

Factors Associated with Malnutrition Among Children Under the Age of Five Years in Katutura Health Centre, Windhoek, Khomas Region

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Abstract

Malnutrition is responsible for nearly half of all deaths of children under the age of five globally, and is the number one driver of the global burden of disease. The aim of the study was to determine the prevalence of malnutrition among the children under the age of five years in Katutura Health Centre. A cross-sectional descriptive study was conducted. The sample was comprised of 42 mothers or caregivers of children under the age of five years that have attended Katutura Health center. Data was analysed with SPSS version 25.

The study also found out that factors such as younger age of mothers or caretakers, single parenting, unemployment, duration of breastfeeding, inadequate feeding and early introduction of complementary feeding were identified as contributing to malnutrition of children under the age of five years. The study recommends that children should be fed with enough different types of food so that they grow normally. Furthermore, the study also recommend that nurses should give health education to mothers on hygiene and exclusive breastfeeding and also the importance of monthly weight of all children under the age of five should be enforced.

Keywords: Children, Factors, Health centre, Malnutrition, Under-fives

Introduction

Malnutrition is a nutritional disorder caused by insufficient intake of food or inadequate intake of certain nutrients, or due to an inability of the body to absorb and use nutrients or by over-consuming of certain nutrients [1]. According to the International Food Policy Research Institute (IFPRI) [2] malnutrition is a universal problem, that affects more children in the developing countries (). Malnutrition is associated with suboptimal brain development, which negatively affects cognitive development, educational performance and economic productivity in adulthood [3]. In addition [4] conducted a study on the prevalence and risk factors for under nutrition among children less than five years in Eastern Ethiopia. The study indicates that nearly half of the children under the age of five years were stunted based on the WHO classification and a large number of children had a poor nutritional history or growth failure. Furthermore, malnutrition is one of the leading causes of death and is responsible for nearly half of all deaths of children under the age of five years [2].

A study carried out by the United Nations (2013), on health and nutrition in Namibia, estimated that 780 000 people did not have access to sufficient nutritious food and over 100 000 children

under the age of five were at risk of malnutrition. Under-nutrition puts children at greater risk of dying from common infections, increases the frequency and severity of such infections, and contributes to delayed recovery [5]. According to the Namibian National Nutrition Action Plan (2011-2015) of the Ministry of Health and Social Services[6], under-nutrition plays a significant role in child mortality, both of which have risen in Namibia in recent years. The number of children living with moderate acute malnutrition and severe acute malnutrition in Namibia is reported to be high [6]. Although the percentage of underweight children in Namibia has declined from 17% (2006) to 14.7% (2012), malnutrition is still the major public health problem [7]. Almost one out of every three Namibian children under the age of five years is malnourished, [7].

In Namibia, [8] conducted a study on the causes of malnutrition among children 1-5 years in the informal settlements of Windhoek. The study findings reported that, the prevalence rate for wasting was 19.7% which was found to be greater than an anthropometric value of 15.0% and was therefore classified as very high prevalence. The study also revealed that 35.7% of children in informal settlement in Namibia were underweight. Furthermore, [8] reported that there was an acute shortage of nutritious food in urban locations which contributed to insufficient nutritional intake among children under the age of five years and that affected their growth. The study also added that this shortage can possibly be attributed to the unemployment rate and low-income levels reported by households. The study also reveals that the majority of mothers with malnourished children were uneducated and thus they had no knowledge on how to take care of their children.

According to the Namibia Demographic and Health Surveys [9]13% of children under the age of five years nationally, were underweight and three percentages were severely underweight. The report stated that in Khomas region the number of underweight children was 9.1%. Male children were found to be more underweight with 15.3% compared to female children with 11.4% respectively. Children under-nutrition is the consequence of complex interactions of various factors mainly related to poverty, feeding patterns, climate change, and sociocultural factors,[10]. According to[4], a study at Eastern Ethiopia on risk factors for under nutrition among the under-fives children living in land agro ecology were more likely to be underweight than those living in highlands. He further argued that family size of greater than 12 contributes to the risk of children being underweight and poor initiation of complementary feeding of above 6 months was also associated with underweight. Additionally, Fernandes [11] study on the associated factors of malnutrition among African children under five years in Angola revealed that children who live in families of more than eight members tends to be underweight than those living in families of six members. The study also reported that mother's education contributes to the risk of children malnutrition due to the lack of knowledge on how to care for their children.

Mengesha [12]in their study on prevalence and associated factors to malnutrition in Ethiopia stated that children who came from families that have three under five children are more likely to be underweight compared to those that came from families that only have one under five child. These authors further reported that education is one of the most important resources that enable

women to provide appropriate care to their children. In addition, [13] indicated that poverty is the most common factor associated to malnutrition which is usually caused by a lack of individual responsibilities, climate change, high level of inequalities and bad government.

