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Full Length Research Paper

Malnourishment status of childbearing families in Coastal Area of Sindh Province

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Abstract

Malnourishment amongst male and female children including their mothers leading to enhanced mortalities has been a global issue but more so, in developing countries. The study was embarked upon to determine the prevalence of malnutrition in terms of wasting, stunting and underweight among the children under the age of 5 years was found coastal district of Sindh province of Pakistan. The findings of present study reflected that malnourishment is principal factor which must be addressed and controlled in the given socio-economic environment by suggesting way and means by health policy makers through appropriate measures like counseling about breastfeeding, birth interval and proper ways of weaning of their children. It is recommended that community based nutrition trainings and seminars must be conducted in various villages throughout Sindh province of Pakistan in order to reduce malnourishment leading to malnutrition in rural children at least among children of 5 years or less.

Key words: Malnutrition, Children, Families, Mortality, Nourishment.

INTRODUCTION

Balanced diet is very important factor for proper growth and physical development and also play major role in optimal working capacity (David, 2002). Children under the age of five years (ie. 9.4%) of the total global population are mostly at risk of malnutrition and become its victim (IDB, 2008). Malnutrition (anthropometric status) is mainly associated with mortality and it has has been well established (Pelletier, 1994) that malnutrition increases the rate of mortality through diseases, especially acute respiratory infections and diarrhea (Rice *et al*., 2000).

It has also been reported that malnutrition which is major concern in developing countries as it is directly or indirectly the principal cause of the 10 million deaths per capita ie. 54% in children under the age of 5 years and accounts for 53% deaths in every second due to inability to resist many infectious diseases amongst children attaining 5 years of age or less (Schaible and Kaufnaann, 2007; WHO, 2005). It has also been revealed that around 146 million children in developing countries are underweight and at least one out of four children has exhibited it. Over half of the world's underweight children

were noticed to be from three developing countries i.e. Pakistan, Bangladesh and India (UNICEF, 2006).

Among the developing countries of South Asia, Pakistan ranks second in the infant and child mortality rate (Bhutta *et al.,* 2007). The most important socio-economic problems of Pakistan are similar to many other countries which usually are child malnutrition, low literacy and high infant mortality rate. Half of the infant's deaths ares considered due to malnourishment (Cheah, 2010) that affects physical and mental development in child's life leading to poor performance and lower level of educational attainment even if they attained age of 5 years or beyonds (Chirwa and Ngalawa, 2008). Food insecurity coupled with poor nutrition status are always the cause of frequent illnesses and poor nourishment of mothers as well as happens to be the most important factors leading to child affections (Linnemayr *et al*., 2008). Sindh province of Pakistan is relatively less well-developed. Despite being the second-most food-producing province, this province faces considerable number of malnutrition and the highest level of food insecurity due to contextual issues of inequitable land ownership, conversion of agriculture land for residential and other activities purposes, poverty, illiteracy, patriarchy, and poor delivery of social-sector services are other factors leading to malnourishment in rural Sindh. Weak cross-sectorial coalition, low district accountability, and weaker health management in Sindh are likely to undermine both horizontal coordination and improvement in the nutritional status of the rural population.

Demographic and Health survey of Pakistan (1990-91) and Pakistan National Nutrition Survey (1985-87) published the nutritional status of children under the age of 5 years. The reported information revealed that 9% of the children were wasted, 50% of the children were stunted while 40% of children were underweight and that 8 million children under the age of 5 years were malnourished due to socio-economic factors.

Pakistan's etiology is multifactorial and complex, it is because of improper diet and frequent diseases and this occurs in combination with multiple economic, cultural, social and political elements. Factors responsible for malnutrition are also reported as incomplete vaccination (Siddique *et al.,* 2006), premature birth (Vitolo *et al.,* 2008), mothers having age less than 18 years, poor sanitation conditions of local areas, improper weaning (Kumar *et al*., 2006), less breast feeding, large family size (Salim, 2005), low birth weight of babies (Rahyan and Hayat, 2006), less or no maternal education level and birth intervals (Mozumder *et al*., 2000).

Monitoring of health and nutritional status in populations can be best examined by following child growth that is by anthropometric measurement as the terms anthropometric deficits and mortality are interrelated with each other (De Onis and Blossner *et al*., 2003). There are various anthropometric indices that can be used to determine child growth status amongst which following three are most common in all:

1. Stunting (height-for-age): it portrays performance in terms of linear growth) in which long term growth faltering is measured.
2. Wasting (weight-for-height): it reflects body proportion or the hormony of growth and it is very sensitive to acute growth disturbances.
3. Underweight (weight-for-age): it represents both linear growth and body proportion with age (Group WW, 1986).

The main purpose of this study was to determine the prevalence of malnutrition in terms of wasting, stunting and underweight among the children under the age of 5 years in the coastal area of Sindh province and the study was conducted with the main objectives to identify the malnourishment status of child bearing families residing the coastal area of Badin district of Rural Sindh.

