

Review Articles on Factors Associated with Malnutrition among Under Five Children in Nepal

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Abstract

Background: Malnutrition is one of the big challenging issues and significant public health problem in Under-five children since last 3 decades in Nepal. Poor nutrition in early childhood often leads to the majority of deaths and morbidity of children in Nepal. The children's health, growth, development and academic achievement are affected by their nutritional status. Most of the developing countries including Nepal are still facing issues on nutrition. The main objective of this review article is to provide a significant description of issue relevant literature associated with malnutrition in Nepal. Review of the literature on this issue is and raised by different / scholars might be helpful to understand the issue in collective way to manage the burden of malnutrition in upcoming days. In this background, this paper tries to unfold the issue on factors associated with malnutrition in the context of Nepal.

Method: This review paper is prepared on the basis of systematic review of research literature. During the review process, the reviewer reviewed wide range of literature including the reports, articles and publications data to identify the studies on factors associated with malnutrition in under five children in Nepal. Electronic data search was done; Academic research, health source, nursing, public health, medicine thesis and dissertations were included as sources.

Results: The study found that children age >24 months has high chance of being malnourished than <23 months, mother's hand hygiene practices, number of ANC visit, place of delivery, maternal iron intake during pregnancy, intake of extra food during pregnancy and lactation, mothers education and occupation, breast feeding practices have significant effects on under five malnutrition in Nepal.

Key Words: Under five children, Associated Factors, malnutrition

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I. Introduction

The nutritional status of children is important as it determines their health, physical growth and development, academic performance and progress in life. Under nutrition and poor health associated with malnutrition disproportionately affect the well-being of millions of people in the developing world. Factors at individual or household and community level, or a combination of these, may contribute to poor nutrition and health status.¹

Globally, around 155 million children under the age of 5 suffer from stunting, nearly 52 million children under the age of 5 have been wasted and 17 million have been severely wasted, while 462 million have been underweight.² The developmental, economic, social and physical effects of the global malnutrition burden are serious and prolonged for people and families as well as communities and countries. The children health, growth, development and academic achievement is affected by their nutritional status. Most of the developing countries are still facing issues on nutrition. Malnutrition is regarded as a significant public health problem in children and women in Nepal. Around 45% of deaths are related to under-nutrition among children under the age of 5, usually found in low and middle incomes countries.³ Every year 7.6 million children die as a result of preventable malnutrition and its associated causes. Similarly, low birth weight was also seen as the next preventable cause of infant and child mortality due to the intergeneration cycle of malnutrition, particularly in females.⁴

A healthy children can grow and develop into a useful competent asset, will be a productive an adult individuals to the community as well as nation. Nepalese children show the evidences of malnutrition by their underweight, stunting, wasting or wasting and stunting in a combined form. The status is further accompanied

along with the features of various micronutrient deficiency disorders such as vitamin A, Iron and Iodine deficiency disorders.⁵

Some literature repeatedly shows that less than half of all under-5 children live in low-middle-income countries, two-thirds of all stunted children and three-quarters of all wasted children live there.² The current prevalence of stunted, underweight and wasted had 36.0%, 27.0% and 10.0% respectively.⁶ Thus, this paper attempts to identify the factors or predictors related to nutritional status among children under the age of five. Not only are medical problems, the nutritional problems are multifactorial, with origins in many other sectors, including education, bad environment, bad socio-cultural beliefs and practices such as: less consideration of supplementary feeding for children, late weaning, and poverty.⁴

The children in the rural areas of Nepal are more prone to malnutrition (wasting, stunting and underweight) than the children in the urban areas.^{7,8} Among the under five years children, in a span of 10 years (from 2001 to 2011), the percentage of stunting came down from 57% to 41%; the percentage of wasting was at 11% and the percentage of underweight came down from 43% to 29%.⁹ In spite of vigorous efforts and community based nutritional interventions carried out by the Government, we were unable to meet the Millennium Development Goal (MDG) targets for nutrition. The Global Nutrition target aims to reduce the global number of children under five who are stunted by 40 percent and aims to reduce and maintain childhood wasting to less than 5 percent.⁸ In order to meet these targets, Nepal needs to address various factors that are associated with under nutrition.

The trend of nutritional status of under 5 children in Nepal showed that in general, the nutritional status of children in Nepal has improved over the last decade. The proportion of stunted children declined from 57 percent in 2001 to 41 percent in 2011 and that of underweight children, from 43 to 29 percent in the same period. The proportion of wasted children declined, too, but only slightly, from 13 percent in 2006 to 11 percent in 2011, among the 11 percent who are wasted, 3 percent are severely wasted. According to National Demographic Health Survey (2011) 46% of under 5 children were anaemic; the children from rural area are more likely to be stunted (42%) than in the urban area (27%). From mentioned above figure we can say that rapid decline is not observed despite of various types of health programme were launched by governmental and nongovernmental sectors to improve the nutritional status of under 5 children since last 2 decades, there is still need improvement. So, understanding the factors that affects the nutrition of under 5 children is area of study.

