

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/331114905>

# Impact of Malnutrition on Children Less Than Five Years of Age in Juba Payam (District), Republic of South Sudan

Article · January 2018

DOI: 10.12691/ajfn-6-4-2

---

CITATIONS

2

READS

3,295

3 authors, including:



John Leju Celestino Ladu

Juba National University (Juba City)

32 PUBLICATIONS 155 CITATIONS

SEE PROFILE

# Impact of Malnutrition on Children Less Than Five Years of Age in Juba Payam (District), Republic of South Sudan

John Leju Celestino Ladu\*, Andrew L. Athiba, Yatta S. Lukaw

College of Natural Resources and Environmental Studies, Department of Environmental Studies, University of Juba,  
P.O Box 82, Juba, Republic of South Sudan

\*Corresponding author: [johnleju@yahoo.com](mailto:johnleju@yahoo.com)

**Abstract** In this study, a hospital based cross-sectional study was carried to study the impact of malnutrition on children less than five years of age in Juba payam (District), Republic of South Sudan. The results obtained indicated that 56% children were suffering from chronic malnutrition and 24% children were underweight and 20% children were suffering from acute malnutrition. The study results showed that children with middle and poor economic status were more stunted as compared to children of high economic status. The results showed that children of mothers with no education were significantly more stunted. According to results obtained regarding the associates of child malnutrition status, 22% had never been breastfed after their birth due to absent of milk from their mothers and maternal death, while 24% were affected by household size. Moreover 30% were faced by lower incomes. Socio-economic and demographic factors were significantly associated with high prevalence of malnutrition on children less than five years of age.

**Keywords:** malnutrition, stunted, underweight, wasted, breastfeed

**Cite This Article:** John Leju Celestino Ladu, Andrew L. Athiba, and Yatta S. Lukaw, "Impact of Malnutrition on Children Less Than Five Years of Age in Juba Payam (District), Republic of South Sudan." *American Journal of Food and Nutrition*, vol. 6, no. 4 (2018): 103-107. doi: 10.12691/ajfn-6-4-2.

## 1. Introduction

The world's youngest Nation, the Republic of South Sudan is a fragile state working to recover from decades of conflict and civil war. Children in South Sudan face substantial health risks as a result of malnutrition that has a greater impact on child growth and development such as physiological functions of growth, reproduction, defense, and repairs. Malnutrition among children less than five years of age continues to be one of the South Sudan's major human development challenges. In spite of tremendous economic crisis made in the last two to three years of conflict, malnutrition among children in both urban and rural areas of South Sudan still claims many lives of children less than five years of age. However, mounting cases of malnutrition has caught the public eye and so health care providers as well as the government are taking the necessary steps to improve the current status of nutrition for children in South Sudan.

Malnutrition increases the risk and worsens the severity of infections [1]. Infants and young children are most affected by malnutrition as they have increased nutritional needs to support growth [2]. Undernourished children, as well as children with severe malnutrition, have a higher risk of dying than children with an optimal nutritional status [3]. Malnutrition is a phenomenon in which a deficiency, excess or imbalance of nutrients causes

measurable ill effects on the body and upon growth may increase morbidity or mortality [4]. This term includes both over-nutrition (obesity and overweight) and undernutrition. There has been a global epidemic of childhood obesity over recent years [5].

Globally, it was estimated that one in every three preschool children is malnourished WHO & UNICEF 2011 estimated that 165 million children less than five years of age were underweight, 101 million were stunted and 52 million were wasted [6]. Childhood malnutrition is influenced by multidimensional factors, these factors vary from biological, behavioral and environmental [6]. New estimates in "Levels and Trends in Child Mortality 2014" show that in 2013, 6.3 million children less than five died from mostly preventable causes, around 200, 000 fewer than in 2012, but still equal to nearly 17 000 child deaths each day. A study of school-age children from Developing countries found the overall prevalence of stunting to range between 48-52% with an overall prevalence of underweight between 34-62% notes that among school-age children stunting and underweight are more prevalent than wasting [7].

