

Assessment of nutritional status among children under five years of age in Manamaiju VDC of Kathmandu District, Nepal

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Abstract

Introduction: The nutritional status among under the age of five in terms of stunting, underweight and wasting and to find the association between nutritional status with selected variables. A descriptive cross-sectional study was done to determine prevalence of stunting, underweight and wasting among under five children and factors associated with that. Descriptive, univariate indices such as stunting, underweight and wasting determined as Height for Age, weight for age and respectively.

Methods: The study was conducted in Manamaiju VDC with 56440 populations with 3742 under 5 children. Research design was descriptive cross sectional. Total sample size was 190 tools used are semi structured and face to face interview. Data collection was within 4 week (23rd chaitra 2070 to 20th Baisakh 2071). Data was analyzed by SPSS version 13.0 for Windows and ENA for SMART. Similarly, Chi square test was applied at 5% level of significance to show the association between nutritional status and selected variables as age group of children, occupation of mother, education of mother, immunization, vitamin A capsule supplementation, deworming tablets and colostrum milk feeding.

Results: This study finding is that the nutritional statuses of children in term of stunting were 32 %, in term of underweight 26% and wasting were 22% so the wasting found to be double in reference to current scenario. Similarly, associations of the variables with nutritional status were analyzed. The study found that Vitamin A supplementation, deworming tablets and colostrum milk feeding had statistically significant effect on wasting status and feeding of colostrum milk had statistically significant effect on underweight status.

Conclusion: From this study it can be showed the prevalence of stunting, underweight and wasting among under five children in Manamaiju VDC. National average given by NDHS, 2001 except the prevalence of wasting which is almost similar. Similarly regarding the association within selected variables i.e. Age group of children, Immunization, Mother's Education level, Vitamin A supplementation, Deworming tablets and Colostrum feeding practices have significant effect on wasting status and underweight too but not on stunting and underweight. This analysis shows further need of research to explore the more regarding the nutritional status among the under five children in this community. This study showed that 41%, 29% and 11% children were stunted, underweight and wasted.

Keywords: stunting, underweight and wasting, nutritional status

Introduction

It was estimated that 175 million children in developing world are malnourished as indicated by low-weight for age and 230 million are stunted as indicated by height for age¹. Among this, the majority of death in developing country is associated with malnutrition. Nearly 20

million children under five suffer from severe acute malnutrition which contributes an estimated 1 million death every year in south Asia and Africa^{2, 17}. 49% of children under five suffer from chronic malnutrition (stunting), 39% of the children are underweight (low weight for age and 13% are waste thin for their age^{3,5}.

The first national survey in (1975) showed that 48.1%, 12.8% and 50% stunted, wasted and underweight respectively^{6,7}. Another study revealed that 54.8%, 16.7% and 47.1% children of 6-59 month were stunted, wasted and underweight (National Micronutrient Survey, 1998). National Family Health Survey^{7,8,10} in a nationally representative sample of children (6 – 36 months) showed that overall, 54.8% were stunted, 12.7% showed wasting and 54.2% were underweight. In decreasing order of deficit these districts are Kathmandu, Humla, Lalitpur, Bajura, Achham, Dolakha, Bhaktapur, Mahottari, Kalikot, Baitadi, Bajhang, Dolpa and Rautahat. The study showed that 41%, 29% and 11% children were stunted, underweight and wasted. Therefore, government of Nepal has set target to reach <29% stunting, <11 % underweight and <5% wasting in 2017^{10,11,12}.

Study carried out in Kathmandu valley to determine under nutrition in Kathmandu, Nepal showed that WHO based on weight for age assessment, 28.9% were undernourished. Subsequently, in weight for height analysis, 14.2% were wasted and height for age assessment, 12.5% was stunted^{13,14,15}. Therefore, nutritional assessment and gap analysis is necessary for better implementation.