Objectives

The objectives of this study were to:

- Determine the factors associated to malnutrition among the children under the age of five years in Katutura Health Centre, Windhoek.
- Determine the remedial measures that could be implemented to prevent malnutrition among children under five years in Katutura Health Centre, Namibia.

Ethical aspects

Permission to conduct the research was obtained from the University of Namibia research ethical committee as well as from the Ministry of Health and Social Services research committee. The participant's contribution to this study was treated with high respect and confidentiality by explaining the aim of the study and by not linking the information to the participants for anonymity. Sufficient information about the study was provided and participants were given the freedom to exercise their autonomy by allowing them to voluntarily participate in the study. Participants were informed to sign the informed consent before they participate in the study. Participants below 18 years signed consent to confirm their willingness to participate in the study after obtaining informed consent from their parents. The researchers have also applied the principle of justice by making sure that the sampling method that was used has allowed each participant to have an equal chance of being included in the study. All participants were asked the same questions to ensure fairness.

Methodology

A quantitative, cross-sectional, descriptive study was conducted to identify and describe the factors associated to malnutrition among children under the age of five years as well as the remedial actions that could be implemented to prevent malnutrition on the children under the age of five. The study setting was Katutura Health Centre in Windhoek, which is the only health centre in Khomas region. The population in this study were mothers or caregivers of malnourished children under the age of five years and their malnourished children under 5 years who attended Katutura Health Centre in the months of December 2016 – February 2017. Mothers or caregivers of malnourished children who attended other health centres or clinics were not included in the study. The researchers got a register for all children under five years who visited the health centre during the study period from the registered nurse in charge. There were 44 children under 5 years with malnutrition who were registered during the study period. All 44 under 5 year's children were registered with mothers or caregivers. A census sampling method was utilised where by all participants were included in the study, due to the limited number of children under 5 years with malnutrition. Researchers got contact details of mothers or

caregivers such as names, address and mobile numbers as well as malnourished children from the registered nurse in charge of Katutura Health Centre. All participants in the sampling frame were contacted telephonically to obtain verbal informed consent before participation in the study. Among the 44 mothers /caregivers contacted 42 agreed to participate in the study while two caregivers declined participation. Therefore, the study was conducted among 42 participants. After the permission to participate in the study was obtained from the participants, the date, time and venue was arranged with participants for data collection. Data collection was conducted at Katutura health centre by the researchers. Participants were given a questionnaire and were expected to answer all questions. Questionnaires were translated in the language spoken by participants such as Oshiwambo, Afrikaans and Otjiherero in which the researchers are also conversant to. The researchers were available to clarify and answer any question raised by the participants.

A structured questionnaire was used as a tool to collect data with close ended questions. The data collected was about socio demographic characteristic of the children and parents or caretakers, the factors associated with malnutrition among children under the age of five years and remedial measures that could be used to prevent malnutrition among children under the age of five years. Statistical Package for the Social Sciences (SPSS version 25) was then used to analyse the data.

Result

Demographic data of the parents or caregiver

Participant's age are ranged between 15 to 45 years. The results shows that the majority of the participants were in the age group of 18 to 25 years 19 (45.3 %) followed by the age group of 26-35 at 17 (40.5 %). Furthermore, the age group of 15 to 17 were less represented at 4 (9.5 %) and caregivers aged 36 to 45 were 2 (4.7 %). All participants were female. The analysis shows that the majority of the participants 36 (85.7%) were biological mothers of the malnourished children and only 6 (14.3%) were caregivers. Regarding the marital status of the participants, the majority of participants 37 (88.0%) were single and only 5 (12.0%) of the participants were married. The study has shown that none of the participants fell in the other categories of either divorced or widowed.

Concerning the employment status of the participants, the majority of the respondents 25 (59.6%) were unemployed mothers or caregivers while 17 (40.4 %) reported to be employed. Close to the half of participants 19 (45.3%) reported to have attended school until grade 12, followed by 9 (21.4 %) that have gone only until grade 10. Few participants 6 (14.2 %) indicated that they went up to grade 9 and 5 (11.9%) participants indicated that they had the opportunity to further their studies until universities while only 3 (7.2%) went until grade 4. The majority of the households 32 (76.2 %) had between one and five members and only six households 10 (23.8 %) had more than six members.

Socio-demographic data of children under the age of five years

The majority of children affected by malnutrition 24 (57.2%) were male and 18 (42.8%) were female. Most of the children 13 (28.8%) were aged between 37-48 months followed by the age group of 1 to 12 months represented by 9 (20.3 %). The age group 13-24 months and 25-36 months had an equal number 8 (17.7%) of children respectively and a few children 7 (15.5%) were between the age of 49-60 months.