Prevalence of malnutrition varies from one country to another and is more in developing countries. Abrupt weaning with diluted animal milk and lack of breast feeding contribute to malnutrition in the first year of life, while in the second year it is due to the inadequate intake of protein and calories which lead to starvation. Deaths due to malnutrition increase when there is an increase of

food insecurity, absolute poverty, famine, ignorance and poor maternal nutrition, all of which are among other major contributory factors for malnutrition as the case in South Sudan. Malnutrition affects physical growth, morbidity, mortality, cognitive development, reproduction, and physical work capacity, and it consequently impacts on human performance, health and survival [8,9]. Malnutrition is the underlying cause of one third of the (7.6) million child deaths each year before their fifth birthday. A study conducted in Britain revealed that identifying and treating malnutrition in parallel with the primary disease could result in annual savings of £266 million [10] and reduce mortality by 50% in adults [11]. The excess cost related to malnutrition was estimated to be approximately \$5.2 million per annum in an Australian study [12]. It is estimated that 150 million children less than five years of age are underweight and more than 20 million suffer from severe malnutrition [13,14]. About 47 million children less than five years of age are stunted in the sub-Saharan Africa, whereas in the Eastern and Southern Africa, 24 million are stunted [15]. Stunting is an indicator of past growth failure, which is a sign of poor nutritional history. It is associated with a number of long-term factors including chronic insufficient protein and energy intake, frequent infection, sustained inappropriate feeding practices and poverty [16]. Wasting indicates current or acute malnutrition resulting from failure to gain weight or actual weight loss [16].

In South Sudan the nutritional status for children less than 5 years of age depends on the living standard of the population and the household's income. Children who belong to families having limited access to resources are mostly children affected with malnutrition [17]. Furthermore, a child's nutritional status can be affected by poor economic situation and [18] socioeconomic, demographic, and cultural factors [19]. Moreover, to maintain nutritional status and, in turn, for better health growing of the children's, both maternal education and nutrition are needed [20].

## 2. Objectives

The main objective of this research paper was to study the impact of malnutrition on children less than five years of age at Juba payam, Republic of South Sudan. Whereas the specific objectives include: to examine the causes of malnutrition to children less than five years of age at Juba Payam, to investigate the feeding practice of children from their caretakers especially mothers, fathers and grandparents at Juba payam, to investigate some environmental factors that contributes to malnutrition problems on children less than five years of age, to investigate socio-economic factors that are linked to malnutrition problems from the communities of Juba payam, to identify crucial problems affecting Children less than five years of age.

## 3. Material and Methods

### 3.1. Study Area

Central Equatoria state (Juba Payam) in South Sudan covers 22,956 km<sup>2</sup> and it's the smallest South Sudanese

State. The state is divided into three payams (districts), Juba, Kator, and Munuki payam. It was formerly named Bahr al Jebel after a tributary of the White Nile that flows through the state. It was renamed Central Equatoria in 2005 under the government of Southern Sudan. The state capital of Juba is also the national capital of South Sudan. The current study was conducted in Juba in Juba payam (district) with a total population of 117,000; the recommended sample size for the assessment according to the household number was 50 households.

### 3.2. Sampling Procedures

A cross-sectional descriptive study was designed to collect primary information from households using a scientific questionnaire, Observations and interviews to obtain the data for this research study. In the observation methods, malnourish children were observed in the studied sites, whereas, data were collected through interviewing the parents and senior staffs in the studied area. During the interaction between the researcher and Parents of children, the interview emphasizes much on a mode of eating, breastfeeding period and types of balance diet they used. The questionnaires were designed by structured and self-administered questionnaire consisting of background information and other valuable information. The questions were prepared by the researcher for the fulfillment of the research paper and the questions answered by professional experts and caretaker's/parents.

The collected data was analyzed and interpreted statistically. The followings anthropometric measurements of child were used in this study to assess child's nutritional status. Age, Height and Weight measurements are important tools for assessing child's present and past nutritional status as well as for finding out malnourished children. When two of these variables are used together they are called an index. The following three indices are commonly used in assessing the nutritional status of children: Length-for-age or Height-for-age, Weight-for-length or Weight-for-height and Weight-for-age. The above three indices are used to identify three nutritional conditions such as stunting (low height for age), wasting (low weight for height) and underweight (low weight for age).

## 4. Results and Discussions

### 4.1. The Composition of Respondents by Ages

Age was a very significant aspect as far as the important of age is concerned, the study categories the respondent's ages into three groups. The reason for having such different age groups was to enable the respondents to provide viable and diversified information for betterment of the study.