This study finding that the nutritional status of children in term of stunting were 32 %, in term of underweight 26% and wasting were 22% so the wasting found to be double in reference to current scenario. Similarly, association of the variables with nutritional status analyzed. The study also reveals that the proportion of severe stunting, severely underweight and severely wasting were 13.7%, 10.0% and 8.9% respectively. From this study, in comparison of first year of life, children were at higher risk of being underweight in second years and onwards.

Methods

The study was conducted in Manamaiju VDC with 56440 populations with 3742 under 5 children. Research design was descriptive cross-sectional. Total sample size was 190 tools used are semi structured and face to face interview. Data collection was within 4 week (23rd chaitra 2070 to 20th baisakh 2071). Data was analyzed by SPSS version 13.0 for Windows and ENA for SMART to test research question. St Descriptive statistics such as frequency distribution and percentage were used for presenting the socio demographic data and Z (Standard deviation) score was calculated below -2 Standard Deviation and below -3 Standard Deviation to identify the prevalence of malnutrition. Similarly,

Chi square test was applied at 5% level of significance to show the association between nutritional status and selected variables as age group of children, occupation of mother, education of mother, immunization, vitamin A capsule supplementation, deworming tablets and colostrums milk feeding.

The unit for analysis for purpose of study was the children of age between 6-59 months and their mothers. There are 57 VDCs in Kathmandu district, Manamaiju VDC was chosen purposively. Using simple random sampling technique one ward was selected randomly among total 9 wards. The inclusion criteria's were the mother with her child/ children under the age of five.

The sample size was calculated as: Estimated prevalence of stunting among children under the age of five in Nepal according to annual report 2068-2069 is 41%. prevalence,

$$\text{Sample size (n)} = Z^2pq/d^2 = 189$$

Where d (margin Prevalence 0.59

By Cochran formula (P) = 0.41

q = 1-p = of error = 7%

The total sample size was 190.

Results and Discussions

The criteria for determining the level of nutritional status of children aged 5-59 months are based on the classification approved and recommended by WHO and NCHS. Semi structured interview schedule and face-to-face interview were developed. The interview schedule was divided into two parts. The first part of questionnaire includes socio demographic variables; the second part includes anthropometric measurement. Second part also includes feeding as well as breastfeeding practices and various other nutrition related questions. Same weighing scale, non-stretchable inch tape instrument was used. The pointer of weighing scale was calibrated to 0 before taking weight. Height was measured by attaching the non-stretchable inch tape in wall. For accuracy and consistency of anthropometric measurement same weighing scale, non-stretchable inch tape and instrument was used. Pointer of weighing scale was calibrated to 0 before taking weight and a known weight was tested first for the reliability of instrument. Concerning the age, age was recorded in months by asking to parents as well as checked from birth registration form those who were registered.

Formal permissions were obtained from the DPHO, VDC office, health post and ward for data collection by submitting written request letter. Informed consent was

taken from each respondent with explaining objective of the study. During data processing, code numbers were used instead of respondent's names. The collected forms were checked regularly for completeness and accuracy. Respondents were selected without any discrimination of ethnicity, socio-economic status and religion. Weight, height was measured by attaching the non-stretchable inch tape in wall. Then the study respondent was asked to take off their shoes and stand erect with their back to the wall. Those participants, less than two years length were measured by recumbent position recorded in months by asking to parents as well as checked from birth registration form those who were registered. Pretesting of the instrument was conducted with 10% of sample in similar settings to identify the accuracy, adequacy.

Data was edited, coded and entered into SPSS software- 13 and ENA software of WHO. Descriptive statistics was used for analyzing data related to socio-demographic variables and other independent variables. Inferential statistics as Chi-Square test was used to explore the association between independent variables. In all inferential statistical procedure, p-value (p) of 0.05 or less ($P < 0.05$) considered statistical significant. Chi-square test was used to find out the association between demographics variables with Height-for age, weight-for age and weight for height. and bivariate analysis was done to find out the factors that prevalence of anthropometric Thenutritional status among the under the age of five in terms of stunting, underweight and wasting and to find the association between nutritional status with selected variables. The nutritional status of under five children reflects household, community and national development.

