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Short Communication

Prevalence of Malnutrition among Children in Rural Dhamar Governorate: A Pilot Retrospective Study

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Abstract

Background: Malnutrition among children is a major health problem in Yemen. This issue needs more attention and evaluation.
Aim: This study was aimed to estimate the prevalence of acute malnutrition among children aged 6 to 59 months in rural Dhamar governorate, Yemen.
Methods: A retrospective health facility-based study conducted on 457 children aged 6 to 59 months (mean age = 30.73 months, ± 17.65) receiving health services at two rural health centers in Dhamar governorate during the period between January and December 2017. Evaluation of nutrition status were based on health center records as source of given data including age, sex, medical history, findings of Mid-upper arm circumference (MUAC) scale.
Results: The Overall prevalence of acute malnutrition among children was 29.32% (134/457). The rate of acute malnutrition was found to significantly higher among children aged 6-24 months compared to those of 25-59 months (45.21% vs. 18.22%; $P < 0.001$). As well, it was more prevalent in those suffered other health problems compared to those did not suffer such health issues (35.56% vs. 25.27%; $P = 0.021$). Accordingly, the distribution of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) was found to be 11.60% (53/457) and 17.72% (81/457), respectively.
Conclusion: This short communication highlights a very important health issue touching a most susceptible group of the population. However, more detailed studies should carry out in order to evaluate the burden of malnutrition among children in Yemen.

Keywords: Malnutrition, Children, Dhamar, Yemen

1. Introduction

"Acute malnutrition is caused by a sudden decrease in food consumption that results in rapid weight loss and a physical inability to meet the energetic needs of the body" [1]. Acute malnutrition is responsible for almost one third of deaths in children < 5 years of age around the globe [2]. At the early stages of life, malnutrition increases the risk of morbidity and mortality. It has a negative impact on mental and cognitive development [3]. Current acute malnutrition in under-five children is classified into severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) based on level of wasting [4,5]. SAM is the most extreme and visible form of malnutrition; children show very low weight for their height and severe muscle wasting [6].

Currently, Yemen country has one of the highest rates of malnutrition in the world [7]. In 2017, some 2.2 million Yemeni children under-five are malnourished. Among

them 462,000 have SAM [8]. There is few official information about acute malnutrition in rural Dhamar governorate. Therefore, this study was aimed to estimate the prevalence of acute malnutrition and its association with age, gender and other health problems among children aged 6 to 59 months in two rural districts in Dhamar governorate, Yemen.

2. Methods

A retrospective health facility-based study was conducted on rural districts, Dhamar governorate, Yemen, during the period between January and December 2017. Two rural health facilities were chosen, Beit Al-Badani health center in Wusab As Safil district and Bany Aysa health center in Al-Hada district. A total of 457 children aged 6 to 59 months receiving health services or primary health care were enrolled in this study. The collected data focused on potential associated factors including age, gender, service receiving/month, findings of mid-upper arm circumference (MUAC) scale, and related medical information with malnutrition (other health problems presence and medical complications occurrence). According to WHO, acute malnutrition cases among children were divided into severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) based on level of wasting. It was considered as SAM when MUAC scale < 115 mm or the presence of bilateral edema or both. As well, MAM was considered when MUAC scale lies between 115 and 125 mm [5].

Data were analyzed by the Statistical Package for the Social Sciences (SPSS) version 21. Continuous variables were presented as mean and standard deviation. Categorical variables were expressed as frequencies and percentages. Chi square ($\chi 2$) or Fisher extract test was used to find out the association between the potential variables and malnutrition. $P < 0.05$ was considered to be statistically significant.

3. Results

A total of 457 children aged 6-59 months were successfully included in this study. Most (269; 58.86%) of the children were 25-59 months of age. Males represented 54.49% (249/457) of the study subjects. As shown in Figure 1, the findings revealed that the overall prevalence of malnutrition among children was 29.32% (134/457). However, the distribution of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) among the study subjects was 11.60% (53/457) and 17.72% (81/457), respectively.

As shown in Table 1, prevalence of malnutrition among children aged 6-24 months was significantly ($P < 0.001$) higher than those of 25-59 months (45.21%; 85/188 vs. 18.22%; 49/269, respectively). Similarly, the prevalence of malnutrition among children suffering other health problems was significantly ($P = 0.021$) higher than who did not (35.56%; 64/180 vs. 25.27%; 70/282, respectively). No significant differences in the prevalence of malnutrition were obtained between the children according to their gender.

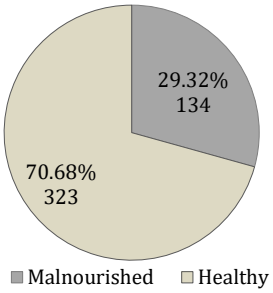

Figure 1: Prevalence of malnutrition among the 457 children aged 6 to 59 months in rural Dhamar governorate, Yemen

Table 1: Prevalence of malnutrition among children aged between 6 to 59 months by age, sex, and other health problems (n=457)

Variable	Total	Prevalence of malnutrition no (%)	$\chi 2$	*P*
Age/Month				
6-24	188	85(45.21)	38.92	< 0.001
25-59	269	49(18.22)		
Sex				
Male	249	68(27.31)	1.07	0.18
Female	208	66(31.73)		
Other health problems				
Yes	180	64(35.56)	5.57	0.021
No	277	70(25.27)		

$\chi 2$: Chi square; $P: \leq 0.05$ was considered significant

Table 2 shows that nearly half (65/134; 48.51%) of the malnourished children had complications, whereas the other 69/134 (51.49%) had no. On the other hand, the percentage of complication among children with SAM was higher than those who had MAM (56.60%; 30/53 vs. 43.21%; 35/81, respectively).

Table 2: Distribution of complications among the affected children aged 6 to 59 months in Dhamar governorate, Yemen, according to malnutrition level (n=134)

Malnutrition level	Total (n = 134)	Complications n (%)
Severe acute malnutrition	53	30 (56.60)
Moderate acute malnutrition	81	35 (43.21)

4. Discussion

Findings of this study revealed that the overall prevalence of acute malnutrition among children aged 6 to 59 months was 29.32% in rural Dhamar governorate, Yemen. This prevalence was higher than that reported from Dhamar governorate in 2014 [9]. As well, it also higher than those documented in both Ibb and Sana'a governorates (13.3%) based on Yemeni nutrition surveillance program (pilot phase) data among children under five years of age [10].

The prevalence rate of acute malnutrition significantly decreased with the children's increasing age where rate was higher among children aged 6 to 24 months

compared to who aged 25 to 59 months. This is in line with survey in previous study carried out in Yemen and India [10-12].

This study also indicated that the prevalence of malnutrition among male children was non-significantly higher than female. This comparable with findings reported by Yemen National Social Protection Monitoring Survey between 2012 to 2013 [13]. In this study, acute malnutrition rate was found to be significantly higher among children who suffering other diseases existence. These finding supports the results of other studies carried out in many developing countries including Ethiopia [14].

5. Conclusion

The overall prevalence of malnutrition among children aged 6-24 months in rural Dhamar governorate, Yemen, still high. The age group of 6-24 months have significantly higher rates of acute malnutrition compared to the age group of 25-59 months. As well, children who suffering other health problems have significantly higher rates of acute malnutrition compared to who did not. Nearly half of the malnourished children had complications. More field studies are in need among this neglected country.

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Competing interests

The authors declare that they have no competing interests.

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