CHAPTER 2

Food, nutrition, and health issues in Pakistan

Contents

2.1 Introduction

Food and nutrition insecurity is a major challenge for the Pakistani population. Health issues in Pakistan are increasing at an alarming stage due to nutritional deficiencies. Medical problems are causing new kinds of disorders that are difficult to treat due to the unavailability of finance and poor economic conditions (Gordon and Shaw, 1999; Moss, 2002; Wagstaff, 2002; Scheppers et al., 2006; Kapur, 2007). According to the World Health Organization (WHO), Pakistan is ranked 122 among 190 countries in terms of healthcare. Despite significant developments over the past decades, Pakistan has the third highest infant mortality rate in the world (WHO, 2000; Rasanathan et al., 2017).

Over the last decades, Pakistan has not shown much progress in the health scenario of children with disabilities. The latest National Nutrition Survey (NNS, 2011) revealed the prevalence of acute malnutrition of 15.1%, which was more than what was seen in the previous survey (13%). Moreover, the disaggregated rate of wasting in the urban and rural communities was 12.6% and 16.1%. Wasting is related to intense weight reduction demonstrated by a low weight to height ratio. This may be due to acute starvation or severe illness/disease.

In Pakistan, the nutritional status of children under the age of 5 years is extremely poor (FAO, 2010). Almost 40% of children are underweight, and about half of children are affected by stunting and around 9% by wasting (FAO, 2010). Micronutrient deficiencies are also widespread in children (Ejaz and Latif, 2010). Biochemical indices revealed a deficiency of multiple micronutrients in children under 5 years: zinc, 39.2%; vitamin D, 40.0%; iron, 43.8%; vitamin A, 54.0%; and occurrence of anemia, 61.9% (NNS, 2011). The NNS survey has given a complete nutrition profile of children in Pakistan based on daily consumption (Table 2.1).

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Table 2.1 The daily consumption of energy and nutrients by children (up to 23 months old).

Nutrients	Pakistan	Residence		Province/Region							RDA
		Rural	Urban	Punjab	Sindh	Baluchistan	KPK	GB	AJK	FATA	
Iron (mg)	3.6	3.2	4.4	3.1	3.7	5.3	6	3.2	4	5.3	11
Zinc (Zn)	1.5	1.4	1.8	1.5	1.5	2.1	1.7	1.1	1.6	1.6	3
Fats (g)	25	23	31	26	22	32	24	16	31	22	30
Protein (g)	25	23	31	26	22	32	24	16	31	22	30
Calcium (mg)	490	471	529	556	329	514	459	272	611	421	500
Phosphorus (mg)	377	356	420	394	276	427	513	246	488	461	460
Carbohydrates (g)	56	49	69	48	60	86	67	55	82	74	100
Energy (kcal)	560	492	700	523	561	808	657	423	728	602	1200

Source: The data has been extracted from NNS (National Nutrition Survey), 2011; based on reports submitted by Agha Khan University, Pakistan, Pakistan Medical Research Council (PMRC), Nutrition Wing, Ministry of Health, Pakistan. *KPK*, Khyber Pakhtunkhwa; *GB*, Gilgit Baltistan; *AJK*, Azad Jammu and Kashmir; *FATA*, Federally Administered Tribal Area; *RDA*, Recommended Dietary Allowance.

Table 2.2 Food availability per capita.

Items	Year/ units	2007–08	2008–09	2009–10	2010–11	2011–12 (E)	2012–13 (T)
Cereals	kg	158.1	160.3	158.8	158.7	159.0	160.0
Pulses	kg	7.2	5.8	6.8	6.7	6.4	6.7
Sugar	kg	30.0	25.6	26.1	26.5	30.4	31.0
Milk	L	165.4	167.2	169.1	169.8	169.0	170.0
Meat	kg	20.0	20.0	20.5	20.9	20.4	21.0
Eggs	dozen	5.5	5.6	5.8	6.0	6.0	6.0
Edible Oil	L	12.8	12.5	12.6	12.6	12.7	13.0
Calories per day	2410	2425	2415	2420	2410	2450	
Protein per day (g)	72.0	72.5	71.5	72.0	71.5	72.5	

Source: Planning Commission of Pakistan—GOP, 2018.

Food availability and consumption are indicators to assess food adequacy. According to the food balance sheet, the availability of essential food items has been an adequate level to meet national food needs. The average calories estimation through food balance sheets during the last 5 years remained above 2400 calories and protein 70 g per capita per day. During the fiscal year 2012–13, it was around 2450 calories per capita per day. The 5-year overview of food availability patterns for major food items is given in Table 2.2.