Nepal is a developing country, where a huge number of people live below the poverty line and Nepal has got a high proportion of malnourished children of under-five years of age. Under- five children nutritional status in Nepal is different in Hill, Mountain and Terai region (NDHS, 2011). The study showed that 53.9% were stunted, 10.6% were wasted and 20.8 % were underweight in Lamjung, Gorkha and Tanahun Districts of Nepal.¹⁰

II. Methods

This systematic review paper is prepared on the basis of desk study. During the desk study review wide range of data search was conducted by the reviewer to identify the factors associated with malnutrition among under five children in Nepal. The published and unpublished thesis, articles, grey literature were reviewed. The reviewer had developed the stated criteria to search literature which includes academic research paper, thesis done on public health and nursing etc. Secondly the reports and grey literature published by the government. . The search included studies with all types of methods and yield 20 articles as being relevant in the related issue: studied conducted on factors related to malnutrition, its determinants and overall related to nutritional status of under five children in Nepal only.

III. Result and Discussion

In developing countries, malnutrition in children is a public health concern. Nepal is a developing country, where a huge number of people live below the poverty line and Nepal has got a high proportion of malnourished children of under-five years of age. There are multiple factors associated with childhood malnutrition and these are often interrelated with each other. One simply cannot say that these are the cause of childhood malnutrition because it is a complex phenomenon. However, the major factors associated with childhood malnutrition as mentioned are poverty, educational level of mother, faulty feeding practices, vitamin A status, low status of women, birth order, unsafe drinking water, mother's occupation, and diarrhoea etc.¹¹ Likewise other researchers have been found that individual variations, household variations, variations in community, lack of knowledge related to health and nutrition, economic constraints, malpractices, social and cultural factors are related to under five malnutrition in Nepal.^{12,13} Household food insecurity, frequent illness and infections, poor environmental practices, inadequate dietary intake, poor hygiene, eating of fast foods, vaccination status of child, breast feeding as well as maternal factors were responsible for under five nutritional status in Nepal.⁹

A study critically discussed that the age of children has significant effects with prevalence of malnutrition where underweight and stunting was higher with increasing age and very few proportion of children of 6 months or lower age are underweight.¹⁴ This findings is supported by another study in which children age >24 months were more underweight than <0-23 months of age. Further this result supported by Poudel et al (2014) where malnutrition was high in older (24 months or > 24 months old) children and less percentage of children <17 months were malnourished and that is similar to NDHS (2011) report in which more stunted and underweight was found among children of older age (>24 months). This is also supported by Gharti and poudel et al where malnutrition was found higher among older age group children (>24 months) which was significantly associated with under five malnutrition. It means age of children has significant effects on nutritional status among them.^{13,16}

Regarding environmental factors and sanitation: household water purification, types of latrine used by families, cooking fuel, hand washing with soap and water in previous 24 hours and number of sleeping room were associated with underweight of under five children. Of which, children of families who consumed water without treatment had higher underweight.¹⁵ Housing having toilets had less prevalence of underweight and stunting.¹⁶ Similar result was reported by different researcher from various parts of the country. Hand - washing practices of mothers; those children whose mothers wash hand only with water before feeding their child had stunted more than using soap and ash for hand washing. From this it can say that environmental sanitation and hand hygiene has significant effects on nutritional status of under five children in Nepal.¹⁴

Infections and illness: Child having fever in the two weeks preceding the survey had significant affects on underweight and stunting but diarrhoea in the two weeks preceding the survey had affects only on stunting.¹⁶ Presence of chronic illness within year period show high number of malnutrition among under five children of hilly community of Nepal.¹³ Similar report was presented in another study where children who suffer from diarrhoea last year are more likely to be underweight than not suffered one.¹⁴ The children who had suffered from diarrhoea within last six months were more likely to be underweight.^{17,18} Diarrhea, respiratory infections, worm infestation were found as factors associated with malnutrition among under five children in hilly community of Nepal.¹⁵