A descriptive cross-sectional study was done to determine prevalence of stunting, underweight and wasting among under five children and factors associated with that. Descriptive, univariate indices such as stunting, underweight and wasting determined as Height for Age, Weight for Age and Weight for Height respectively.

The criteria for determining the level of nutritional status of children aged 5-59 months are based on the classification approved and recommended by WHO and NCHS. More proportion of stunting and underweight seen between the age group of 6-12 and 37-59 months. The similar findings were reported in the National Family Health Survey in India 2000. This indicates implication related to feeding practices after six months age to enhance nutritional status of children since

mother's milk is not adequate beyond this age. Similarly, evidence shows late initiation of supplementary feeding results in an increased underweight in this age ^{15,16}.

Mother's education is positively related to the better nutritional status of children however association is not significant in this case. With regard to the association of mothers' education and nutritional status of children of 25.3% illiterate mothers, 16.7% were stunted, 22.9% were underweight and 20.8% were wasted. Among the children whose mothers were literate, the level of stunting, underweight and wasting was low as compared to the illiterate ones. There is no doubt education plays significant role in people being aware in adopting healthy behavior. A child of an illiterate mother has an increased risk of both stunting and wasting (Nepal Multitude Indicator Surveillance Fourth Cycle, 1996). However, the findings of this study revealed that mothers' education has statistically significant relationship with nutritional status only with Stunting.

Concerning the occupation of mother, it was initially categorized as Housewife, Agriculture, Service, Labour, and Business. However for the convenience of analysis it was further categorized in Earning or not earning ones. The housewife were kept in non-earning and others were kept on earnings. No relationship was found between the nutritional status of children and occupation of mother. This research finding depicts majority of mothers as Housewife, coded non earners. Among the children of earning mothers, and prevalence of stunting, underweight and wasted were higher i.e. (19.1%), (16.6%) and (14.6%) respectively as compared to the children of non-earning mothers. Similar results were found in Bangladesh, that occupation of mothers has significant impact on child nutrition but did not mention the category of labor ^{16,17}.

Immunization prevents child from communicable and infectious disease and help to reduce the risk of under-five morbidity and mortality. This ultimately uplifts the risks of malnutrition and other factors associated with it. However in this study no association was found between immunization and nutritional status of children. However in this study the non-immunized children were more severely stunted, severely underweight and severely wasted as compared to immunized children.

Regarding whether the children received Vitamin A capsule (96%), there is the association between the Vitamin A Supplementation and nutritional status of children. This study showed there is prevalence of severely stunting, severely underweight and severely

wasting among the children who did not receive the Vitamin A capsule than the received ones.

Discussing the association between the Intake of Deworming tablets and nutritional status of children (91%), it was found that it is associated with wasting status of children. However no association was found with stunting and underweight, although the children who had taken the deworming tablets within six months were less stunted, underweight and wasted as compared to those who did not receive the deworming tablets^{6,7}.

Regarding the practice of feeding colostrum (84%), it is an important factor for the good nutritional status of children. In my study, majority of mothers fed colostrum to their children. There is association between the feeding of colostrum with wasting status and underweight status of children. Also those who did not feed colostrum to their children were stunted and underweight as compared to the mothers who fed their children. The prevalence of stunting, underweight and wasting in Manamaiju V.D.C. Kathmandu was found to be 18.9%, 16.3% and 13.2% respectively.

Conclusion

From this study it can be showed the prevalence of stunting, underweight and wasting among under five children in Manamaiju VDC. National average given by NDHS, 2001 except the prevalence of wasting which is almost similar. Similarly regarding the association within selected variables i.e. Age group of children, Immunization, Mother's Education level, Vitamin A supplementation, Deworming tablets and Colostrums' feeding practices have significant effect on wasting status and underweight too but not on stunting and underweight. Analysis of this study indicated that further study required to explore the more regarding the nutritional status among the under five children in this community. The study showed that 41%, 29% and 11% children were stunted, underweight and wasted.

Conflict of interest: None declared.

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