METHODOLOGY

A cross sectional research study was conducted coastal areas in Badin district of Sindh province of Pakistan. The district comprises with five Talukas viz., Badin, Matli, Tando Bago, Talhar and Golarchi. The area of the district Badin is about 6726 Sq. km with the total population of about 1.293 million. It is surrounded by Hyderabad in the North West Tharpaarkar, Mirpurkhas in the North-East, Thatta District in the west and Runn of katch (Arabian Sea) in the South, which also forms international boundary with India. Majority of the people were Sindhi language speaking and most of them belonged to lower class farmers and labourers who heavily depended on agricultural, livestock and fishing practices.

A total of 800 children were selected and interviewed for the study purpose. The criteria of inclusion were selection of children who were under the age of five years irrespective of their ethnicity, religion and gender. Figure 1 below.

The study included only the last born child of each family who has under the age of five years. If the person had more than one wife then only the youngest child of either of the wife was interviewed. In case of a person who had twins then only one child was selected for the study. The parents who had adopted child were not interviewed as the study was based on real children of parents in order to assess the major problem.

A questionnaire was designed and interviews were conducted by the expert of Institute of Food Sciences and Technology and Department of Agricultural Education Extension experts of Sindh Agriculture University Tandojam. Anthropometric measurements including weight for age, weight for height and height for age of children were taken. Information about sex, age (months), height (cm), weight (kg) was noted for anthropometric measurement and calculated via the

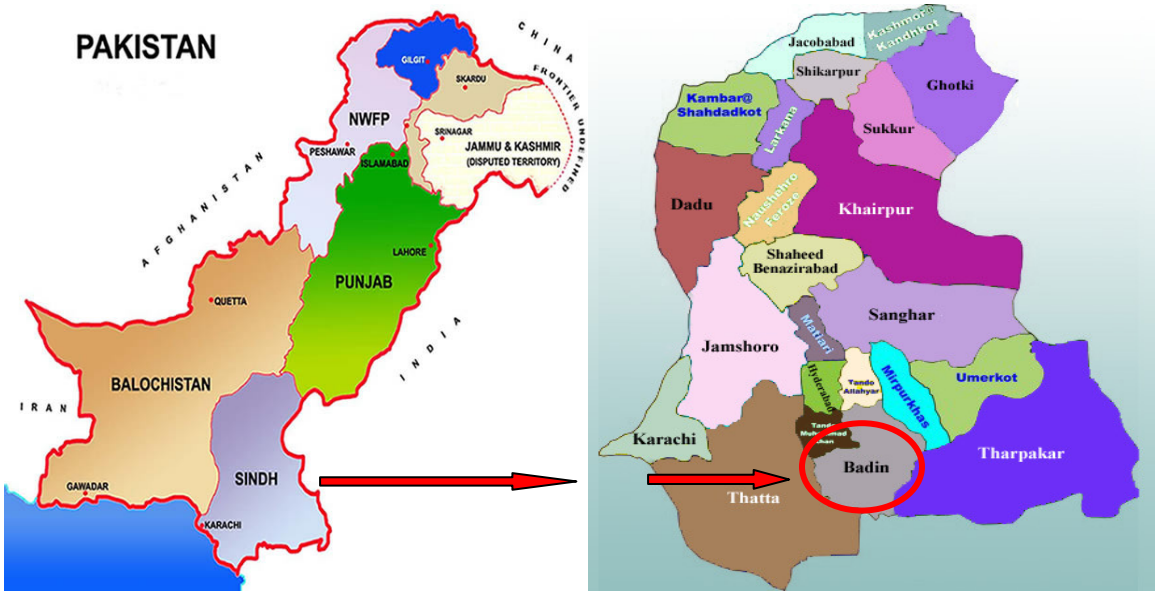

Figure 1. Homogeneous ecological areas (HEAs) of Sindh province Pakistan

international program for anthropometric measurement namely Epi Info. The results of child's nutritional status were expressed as Z-scores as per World Health Organization (WHO) reference. The Z-score is the preferred anthropometric indicator in surveys. It is measured by the given formula

$$\text{Z-SCORE} = \frac{\text{measured value - median of reference population}}{\text{standard deviation of the reference population}}$$

RESULTS AND DISCUSSION

In Pakistan, the majority of illnesses and infections are due to improper, incomplete or lack of immunization through vaccination that is why these children become the victims of different diseases leading to high mortality ratio (Badar *et al*., 2007). Diarrhea, respiratory infections and other communicable diseases are most common infections that occur most frequently amongst the children under the age of 5 which in turn had become the major concern of malnutrition (David *et al*., 1995 part I and II; Coulter, 1999). Birth defects and other organic diseases are also considered as second most biological factor leading to malnutrition among children (Archer, 1979; Kumar *et al*., 2002).