Ethnicity and malnutrition: Mishra, 2010; Gharti, 2005& Dhungan, 2017 from their work claimed that the ethnicity of the children shows mild effects on their nutritional status despite of high level of caste untouch ability and deprivation among Dalits in Nepal. They also concluded that children from Dalits were 1.59 times more likely to be underweight as compared to Brahmin children.^{17,16,10} In the same threads Dhunga, Neupane, Sapkota 2019 also claim that children from Brahmin/Chhetri were 1.3 times (AOR=1.383, 95% CI=1.027-1.864) and children from other castes such as Muslim, other Terai caste were almost 2 times (AOR=1.995, 95% CI= 1.356-2.936) more likely to be underweight compared to Janajatis. However, the findings of Sha(2004) is little different than scholar mentioned above. His findings show there is no significant effects of ethnicity in nutritional status of children.¹⁹ It can infer that although the ethnicity has effects on under five nutritional status in Nepal, there was no significant association with under five nutritional status and ethnicity in Nepal.

Antenatal care and birth related factors: Antenatal care and birth related factors have also an important role in under five malnutrition in Nepal or in elaborated that antenatal care; Place of delivery, antenatal visit, birth weight of baby has effects on nutritional status of under five children and the proportion of malnutrition is 7.54 times more likely for those whose ANC visit less than 4 times in comparison to those women who were visited more than 4 ANC visit.^{10,18} The findings presented by the Gharti (2005) – regarding the prevalence of underweight and stunting was less among the children born at health facilities is also supported by other findings demonstrated by Dhungna, Neupane, & Sapkota (2019). They strongly claim that those children who were delivered at home were 1.6 times more likely to be stunted compared to those who were delivered at private hospital. They clearly explained the reasons associated with this. In their view formal health system or providers would also help in gaining more information on child care that can help to improve the child rearing and caring practices among care providers. Those children who were received proper care will ultimately have good health and nutritional status support and have good health condition. That obviously reduces the chance of malnutrition in children. From this study finding it can conclude that number of ANC visit is one of the strong predictors of malnutrition of under five children in Nepal.¹⁹

Maternal factors; maternal iron intake during pregnancy had 20% of low weight for age children compared to 37.1% in those who did not take, mother who took extra diet during pregnancy and lactation had 10% low weight and those who did not take had 30% low weight for age children. Maternal nutritional practice and taking extra nutrients during and after delivery have significant effects with nutritional status of under five children. Similarly, other researcher also reported that factors like taking anthelmintic drugs, Iron, Iodine salts, TT vaccination, taking vegetables during pregnancy could affects the nutritional status of under five children in Nepal.²¹ Other maternal physical features such as height<142 cm, age >35 years and were also found as factors

responsible for malnutrition of under five children in Nepal.²⁰ Besides these, maternal malnutrition is significantly associated with underweight in Nepal.¹⁸

Mothers' occupation and education: mother's occupation and education were also found as key predictor of under five malnutrition by different study in Nepal. Service holder mother's children were 1.375 times more likely to be stunted as compared to children of mothers involved in agriculture and house hold tasks.^{10,22} Children with mother doing other occupation were in 0.27 times more risk than children whose mothers were housewives. Because services holder mother could not pay more time to prepare food and take care of their child. Similarly, maternal education has significant impact on under five children nutritional status in Nepal.²² Study from different part of the countries reported that children whose mothers were literate were less likely to be underweight or stunted than children whose mothers were illiterate.¹⁷ The lower the level of education of mothers, higher was the prevalence of underweight and stunting of their under five children. So, education level of mother was associated with high rates of malnutrition in Nepal.¹⁶ Education of mother is one of the most important resources that enable women to provide appropriate care for their children. Education of women is believed to exert an impact on health and nutritional status of children since it provides the mother with the necessary skills for child care, increase awareness of nutritional needs and preference of modern health facilities as well as change of traditional beliefs about diseases causation, and use of contraceptives for birth spacing. In this study, children of mothers who can't read and write showed higher prevalence of stunting and underweight. So, educational status was found to be significantly associated with under nutrition of under five children in Nepal.^{10,8} However, the educational status of mother was not found as a predictor of under five malnutrition in Nepal and children of illiterate fathers have high malnutrition than literate father.²³ Risk of malnutrition in under five children is 0.194 and 0.131 times lower for children of mothers attended primary and secondary or more level of education than illiterate mother.²² This is similar to NDHS (2011 & 2016) where mother education was found as key predictor of under five malnutrition in Nepal

Socioeconomic factors; different study highlight that the socioeconomic status of the child's family had significant effects on nutritional status of under five children in which children belong from below the poverty line (low) or middle socioeconomic groups were malnourished more than above the poverty line (Gharti,2005; and Niraula, 2013).^{16,21} Similar result was reported by Ruwadi (2011) that children from low socioeconomic status were 2.25 times more likely to stunting and 7.626 times more likely to underweight. They found that socioeconomic factors to be a key factors for malnutrition of under five children in different parts of Nepal but economic status of the family had no effects on nutritional status of their children.¹⁴

