for this study was collected from August 2022 to November 2022.

Sample size

Sample size was calculated using the formula.

$$n = (Z\alpha)^2 \times p \times q/d^2$$

By taking prevalence of under-nutrition in school aged children as 50% with a relative precision of 10% and error 5%, an optimum sample size for the proposed study was calculated as 400.

There were 1875 registered families with kids between the ages of 0 and 5 years old. Children were chosen using a straightforward random sampling technique and random number grid. Visits to homes are used to collect data.

Tools for data collection

Data collection methods included a standardised questionnaire and physical measurements.

Prior to entering each home, verbal informed consent from the parents who agreed to have their children participate in the study was acquired. With the aid of a questionnaire, data on age, sex, weight, and maternal education were gathered from interviews with the mother and other carers. From the child's birthdate, the exact age of the child was calculated. The age as reported by the mother, to the nearest month, was utilised when information on the precise day of birth was not available. In order to help the mothers’ remember more, a local event calendar for the area was used.

On its website, www.who.int/childgrowth/en, the WHO has released growth reference data for 0–60 months, which was used to define normal, severe undernutrition, and undernutrition for children based on age and sex. Obese, pre obese, and normal were combined to determine what constitutes normal (not undernourished category).[12]

Anthropometry and clinical examination were used to assess nutrition. Children were weighed as per WHO guidelines on anthropometry.[13]

Data analysis

The data was analyzed using statistical package for the social sciences (SPSS) 23. Chi-square test was used to verify the statistical significance of associations. P value of less than 0.05 was considered statistically significant.

RESULTS

Total 400 under five years children were enumerated out of which 257 were undernourished as shown in (Table 1). Thus, showing the prevalence of undernutrition to be 64.25%.

According to Table 1, the age group of 49–60 months saw the highest level of undernutrition (97%) followed by 37–48 months (69.1%) and 13–24 months (67.7%).

Table 1: Age distribution of under nutrition.

Age (in months)	Under nourished (%)	Normal (%)	Total
0-6	37 (45.7)	44 (54.3)	81
7-12	27 (60)	18 (40)	45
13-24	40 (67.7)	19 (32.3)	59
25-36	41 (51.2)	39 (48.8)	80
37-48	47 (69.1)	21 (30.9)	68
49-60	65 (97)	2 (3)	67
Total	257 (64.2)	143 (35.8)	400

According to Table 2, boys (71%) had substantially greater rates of undernutrition than girls (56.4%) (p<0.001).

Table 2: Gender distribution of under nutrition.

Gender	Under nourished (%)	Normal (%)	Total	P value
Male	152 (71)	62 (29)	214	<0.001
Female	105 (56.4)	81 (43.6)	186	

The prevalence of acute morbidity overall was 36%. Cough and cold (20.2%), diarrhoea (6.4%) and fever (5.3%) were most common morbidities that occurred in the two weeks before to the survey (Table 3).

Table 3: Morbidities within 2 weeks of survey.

Morbidity	Affected (%)
Cough and cold	81 (20.2)
Diarrhoea	25 (6.40)
Fever	21 (5.3)
Dental caries	12 (03)
Worm infestations	2 (0.50)
Skin infections	2 (0.50)
Vitamin A deficiency	1 (0.2)
Total	144 (36)

DISCUSSION

In the current study, 64.2% of under 5 were found to be under nourished. Similarly ,58.2% of people were undernourished, according to Garg et al findings.[17] There were 186 (46.5%) girls and 214 (53.5%) boys among the children. According to Table 2, male children (71%) had a higher rate of undernourishment than female children (56.4%). Similar findings were reported by Ray et al in their study of the fast assessment of nutritional status and dietary pattern in a municipal area of Siliguri, where they discovered that males are more likely than girls to experience undernutrition (64.74% versus 61.58%). Qadri et al made similar observations in their study Under-nutrition more in male children in Hyderabad, Telengana.[1] Mothers must concentrate on toddler nutrition since undernutrition is common in the age range of 25 to 60 months, which has emerged as a susceptible subgroup. Luthera made a similar observation during a study that was carried out in Dehradun.[18] The results of this study are also found similar to the study done by Dhone et al in Pune Maharashtra.[19]

Due to time and resource limitations, the study's modest sample size and exclusion of numerous well-known contributory variables were not studied. This calls for additional exploratory research in the future.

CONCLUSION

Undernutrition was common among young children under the age of five in the urban region studied. A multi-pronged strategy, including growth monitoring, nutritional supplements, nutritional rehabilitation, and last but not least, nutrition education, should be used to tackle this issue.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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