Presence of a disease in the child

The majority of participants 38 (90.4%) reported that their children did not have any medical condition and only 4 (9.6%) of respondents indicated to have children that suffered from certain medical conditions. The medical conditions indicated were Tuberculosis, anaemia, leukaemia and asthma. The reported conditions increased the vulnerability of infections in the affected children and thus the researcher believed that this increase the nutritional needs of the affected children.

Previous admission to the hospital

A great number 33 (78.5%) of respondents reported that their children were never admitted to the hospital in the last six months and only 9 (21.5%) of participants reported that their children were admitted to the hospital in the last six months. Two of the six participants reported that their children were admitted because of diarrhoea and vomiting and the other three were because of acquired medical conditions.

Feeding practices

Food consumption trait

CONSUMPTION TRAIT	FREQUENCY	PERCENTAGE
Two times	9	21.4%
Three times	14	33.4 %
Four times	9	21.4%
Five times & more	10	23.8 %

Table 1: Food consumption trait

As shown in table one, most of the participants 33.4% reported that they feed their children at least three times a day, while 23.8 % fed them five times and more. However, 21.4 % of the participants indicated that they only feed their children three times and 4 times per day respectively.

Types of food given to the child

From the data collected majority of the participants 30 (71.4%) reported that the main food type they feed their children with is porridge combined with milk. Some 7 (16.7) reported that they

give fruits and vegetables, meat, bread, cereal such as macaroni and rice and very few 3 (7.3 %) indicate that their children consume mainly fish and very few 2 (4.6%) indicated that they only breastfeed.

Method of feeding

FEEDING METHODS	FREQUENCY	PERCENTAGE
Breastfeed	2	4.7%
Spoon	20	47.6%
Hands	14	33.3%
Bottle	6	14.4%

Table 2: Feeding method

As displayed in table 2, most of the participants 20 (47.6%) reported that they feed their children with spoon followed by those feed the children with hands 14 (33.3%).

Children breastfeeding history

An overwhelming number of participants 37 (88.1%) reported that they did breastfeed and some were still breastfeeding their children. Only 5 (11.9 %) participants indicated not to have breastfed their children.

Duration of breastfeeding

Table 3 reveals that most of the participants 26.3 % indicated that children breastfed for about 5 months, followed by those breastfed for about 12 to 22 month to 23 to 32 months respectively. However 11.9 % of the participants revealed that they were still breastfeeding their children while 11.9% never breastfed. Mothers indicated they could not breastfed because they had to go to work and attend school and were therefore only fed formula milk from birth.

DURATION OF BREASTFEEDING	FREQUENCY	PERCENTAGE
still breast feeding	5	11.9 %
1 to 5 months	11	26.3 %
6-11 months	3	7.1 %
12-22 months	9	21.4 %
23-32 months	9	21.4%
not breastfed	5	11.9%

Table 3: Duration of breastfeeding

Age at which complementary feeding was introduced

The study shows that most of the children 50.4% were introduced to complementary feeding after six months and about 45.2% were introduced to complementary feeding before six months. Only 4.4 % of the participants reported that they did not introduce their children to complementary feeding yet, due to the fact that they were still exclusively breastfeeding.

Remedial measures that can be implemented to prevent malnutrition among the children under five years

Participants indicated different views on measures to prevent malnutrition among children under the age of five such as: children should be fed with enough different types of food so that they grow normally (51 %); children should be fed at least four times a day as stated by 20 %. Furthermore, 16 % indicated that children need to be breastfed for at least 24 months and exclusively breastfed for six months while 12 % of the participants stated that the government should provide jobs to those that are unemployed as they are unable to provide quality food for their children .

Few of the participants 7 % gave suggestions on hygiene, they stated that mothers or anyone that is taking care of the children should always wash their hands before feeding the children and all the utensils that are to be used should be clean. In addition 5% stated that children should be fed by spoon and bowl/plate instead of the children using hands because children's hands are not always clean

And 3 % participants suggested that nurses should monitor the weight of the children every month and give health education to mothers or caregivers because some mother or caregivers do not have the knowledge of what type of food to feed their children. However, very few 2 % participants suggested that children should be introduced to complementary feeding only after six months of exclusive breastfeeding.

Discussion

This current study revealed that all participants were female whereby the majority of the participants are aged between 18 to 25 years. These are the middle aged women at reproductive age , and they are employed youth with little time to spend and take care of their children as they may spend most of their times at work. The study also shows that children of teenage mothers could also be affected by malnutrition. According to the Namibia Demographic Health Survey[9]19 percent of young women age 15-19 have begun childbearing, which also increase from 15 percent in the 2006-07. These study findings are supporting the result by Bernard et al [14]who stated that women below the age 20 years have no experience and no income to take care of their children which leads to malnourished children.