A positive relationship exists between the age of the child and the prevalence rate of stunting and underweight (NIDA-Pakistan, 2019). However, there are no gender-based differences in malnutrition (FAO, 2010). On the other hand, the mortality rate of mothers is also higher in Pakistan despite the development of the medical area. According to estimates, about 30,000 women die each year due to obstetric complications or we can say that one woman dies every 20 min (Khan et al., 2009). The disproportionately greater burden of death occurs in rural areas and urban poor neighborhoods. Anthropometric deficiencies are considerably higher in rural areas due to low living standards, poor financial status, and extremely poor or lack of access to basic health services. It is unfortunate that in recent times no food consumption survey has been conducted in Pakistan for the adequacy of food consumption and quality control. Food consumption is one of the main elements that connects and affects the nutritional status of the population (Haider and Zaidi, 2017). Other key influences can be socioeconomic factors, lack of healthcare facilities, poor financial conditions, and disease outbreak (Vorster and Kruger, 2007; Wilkinson and Marmot, 2003). Malnutrition is an imperative indicator of poverty and is closely related to the mortality of children.

About 60 million people in Pakistan are below the poverty line (Khan, 2016) and these individuals cannot meet their basic needs because of poor financial conditions.

Trends in nutrition status can be ascertained from sequential national nutrition and health surveys suggesting a negligible change in stunting and wasting rates over the last decades (Bhutta et al., 2013). Moreover, child mortality occurs as a result of respiratory and intestinal diseases in almost 50% of malnourished children under 5 years old (Caulfield et al., 2004), which is exasperating, particularly in the most populated regions (Bharmal, 2000).

Previously, Khuwaja et al. (2005) found a lag in growth among school children (6–12 years) in rural areas of southern Pakistan with 16.5% stunting. Furthermore, the sex, age, and father's occupation were found to be important risk factors for stunting growth in the children of this age group. Similarly, Asim and Nawaz (2018) reported that the most vulnerable age was 6–23 months when their diets were completely neglected. It is evident that the greater intensity of childhood malnutrition prevails in rural areas of Pakistan and is most likely due to low income, large family size, early marriages, high rates of fertility, no gap between birth spacing, and the lack of breastfeeding.

Malnutrition in a child often appears as underweight or wasting and also impairs the function of the immune system and makes the child more susceptible to infections (Waterlow, 2006). Some infections, meningitis in particular, when treated incorrectly or late, are major causes of disability (Gladstone, 2010). Another indicator of malnutrition is stunting, defined as the low height-to-age ratio. It is caused by a range of nutrition-related factors including macro- and micronutrients and has a number of negative impacts on physical and cognitive development (Grantham-McGregor, 2002). Deafness is another possible disability linked to malnutrition. It has been found that children with slight malnutrition are more likely to suffer hearing loss than infants who are not malnourished, and the risk of hearing loss is increased in infants with severe-to-profound malnutrition (Olusanya, 2010).

2.2 Maternal nutrient status in Pakistan

The nutritional status of pregnant women is not different from children (UNICEF, 2005). They produce malnourished children. These children are more susceptible to death as an infant or if they survive, they are more likely to remain malnourished and have a greater chance of getting diseases (Groce et al., 2014). The prevalence of anemia in pregnant women is the major risk factor of low-birth-weight babies (Badshah et al., 2008; Levy et al., 2005). Lone et al. (2004) investigated the relationship between maternal anemia and perinatal outcome in a group of 629 pregnant women. The study found that the risk of preterm delivery and low-birth-weight in anemic women was 4 and 1.9 times higher than the nonanemic women. In Pakistan, about 45% of people consider themselves iron deficient (Mawani et al., 2016). The prevalence of anemia in pregnant females was reported to be 29%–55% in urban areas (Khalid et al., 2017). Moreover,

lack of iodine in women may also result in stillbirths, birth defects, mental retardation, and child mortality (Dunn and Delange, 2001; Zimmermann, 2012).

The importance of maternal nutrition does not end with birth. Breast milk is crucial to the growth and development of babies and contains vitamin B_{12} needed for the development of the central nervous system. Anemic mothers lack vitamin B_{12} in their milk, which leads to neurocognitive impairment (Groce et al., 2014). It has recently been found that 70% of pregnant women in Pakistan have a deficiency of iron due to the lack of vitamin B_{12} (Khalid et al., 2017).