Feeding practices; feeding colostrums to new born baby has noticed effects on underweight but less on stunting. Families who don't discard rice scum are less likely to be having their children underweight and stunted.^{14,17} Children who were exclusively breast feed up to 6 months were less likely to be underweight than who were exclusively breast feed for more than 6 months.¹⁶ This statement or result was reported by Niraula et al. where child who was exclusively breast feed for 6 month had only 20% low weight for age where as not feed had 34.8%.²¹ Inadequate exclusive breast feeding practice has effects on nutritional status of under five children in Nepal.¹³ In the same line dhungana further reported that duration of exclusive breast feedings is a predictor of malnutrition in which mothers who breast feed their children for <6 months were 1.61 time more likely to have malnutrition children than mothers who exclusively breast feed their children for up to 6 months.¹⁰

Other factors: Some researcher such as Gharti(2005) ; (Adikari, Khatri, Poudel, and Poudyal,2017) argue that Babies size at birth according to mothers perception; lower the size at birth, higher was the prevalence of underweight and stunting.^{16,15} Children from rural area are more likely to be stunted (42%) than in the urban area (27%), place of delivery; children who were deliver at health facilities were less likely to be underweight as compared to children who deliver at home or on the way of hospital, age at married (<20 and > 35 years), growth monitoring, number of sleeping room were associated with underweight among under five children.^{6,10,15} Low birth weight was found to be strong predictor of the nutritional status.¹⁹ Children with low birth weight were more prone to be undernourished due to increase vulnerability to infections, such as, diarrheal and lower respiratory infections and the increased risk of complications including sleep apnea, jaundice, anemia, chronic lung disorders, fatigue and loss of appetite compared to children with normal birth weights which may lead to under-nutrition.^{16, 24}

Regarding the place of residence, rural children were more likely to be underweight compared to children residing in urban areas. Likewise, regarding geography, those children from hill and mountain were more likely to be underweight compared to children from Terai.⁶

IV. Conclusion

Malnutrition is one of the big challenging issues since last 3 decades in Nepal. There are many governmental and non- governmental organizations working independently and jointly with the Government of Nepal to reduce burden of under five malnutrition in Nepal. Number of research conducted in this area to find out the factors associated with this problem. This article tries to summarize the findings of the studies for easy

and better understanding the depth of the problem. From the above reviewed it can be concluded that multiple factors are responsible for under five malnutrition in Nepal of which some are directly related to malnutrition and some of them are indirectly associated with under five malnutrition in Nepal. Among under five children, children age >24 months have high chance of being malnourished than <23 months, mother's hand hygiene practices, number of Antenatal Check-up (ANC) visit, place of delivery, maternal iron intake during pregnancy, intake of extra food during pregnancy and lactation, mothers education and occupation, exclusive breast feeding up to six months and low birth weight have significant effects on under five malnutrition in Nepal. Similarly, diarrhoea, fever,

worm infestation, ecological region, physical feature of mother, TT vaccination during pregnancy, babies size at birth as perceived by mother, place of residence, age of marriage, growth monitoring, religion, practice of discarding rice scum were found as factors associated with under five malnutrition in Nepal. Few studies given mixed views on factors like ethnicity, family's socioeconomic condition regarding malnutrition amongst under five children in Nepal.

V. Recommendation

Considering various factors, maternal factors have significant association with nutritional status of under five children which includes exclusive breast feeding for six months, mother's hand hygiene practices before feeding child, use of soap for hand washing, number of antenatal check-up(ANC), maternal iron intake during pregnancy, intake of extra food during pregnancy and lactation, mother's education and occupation respectively. The nutritional status of the children can be improved if proper attention is given to the health of mother as well as make mother aware regarding child rearing and caring practices. Extra attention should be provided by the Ministry of Health towards maternal and child health.