Table 1. Shows ages of respondents

Ages of respondents	Frequency	Percentages (%)
18-30	30	60%
30-35	13	26%
40-45	7	14%
Total	50	100%

In the [Table 1](#) above, it indicated that the majority of respondents were from ages between 30 and above who made a total of 60% as well as ages between 30-35 made a total of 26% while the minorities of respondents were from ages 40-45 which also made a total of 14% and above.

#### 4.2. Sex of Respondents

The majority of respondents were men because men could provide enough information for the study about impact of malnutrition on children less than five year of age at Juba payam and across the Juba County.

**Table 2. Shows sex of respondents**

Sex of respondents	Frequency	Percentages (%)
Males	33	66%
Females	17	34%
Total	50	100.0%

From the [Table 2](#) above, the majority of respondents were men who made a total of 66% while women made a total of 34%. Thus some of contacted women were less educated and some have never attended school during the conduct of direct interview. Meanwhile the reason why majority of respondents were men was because men were easy to be found and always the first to move to neighboring countries in search for better education simply because girls were not allowed due to South Sudanese cultural mindset and tradition that girls are only source of family income that indeed affect girls not to pursue their education higher.

#### 4.3. Academic Level of Respondents

This was to find out the results of different level of education of the respondents. In area of education, respondents were divided into four sections as shown below.

**Table 3. Indicates educational background of respondents in Juba payam**

Educational level	Frequency	Percentage (%)
Primary school	5	10%
Secondary school	6	12%
University	31	62%
College	2	4%
Never attended school	6	12%
Total	50	100%

[Table 3](#) above showed the education level of the respondent in Juba payam. Out of 50 respondents interviewed, 12% of them never attended school at all. This indicated that a small proportion from the total of 62% of those men and women who manage to reached up to the university or college level have face tremendous challenge in order to achieved this goal. However 10% represented dropout of primary school who managed to secure a jobs from government institution, whereas another 12% of high school education are also employed as civil servants in private sectors and government as well.

#### 4.4. Social Marital Status of Respondents

The social marital status is one of the most significant aspects of the study because it's in cultural belief of South Sudanese society and African's societies as well. A marital status of a person is regarded as responsible or not responsible. Hence its help in determining reliability and trustworthiness of information given which was much needed for this research study of malnutrition problem which can only be well understood and explained by married person status or of educated person.

**Table 4. Shows social marital status of respondents**

Marital status	Frequency	Percentages (%)
Married	20	40%
Window	4	8%
Unmarried	16	32%
Divorced	6	12%
Separated	4	8%
Total	50	100.0%

As shown in the [Table 4](#) above 40% of respondents got married and 32% were unmarried. From the custom of the people in Juba payam, it was very importance that all people should get married so that their heir remains with their children and makes the descendants continuous to future generation. While 12% respondents got divorced from their spouse and 8% of respondents were separated due to some domestic violent and displacement as a result of internal conflict which made them separated leaving some of them in the UNMISS camps or also known as Protection of Civilian Sites (POCs). But only 4% of respondents were founds widows by natural death or being killed by during the time of internal conflict. These groups, according to the research findings have found that their children are most affected by hunger, hence lead to acute malnutrition of their under-five year's children.

#### 4.5. Occupational Levels of Respondents

The occupational level of respondents in this extent was to determine whether many people were employed in white-collar jobs as part of bill rights in labor force at various sectors of an employment.

**Table 5. Shows occupational level of respondents in the study**

Occupational level	Frequency	Percentages (%)
Housewives	5	10%
Government employees	22	44%
NGOs/Private sectors	9	18%
Self-employed	14	28%
Total	50	100.0%

In analyzing the occupational level of the respondent in Juba payam, the study found out that numbers of government employees were 44% and the non-governmental organization employees made a total of 18% and a total of 28% were self-employees and 10% were housewives.

#### 4.6. Indicate Malnutrition Status of Children under-five

**Table 6. Shows stunted children, wasted children, and underweight children at Juba payam**

Surveyed	Malnutrition status	Frequency	Percentages (%)
El Sabah Hospital	Children Stunted	28	56%
Juba Teaching Hospital	Children Wasted	10	20%
UNICEF compound	Children Underweight	12	24%
Total		50	100%

Table 6 above, revealed that, out of 50 respondents selected for the research study, a total of 56% revealed that many of the children were suffering from chronic malnutrition (stunted) which was recorded in El Sabah pediatric hospital and a total of 24% said that some of the children were underweighted children which were recorded in UNICEF Compound, while 20% said that acute malnutrition (wasted) were recorded amongst the surveyed children in Juba teaching hospital.