In the research study (Table 1 below), a total of 800 children were interviewed. 470 were female and 330 were male children. Majority of parents i.e. parents of 750 children didn't even know the birth weight of their children and only 336 mothers gained weight during pregnancy. The birth interval was noted to be less than one year in 423 mothers. 580 mothers breast fed their children where as 420 mothers replied that they breast fed their children up to one year only. It was also revealed that mother totally lack awareness or of counseling regarding family planning practices and birth spacing. Early cessation of breast feeding is also main cause of malnourishment among children in the district despite the fact that breast feeding happens to be an ideal diet for proper growth and development of the child (Morisky *et al*., 2002). The Pakistan Health Education Survey (1991-92) reported that in 1987, 58% mothers breastfed their children which declined to 40% in 2004 (Ali *et al*., 2005). SPARC (2008) reported that only 31% mothers of Pakistan were found to breastfed their babies from 6 to 9 months only as compared to earlier reports of 1975-1983 in which 96% mothers used to breastfed their babies for at least 12 months.

Several other studies have also been conducted in Pakistan on early cessation of breastfeeding and inclusion of formula feeding which has now become one of the contributing factor of childhood nourishment (David *et al.,* 1995 Part I and II; Bhutta *et al.,* 2007).

In Pakistan, maternal malnutrition such as micronutrient deficiencies, iron deficiency anemia is quite common among the childbearing age of mothers up to 3 years. When these malnourished mothers undergo repeated pregnancies the cycle of malnutrition goes on from one generation to next generation. Available status also reveals that malnourished women play key role in malnourishment of their children (Shannon *et al*., 2008; Farrukh, 2009; American Academy of Pediatrics, 2012).

Weaning of child was observed to be started in less than 6 months by 680 mothers that could be due to the next pregnancy which may cause weakness, so that mother may not be able to prepare proper dietary

Table-1. Sampled children

Region	Total
Both sexes	800
Female	470
Male	330
Birth Weight	
Known	50
Not known	750
Weight gain of mother during pregnancy	
Yes	336
No	464
Birth interval of last pregnancy outcome	
Less than one year	410
More than one year	390
Breast feeding of children	
Yes	580
No	220
Less than 12 months feeding	423
Less than 24 months feeding	157
Weaning Stage	
Less than 6 months	680
More than 6 months	120

Table 2. Selected children household characteristics

Family size	Total
1-5 children	420
6-9 children	250
More than 9	130
Age of mother	
Less than 20	694
20-40	106
Schooling of mother	
Illiterate	440
Primary	259
Matric	101
Schooling of spouse	
Illiterate	203
Primary	150
Matric	312
More than Matric	145

protocol for her child. Many studies have been conducted (Toole *et al*., 1993; Farrukh, 2009) on birth intervals and the intervals of less than 2 years which acknowledged that birth interval of less than 2 years was most detrimental leading to malnourishment of the children (Gul and Kiramat, 2012). The prevalent risk factor for stunting was also associated with lack of breast feeding, lack of knowledge about breastfeeding and weaning which often lead to malnutrition among children (David and Lobo, 1995; Badar *et al*., 2007).

In the study being reported (Table 2 above), 420 families had 1 to 5 children, 250 had 6 to 9 children and 130 families had more than 9 children. Overcrowding also played a key role in the malnourishment and the health of child and the problems of malnutrition in overcrowded families was as high as three fold (Hirani, 2012). Majority of mothers (694) were less than 20 years of age out of which only 101 mothers had received education in school up to matriculation/O level. 145 children father had education above Matriculation/O level. Various Pakistani studies have reported a strong correlation between maternal illiteracy and the prevalence of childhood malnutrition (PMRC, 1998; Gopalan, 2000; Mujib *et al*., 2004) as related in this study.

Out of 800 children studied (Table 3 below), 89% (712) were found to be malnourished, 48% (384) female and 41% (328) male). Stunted growth was observed in 74% (592) stunted (39% (312) female and 35% (280) male) where as wasting was noticed 26% (208), 16% (128) female and 10% (80) male). The demographic Health

Table 3. Trends in child nutrition

Factors	Male		Female		Total Malnourished		Normal	
	%	No.	%	No.	%	No.	%	No.
Underweight	41	328	48	384	89	712	11	88
Stunted	35	280	39	312	74	592	26	208
Wasted	10	80	16	128	26	208	74	592

Survey of Pakistan (1990-91) had also reported that the malnourishment prevalence rate of about 54.9% in the country while National Nutrition Survey (1985-87) on the other hand reported the prevalence malnutrition rate of 46%. This all suggests that the prevalence malnourishment is increasing day by day. It was also found in the present study that malnutrition was higher in district Badin may have been due to minimal health facilities, poor sanitation, lack of education, low socio-economic strata and lack of associated infrastructure and the services.

CONCLUSION

It was thus concluded from the present study revelations that malnourishment was increasing day by day which must be controlled by suggesting appropriate measures by health policy makers through launching of programs like counseling about breastfeeding, birth interval and proper ways of weaning of their children and associated trainings at the villages in the area. It is further recommended that community based nutrition trainings and seminars must be conducted in various villages throughout Sindh province of Pakistan in order to reduce malnutrition ratio amongst babies and their mothers.

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