Reference

- [1]. Kiday H, Afework M, Meron G. Feeding practices, nutritional status and associated factors of lactating women in SamreWoreda, South Eastern Zone of Tigray, Ethiopia. *Nutrition Journal* 2013;12:28.
- [2]. Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates, Key findings of the 2018 edition - World [Internet]. ReliefWeb. [cited 2020 december2]. Available from: <https://reliefweb.int/report/world/levels-and-trends-child-malnutrition-unicefwhoworld-bank-group-joint-child-malnutrition>
- [3]. World Health Organization .Fact Sheets on Malnutrition:2010, WHO,Geneva.
- [4]. Bhandari, TR and Chhetri M. Nutritional status of under five year children and factors associated in Kapilvastu District, Nepal. *J Nutr Health Food Sci*, 2013,1(1): 1-6Nutrition Journal, 12(1), 28.
- [5]. Pradhan A. Factors associated with nutritional status of the under five children. *Asian Journal of Medical Sciences* 2010; 1: 6-8.
- [6]. NDHS.(2011). Kathmandu: Ministry of Health and Population (Nepal); 2007 May.
- [7]. World Health Organization .Fact Sheets on Malnutrition: WHO,Geneva. 2020
- [8]. NDHS. Ministry of Health, Nepal; New ERA; and ICF 2017 *Nepal Demographic and Health Survey 2016* Kathmandu, Nepal: Ministry of Health, Nepal
- [9]. DoHS Annual Report FY 2075-76 [Internet]. [cited 2020 ,December 15]. Available from: <http://dohs.gov.np/dohs-annual-report-fy-2076-77/>
- [10]. Dhungana, G P. Nutritional Status and the Associated Factors in Under Five Years Children of Lamjung, Gorkha and Tanahun Districts of Nepal. *Nepalese Journal of Statistics* 2017,1: 15-18
- [11]. Smith,LC, Haddad LJ.(2000).Explaining child malnutrition in developing countries.A cross- country analysis. Intl Food Policy Res. Inst.
- [12]. Hailelassie, K., Mulugeta, A., & Girma, M.,(2013). Feeding practices, nutritional status and associated factors of lactating women in Samre Woreda, South Eastern Zone of Tigray, Ethiopia. *Nutrition Journal*, 12(1), 28.
- [13]. Poudel,G. S, Bhattarai S, Pradhan PMS, Pokharel PK(2014). Malnutrition Status Among Under - 5 Children in a Hill Community of Nepal. *Kathmandu Univ Med J* 2014;48(4):264-8.
- [14]. Sah,N. (2004).Determinants of Child Malnutrition in Nepal: A Case Analysis from Dhanusha, Central Terai of Nepal a Journal of Nepal Health Research Council .
- [15]. Adhikari, D. (2017). A study on health status of children under five years of age in rural village in eastern part of Nepal. *Journal of Nobel Medical College* Vol. 2, No.1 Issue 3, 49-54. , Vol. 1, 15- Submitted: 28 May 2017; Accepted: 20 July 2017.
- [16]. Gharti,PS.(2005). Factors associated with Malnutrition among Children in Rural Terai of Eastern Nepal .Dissertation submitted in partial fulfilment of the requirement for the award of the degree of Masters of Public Health 2005. Online
- [17]. Mishra , SK. and Sharma, R.(2010). Nutritional Status of Children Under Five Years and Factors associated un Mahottari District, Nepal.
- [18]. Rana S, Panza A. Prevalence and factors associated with undernutrition among children aged 0-59 months in mugu district, Nepal [Internet]. undefined. 2015 [cited 2020 december 2]. Available from: </paper/Prevalence-and-factors-associated-with-among-aged-Rana-Panza/c781df459f880b1cd84af90e164711997e98bc63>
- [19]. Dhungan, G.P., Neupane ,G., & Sapkota,M.(2019). Nutritional Status and their Associated Factors of Under Five- Year's Children in Nepal. A statistical Analysis of Nepal Demographic and Health Survey (2016).Archives of Nutrition and Public Health1(1).
- [20]. Dhungana, GP.(2013). Nutritional Status of Under 5 Children and Associated Factors of Kunchha Village Development Committee. *Journal of Chitwan Medical College* 2013; 3(6): 38-42 Available online at: www.jcmc.cmc.edu.np

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- [21]. Niraula SR, Barnwal SP, Paudel S, Mishra S, Dahal S, Das S, et al. Prevalence and associated risk factors with malnutrition among under-five Nepalese children of Borbote village, Ilam. *Health Renaissance*. 2013 Jun 19;11(2):111–8.
- [22]. Ruwali, D.(2011). Nutritional Status of Children Under Five Years of Age and Factors Associated in Padampur VDC, .*Journal of Health Prospect* 2011,volume 10
- [23]. Pravana, N K ,Piryani, S , Chaurasiya, S P , Kawan, R , Thapa, R K and Shrestha, S. (2017). Determinants of severe acute malnutrition among children under 5 years of age in Nepal: a community-based case–control study. *BMJ open* 7(8): e017084
- [24]. Upadhyay, H P and Bhusal, M K. (2017). Statistical Analysis on Nutritional Status and its Associated Factors of Under Five Years Children in Nepal. *Advanced Journal Of Graduate Research*, 2(1): 12-24

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