The study results show that children from household with middle and poor economic status were more likely to be stunted compared to children living in household with high household economic status. The study results also showed that children of mothers who never attended school and primary education as shown in the Table 3 were significantly more stunted than Children with secondary or higher level educated mothers. Wasted and Underweight children also showed same results respectively.

**Table 7. shows other associates of child Malnutrition in Juba payam**

S/No	Child breastfeeding status	Frequency	Percentages
1	Never breastfeed	11	22%
2	Environmental health condition	6	12%
3	Individual incomes level	15	30%
4	Internal-conflict effect	6	12%
5	Household Number	12	24%
	Total	50	100.0%

Table 7 shows the other associates of child malnutrition status obtained during the study. According to the respondents interviewed which accounts to total of 22% revealed that some of the children were never been breastfeed after their birth day due to absent of milk from their mothers, maternal death and also due to cultural ethic and 24% of the respondents revealed that its due the size of household (Number of people living in one household). This explains the insufficiency of family meals as a result of big family size to meet the required balance diet to the needy malnourished children in that particular household. Moreover 30% of the respondents were said that families were faced by lower incomes in which the individual families cannot afford to meet their basic needs such as food, shelter, clothes and good social wellbeing. However, considering environmental health condition of each household, 12% of the respondents revealed poor hygienic condition as a contributing factor to some infections of

disease in the contaminated environment that causes diseases like cholera, diarrhea, typhoid, and dysentery and malaria parasites. Hence, this has worsened the situation of child malnutrition in Juba payam. Finally 12% out of 50 population study were found being displaced by internal conflict almost the whole family are homeless and failed to get proper feeding these are the most affected children with malnutrition problems.

#### 5. Discussion

The main global health problem challenged by the developing countries nowadays is malnutrition [21]. The causes of malnutrition are multi-factorial, with dietary and environmental factors contributing to the risks of malnutrition in children [22]. In this research paper, among the total of 50 household respondents, 66.0% were males and 34.0% were females. The education of the children parent had been identified as a predictor of malnutrition; the study found that most parents either completed their University, College, Secondary and basic education or never attended school (illiterate), and their average income was low. In this paper, about 62% from the 50 household respondent attained University degree and only 12% never attended school. It is indicated that the main factors that affected children less than five years of age were occupation and education of the parents, marital status, family income, maternal nutritional knowledge and residence [23, 24].

Out of 50 respondents selected for the research study, a total of 56% revealed that many of the children were suffering from chronic malnutrition (stunted) which was recorded in El Sabah pediatric hospital and a total of 24% said that some of the children were underweighted children which were recorded in UNICEF Compound, while 20% said that acute malnutrition (wasted) were recorded amongst the surveyed children in Juba teaching hospital. According to the respondents interviewed which accounts to total of 22% revealed that some of the children were never been breastfeed after their birth day due to absent of milk from their mothers, maternal death and also due to cultural ethic and 24% of the respondents revealed that its due the size of household (Number of people living in one household). Finally 12% out of 50 population study were found being displaced by internal conflict almost the whole family are homeless and failed to get proper feeding these are the most affected children with malnutrition problems.

#### 6. Conclusion and Recommendations

From the findings of this study, it is concluded that malnutrition is still an important problem among children less than five years of age in Juba payam and some socio-economic and demographic factors, lack of proper feeding practices; internal conflict and environmental health condition are found to be significantly associated with the high prevalence of malnutrition among under-five year children. However, to reduce the burden of malnutrition among under-five children, a combined effort by the government, non-governmental organizations individuals



and the community as well is essential to improve the nutritional status of children at Juba payam. Working at the effective, efficient and equitable program should be designed to reduce child malnutrition. In addition, nutrition surveillance needs to be done continually and special attention should be given to vulnerable groups such as poorest and most undernourished children. A healthy mother can give birth to a healthy children, thus the intervention programs for improving the nutritional status of children must focus not only on children but also on their mothers nutritional status.

## Acknowledgements

The authors wish to acknowledge Rev. Dr. Milton Melingasuk Lado, Dean of the College of Natural resources and Environmental Studies, and the entire staffs and Students of the Department of Environmental Studies, CNRES, University of Juba. Acknowledgment is made to Nancy Juwa George, Darius Lofu Celestino and Grace Juan Celestino for their contribution in data collection.

