Nutritional status of the Chahestaneha Community of Bandar-Abbas, Iran.

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Abstract

Background: A good nutrition is that which is adequate and well balanced containing essential nutrient in an appropriate proportion. Poor nutrition on the other hand leads to reduced immunity, impaired physical and mental development, increased susceptibility to disease and reduced productivity, as nutrition is one of the most critical veritable ingredients of labour productivity, and it increases human potentialities of all kinds. Indicators of malnutrition include wasting, stunting and underweight, which represent different aspects or measurements of malnutrition. Stunting refers to a situation in which children are shorter than expected for their age and gender group in the reference population due to past chronic nutritional deficiency (Weight according to height. Under weight: Height for age reflects the achieved linear growth of a child. Wasting: Weight for age reflects the body size.

Methods: A cross-sectional analytical study was conducted in which Cluster Sampling was used to divide the Community into 12. Each unit of cluster is composed of at least 15 households according to the street. And a standardized structured questionnaire was used to collect data from the parents of the pre-school children and anthropometric measurement of the pre-school children were taken using weighing scale and meter rule. And data was analyzed using Epi-info software, Principal Component Analysis and SPSS version 22.

Results: Of the 286 participant, 103 (36.0%) were Underweight, 129 (45.1%) stunted and 158 (55.2%) wasted. Prevalence of Underweight have a significant relationship with weight of the child at birth, this was more tangible in low birth weight (i.e. birth weight < 2.5kg) than normal weight at birth (> 2.5 kg) with (p-value = 0.034) Also that of stunting with Mother's occupation, more tangible among government employee 9(90.0%) than housewife 149(54.4%) (p-value = 0.048).

Keywords: Nutrition; Malnutrition; Prevalence; Pre-school children

Introduction:

A good nutrition is that which is adequate and well balanced containing essential nutrient in an appropriate proportion. Poor nutrition on the other hand leads to reduced immunity, impaired physical and mental development, increased susceptibility to disease and reduced productivity, as nutrition is one of the most critical veritable ingredients of labour productivity, and it increases human potentialities of all kinds. (1) Stunting, underweight and wasting are indicators of malnutrition. Stunting refers to a situation in which children are shorter than expected for their age and gender group in the reference population due to past chronic nutritional deficiency (Weight according to height. (2) Underweight: Height for age reflects the achieved linear growth of a child. Wasting: Weight for age reflects the body size. (3)

Malnutrition is a major health problem in developing countries and the most important risk factor for illnesses and death especially among young children.(2) It is a pathological condition of varying degrees of severity and

diverse clinical manifestations, resulting from deficient assimilation of the components of the nutrient complex (3) about 800 million people are affected with malnutrition, 20% of them in the developing countries.(4)

Globally, it was estimated that one in every three preschool children is malnourished in 2011, an estimation of 165 million children under-five years of age were underweight, 155 million are stunted and 52 million are wasted, while 41 million are overweight or obese.(5, 6) Every year, five (5) million children's death recorded worldwide is directly or indirectly associated with malnutrition as around 45% of this deaths are linked to undernutrition.(6, 7)

A Survey in July 2004 in Northeast of Iran, has estimated rates of stunting, underweight and wasting nationally to be 12.5%, 7.5% and 4.4%, respectively.(1) Malnutrition in all its forms remains a global concern, particularly affecting highly vulnerable populations in several regions of the world.

Many studies have shown that nutritional problems all over the world shared many similar factors in their etiology, though, study in Iran revealed that 15.4% of the children suffered from moderate to severe nutritional stunting. Children, who have difficult beginnings with inadequate care, often present with nutritional deficiencies for any of the following reasons; Inadequate maternal prenatal diet Premature infant birth, Premature introduction of solid foods to the infant diet, Insufficient amounts of food and/or lack of essential nutrient-dense foods, Lack of fortified foods, beverages, and vitamin supplements due to high cost or unavailability. Other causes of malnutrition are poverty, Occupation of the mother, Unemployment, large family size, educational status of the parent.(8, 9)

With its peculiar nature, these influence the researcher after completing a community assessment of the community of Chahestaneha in Bandar Abbas, the Hormozgan province of Islamic republic of Iran to carry out the survey research in the January, 2015. Considering the community strength, resources and problem, Malnutrition was one of the problem high in rank among the preschool children especially after the cessation of breast milk.

Materials and Methods

Study design:

A cross-sectional study was conducted to determine the prevalence of malnutrition among Pre-school children of Chahestaneha community of Bandar Abbas, Iran.

The sample consisted of all households with children in the age group between 2-6 years were included. For the questionnaire, mothers or caretakers of children in the age group between 2-6 years were included. For anthropometric measurements of children, one child in the age group between 2-6 years was randomly selected from each household. And all Households who didn't have children in the age group between 2-6 years were excluded from the survey. Or those unwilling to participate or were not home during the time of survey were excluded.

Study procedure:

Cluster Sampling was used to divide the Community into 12 clusters. Each unit of cluster is composed of at least 15 households according to the street.