The study reveals that all participants were female as women are the ones directly involved in taking care of the children. This study result has proven that most of the malnourished children are in the care of either single mothers or caregivers. This could be due to the scarcity of food and inadequate breastfeeding. The study also indicated that mothers with secondary education are mostly having children with malnutrition. These findings are different from the study by

Bernard et al [14] who associated lower education with malnutrition as low educated women don't know how to care for their children. Furthermore, study by [8] on causes of malnutrition among children 1-5 years reported an overwhelming 87% of mothers and fathers who had not reached the tertiary level of education lack feeding practices. Education serves to broaden their understanding of the importance of nutrition and influences household budgeting in a constructive manner. Most children affected by malnutrition are aged 37-48 months. This could be related to inadequate food to the children as majority of children are no more breastfed at this age. In contrast, [12] conducted the study on prevalence of malnutrition among children aged 6-59 months in Oromia Regional State that the highest prevalence rate was seen in children aged 45-59 months of age with prevalence of 8% while the rate was low in children aged 6-11 months of age with prevalence rate of 1.7%.

The study identified factors associated with malnutrition such as age of the parents or care giver, marital status of the caregiver, non-employment status of the mother or caregiver, family size, inadequate food consumption traits, medical conditions in children, and inadequate breastfeeding duration. The findings of this study are similar to those reported [8] in the study titled "Causes of malnutrition among children 1-5 years in the informal settlements of Windhoek" which indicate that 60.0% of households had between one and five members, 34% had between six and ten members and only 6% had more than ten members. This however can be an indication of low household food security due to a high level of unemployment rate and overcrowding. From the data collected this revealed that a lot of mothers or caregivers introduced their children to complementary feeding too early than what [1] on exclusive breastfeeding emphasized. Introducing complementary food before the age 6 months increase the risk of diarrhea and other childhood illnesses. Because of the relatively high prevalence of Human Immunodeficiency Virus (HIV) among pregnant women, the Namibian Infant and Young Child Feeding guidelines of the Ministry of Health and Social Services [6] recommend that HIV-positive mothers breastfeed exclusively for the first 6 months, during which time the infant should receive Anti-retroviral (ARV) prophylaxis to prevent mother-to-child transmission of HIV. At 6 months, complementary foods should be introduced, with continued breastfeeding up to 12 completed months. Some children were stated to suffer from medical conditions such as Tuberculosis, anaemia, leukaemia and asthma. The reported conditions increased the vulnerability of infections in the affected children and thus increase the nutritional needs of the affected children. Acute respiratory infections, diarrhea and fever (including malaria) are the most common childhood illnesses in Namibia and major causes of morbidity and mortality among children. Nutrition plays a vital role in the prevalence and duration of such infections, as well as the likelihood of survival [6]

Another factor indicated in the study is the short duration of breastfeeding. Most participants reported that they only breastfed their children for about 12 months of age. Breast milk contains essential nutrients that children need for growth and development. [15] In his study revealed that breastfeeding and weaning practices are associated with malnutrition among children under the age of five. This is similar to the results of this study. Despite some families having abundant supply of food at home, many do not know that it is essential to take a balanced diet as some

participants indicated the type of food they give to their children such as porridge and milk, fish etc. As such many children are subjected to an imbalanced intake of food which leads to malnutrition. Another similar study in Malaysia observed that lack of food security or lack of a balanced diet was significantly associated with malnutrition [16] study revealed that education is a very important aspect when it comes to nutrition. Most of the participants in the current study did not have the opportunity to further their studies at high learning institution and so they lack the knowledge on good nutrition. They do not know the type of food to feed their children and therefore health workers need to improve and strengthen health education on nutrition

Importance of exclusive breastfeeding of children for the first six months of birth needs to be reemphasized at all times. As indicated in the current study result a great number of participants reported that they introduced their children to complementary feeding before six months. One reason for this can be that some of them had to go to work and thus they couldn't breastfeed exclusively for six months but another reason could be that they were never explained on the importance of this practice and how it affects the nutritional health of children.

Conclusion

The findings of the current study revealed that malnutrition is the major problem among the children aged less than 5 years in Khomas region. The study results indicate that malnutrition among children under the age of five years could be associated with young mothers/caregivers, single mothers, unemployment, low educational level, limited duration of breastfeeding, late introduction of complementary feeding and methods of feeding used . Malnutrition was also more prevalent among male children then female. To succeed in the prevention of malnutrition among children under the age of five years, children should be fed using variety of food, health education and economic empowerment in the community should be enforced. Further prevention and intervention research is recommended to improve nutritional status in children under-five years.

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