## References

- [1] Müller, O. and Krawinkel, M. (2005). Malnutrition and health in developing countries, Canadian Medical Association Journal [Internet] August, vol. 173, no. 3. Available from: <http://www.cmaj.ca>.
- [2] Torún, B. (2006). Protein-Energy Malnutrition in, Modern Nutrition in health and disease. 10<sup>th</sup>ed. pp. 881-906. United States of America: Lippincott Williams & Wilkins.
- [3] Caulfield, L.E., De Onis, M., Blössner, M. and Black, R.E. (2004). Undernutrition as an underlying cause of child deaths associated with diarrhea, pneumonia, malaria and measles. American Journal of Clinical Nutrition. Vol. 80. pp. 193-198.
- [4] Kruienza HM, Tulder MWV, Seidell JC, Thijs A, Ader HJ, Van Bokhorst-de van der Schueren MA. (2005). Effectiveness and cost-effectiveness of early screening and treatment of malnourished patients. Am J Clin Nutr; 82: 1082e9.
- [5] Wang Y, Lobstein T. (2006). Worldwide trends in childhood overweight and obesity. Int J Pediatr Obesity; 1: 11e25.
- [6] WHO. (2012). 1990-2011 Levels and Trends in Child Malnutrition. World Health Organization. WHO-World Banks-UNICEF.
- [7] Standing Committee on Nutrition. (2002). School Age Children their Health and Nutrition. SCN News (25), pp. 1-78.
- [8] Mahgoub SEO, NnyepiM, Bandeke T. (2006). Factors affecting prevalence of malnutrition among children under three years of age in Botswana. AJFAND; <http://www.ajfand.net/webcite>.
- [9] Muller O, Krawinkel M. (2005). Malnutrition and health in developing countries. CMAJ.; 173: 279-286.
- [10] Lennard JJE. (1992). A positive approach to nutrition as treatment. Report of a working party on the role of enteral and parenteral feeding in hospital and at home. London: King's Fund Centre.
- [11] Larsson J, Unosson AC, Nilson L, Thorslund S, Bjurulj P. (1990). Effects of dietary supplement on nutritional status and clinical outcome in 501 geriatric patientse a randomized study. Clin Nutr; 9: 179e84.
- [12] O'Connor J, Youde LS, Allen JR, Hanson RM, Baur LA. (2004). Outcomes of a nutrition audit in a tertiary paediatric hospital: implications for service improvement. J Paediatr Child Health; 40: 295e8.
- [13] Shetty P. (2006). Malnutrition and under nutrition. Medicine.; 34: 524-529.
- [14] Simpoire J, Kabore F, Zongo F, et al. (2006). Nutrition rehabilitation of undernourished children utilizing Spiruline and Misola. Nutr J.; 23(5): 3.
- [15] Dabone C, Delisle HF, Receveur O. (2011). Poor nutritional status of schoolchildren in urban and peri-urban areas of Ouagadougou (Burkina Faso). Nutr J.; 10(34).
- [16] UNICEF. (2008). Tracking progress on child and maternal nutrition a survival and development priority.
- [17] Bruce C. (2001). Anthropometric indicators measurement guide. Food and nutrition technical assistance project. Academy for Educational Development Washington DC.; 98.
- [18] Abdalla MA, Saad A, Abdullahi HE, et al. (2009). Socio-economic aspects influencing food consumption patterns among children under age of five in rural area of Sudan. Pak J Nutr.; 8: 653-659.
- [19] Alredaisy MAS, Ibrahim SH. (2011). Assessment of nutritional status of children less than 10 years old in rural western Kordafan. J IIOAB-India.; 2: 40-49.
- [20] Brooks-Gunn J, Duncan G. (1997). The effects of poverty on children. Fut Children.; 7(2): 55 71.
- [21] MSF. (1995). Nutrition guidelines. Paris, France: Medicines Sans Frontieres.
- [22] UNICEF. A UNICEF Policy Review Strategy for Improved Nutrition of Children and Women in Developing Countries. New York, USA. 1990.
- [23] Onis M, Monteiro C, Akre J, et al. (1993). The worldwide magnitude of protein energy malnutrition; an overview from the WHO global database on Child Growth. Bull World Health Organ.; 71: 703-712.
- [24] Seligman HK, Laraia BA, Kushel MB. (2010). Food insecurity is associated with chronic disease among low-income NHANES participants. J Nutr.; 140: 304-310.