Interview from the parent using a standardized structured questionnaires were used to assess the knowledge, attitude and Practice of the parents regarding nutrition in the study area

Statistical analysis:

All questionnaires were checked for completeness and consistency, Real time data entry was used to ensure data quality and accuracy as it was entered into SPSS version 22 and analysis was done in three (3) phases;

The first phase; Using Epi info software version 6, the anthropometric measurement of age, weight, height, to compute Z-score used to determine prevalence of stunting, wasting and underweight as shown in **(table 1)**

The second phase; Principal Component Analysis(PCA) in which all the variables regarding socio economic status of the families of the participant was reduced to one data set variable; as follows:

$$Y = W_1X_1 + W_2X_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots W_iX_i$$

Where X_i = all the variables regarding Socio Economic

W_i = their corresponding weight

Using SPSS make the process a lot easier to compute the data set

Third phase; SPSS software version 22 was used to describe and measure the association between the categorical variables and the prevalence. Table 1; Z-score categorization of malnutrition as depicted by (10) as shown in (table 1) below:

Table 1: Z-score categorization of malnutrition

Nutrition	status classification	Z- score
weight to age for wasting	normal	≤-1SD
	slight	-1SD < Z ≤ -2SD
	medium	-2 SD < Z ≤ -3SD
	acute	-3SD <
Height to age for underweight	normal	≤-1SD
	slight	-1SD < Z ≤ -2SD
	medium	-2 SD < Z ≤ -3SD
	acute	-3SD <
Weight to height for stunting	normal	≤-1SD
	slight	-1SD < Z ≤ -2SD
	medium	-2 SD < Z ≤ -3SD
	acute	-3SD <

Results

The study was done on 290 children within the ages between 2 – 6 years of the study area out of which 140(48.3%) males and 150(51.7%) females, 166(58.0%) of them are below 4 years and 120(42.0%) above 4 years of the cases under study, in a family of which 71 (24.5%) are of low economic status, 145 (50%) moderate and 74 (25.5%) high economic status. It was found that 36.0% of the children under study were Underweight, 45.1% were stunted and 55.2% wasted as shown in figure 1 and table 2.

Prevalence of Underweight have a significant relationship with weight of the child at birth, this was more tangible in the case of low birth weight (i.e. weight below 2.5kg) than those with normal weight at birth (i.e. weight 2.5 kg and above) with (p-value = 0.034) Also Prevalence of stunting have significant relationship with Mother's occupation, more tangible among government employee 9(90.0%) than housewife 149(54.4%) as compared to the number of children not stunted within the categories of their mother's job (p value = 0.048). as shown in (table 3).

Table 3: Comparison of the Prevalence of Malnutrition (Underweight, Stunting & Wasting) with Weight of the child at birth and Mother's Occupation

		Underweight		Stunting		Wasting	
Variables	Xtics	Underweight(%)	Normal(%)	Stunted (%)	Normal(%)	Wasted (%)	Normal(%)
Weight at birth	**Low**	**31(46.3)**	**36(53.7)**	**28(41.8)**	**39(58.2)**	**41(61.2)**	**26(38.8)**
	Normal	**67(32.1)**	**142(67.9)**	**100(47.8)**	**109(52.2)**	**116(55.0)**	**95(45.0)**
	p-value*	**P= 0.034***		**P= 0.387**		**P= 0.371**	
Mother's Occupation	**House wife**	**149(54.4)**	**125(45.6)**	**120(44.1)**	**152(55.9)**	**149(54.4)**	**125(45.6)**
	Simple worker	**3(50.0)**	**3(50.0)**	**2(33.3)**	**4(66.7)**	**3(50.0)**	**3(50.0)**
	Govt. employee	**9(90.0)**	**1(10.0)**	**9(90.0)**	**1(10.0)**	**9(90.0)**	**1(10.0)**
	p-value*	**P= 0.196)**		**P= 0.048***		**P= 0.196**	

*Chi-square test, P is significant at the level below α =0.05

Table 2: FREQUENCY DISTRIBUTION OF THE THREE INDICES WASTING, UNDERWEIGHT, AND STUNTING IN TH STUDIED.

Index level	Underweight (%)	Stunting (%)	Wasting (%)
Normal	**183 (64.0)**	**157 (54.9)**	**129 (44.8)**
Slight	**65 (22.7)**	**86(30.1)**	**106 (36.8)**
Medium	**23 (8.0)**	**30 (10.5)**	**40(13.9)**
Acute	**15 (4.9)**	**13 (4.5)**	**13(4.5)**
Total	**286 (100)**	**286(100)**	**288 (100)**

Discussions

From the result obtained in this study, 36% of the participant were underweight, this is similar with the study conducted in the South Khorasan, Iran (47.8%) (10), Ethiopia (46.1%) (11), and in contrast to the results obtained in Kenya (4%)(12), Tanzania (5.74%)(13), Ghana(13.8%) (14), Brazil (8.5%) (15) and 9.9% (16). The prevalence of overweight has significant relationship with the weight of the child at birth (p-value = 0.034).

45.1% of the children were stunted, similar result was obtained in South Khorasan, Iran (45 %)(10), Afghanistan (35%)(17), Ethiopia (67.8%)(11) but in contrast with this studies with lower result in Brazil 3.9%(15), England 8.9%(18), Tanzania(8.34%)(13). And the prevalence of stunting is significantly associated with Mother's occupation.

55.2% wasted which is similar to the following study in Ethiopia 48.5% (19), 32.2%(10). In contrast to the study with 1.41%(13), 8.9%(14), 12.7% (20).

Conclusion

This high prevalent of malnutrition may be due to poor or inadequate weaning diet that the children are fed with after they are removed from breast milk at the age around 2 years of age. Also, it may be due to little time parent have with their children in order to meet up with family needs and economic challenge of the family and the country due to sanctions

Ethical considerations

Ethical issues like plagiarism, informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission etc. have been completely observed by the authors.

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