Apart from the effect of maternal malnutrition on infants, there is a high risk of many disorders/diseases during gestation periods at different intervals, which can lead to severe dilemmas. Postpartum hemorrhage is excessive bleeding after childbirth that can lead to mortality or morbidity of the mother. In Pakistan, 27.2% of maternal deaths were caused by postpartum hemorrhage (Mir et al., 2012). Preeclampsia is another factor related to maternal mortality due to high blood pressure during pregnancy. In Pakistan, a lack of magnesium in maternal diet results in preeclampsia, which may have a severe effect on fetus growth and have a high risk of maternal mortality (Bigdeli et al., 2013).

Another emerging issue that arises with regards to malnutrition in adults is obesity. The prevalence of obesity is increasing, where it is associated with numerous metabolic and cardiac disorders and can also be associated with mortality (Bray and Bellanger, 2006). Overweight and obesity also contribute to reducing functionalities and disabilities in adults. About 50% of the population in Pakistan is obese. However, the burden of obesity is higher among women in all age groups compared to men (Tanzil and Jamali, 2016). Moreover, obesity may increase the risk of iron deficiency due to reduced absorption of nutrition associated with adiposity (Mawani et al., 2016).

Nutrition insecurity is a challenge for the Pakistani population that resulted due to lack of nutritional awareness, high population growth, low purchasing power, price fluctuations, erratic food production and losses, poor quality of processed foods, inefficient marketing system, and low healthcare and hygienic services. Such unhealthy dietary practices are responsible for the increased prevalence of nutritional deficiencies and disorders like overweight and obesity, diabetes, hypertension, cardiovascular diseases, cancers, and other chronic diseases (Singh et al., 2007; Ahmed et al., 2012; Bishwajit, 2015). Furthermore, sedentary lifestyles and lack of outdoor activities, low-quality energy-dense dietary intake, infections (due to lack of clean water, sanitation, and hygiene), especially among children and women of childbearing age, also worsen the health status of Pakistani population (Arif et al., 2012; Delisle, 2008; KhanKhattak and Shah, 2010).

2.3 Nutritional programs in Pakistan

In Pakistan, during the last few years, many nutritional programs have been initiated by the government and other nongovernmental organizations. The main focus of

these programs is to raise nutritional awareness among the people while some focus on the supply of nutrients to the people of Pakistan directly or via fortification of dietary components. Although organizations are doing their best to control the malnutrition situation in Pakistan but are still far behind other countries. This may due to the reason that socioeconomic deprivation, poverty, and illiteracy is being neglected by the government (Niazi et al., 2012).

Ministry of Education, Government of Pakistan has initiated a school health program that is jointly managed by the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2019). The main component of this program is to provide relevant nutritional information to the students. This program is run on the concept that information related to nutritional interventions will also be spread among parents and relatives of the students. To eliminate the deficiencies of micronutrients such as iron, zinc, iodine, vitamin A, and folic acid, Nutrition International (NI) works with the government and the United Nations. In Pakistan, NI is working in salt iodization and flour fortification to combat micronutrient malnutrition. Their objective is to expand vitamin A supplementation to children in hard-to-reach areas, to initiate and increase complementary zinc supplementation for treatment of childhood diarrhea, to increase the production of adequately iodized salt and its use in households, to expand the use of *Sprinkles*—or multiple micronutrient powders—in the feeding of children aged 6–24 months to reduce anemia, and to increase the number of women of childbearing age consuming fortified wheat flour to enhance iron and folic acid consumption. (Nutrition International, 2019).

Ministry of Social Welfare and Special Education, Government of Pakistan initiated a program for combating malnutrition in primary school girls (Badruddin et al., 2008). The project trained women in the local community to successfully run nutrition awareness programs in their communities and provide freshly prepared meals in the afternoon to primary school girls. A few other programs include the National Program for Family Planning and Primary Healthcare, which was initiated by the government to provide primary healthcare services at doorstep in villages. The nutrition wing of the Ministry of Health, Government of Pakistan also runs the national nutrition programs that include child and maternal, infant, adolescent, adult, and elderly nutrition (GOP, 2019a,b).

In the context of the above observations, it is suggested that the malnutrition and nutrient deficiency should be considered on priority for future research being the root cause of the nutrient deficiency and the possible ways to cope with this deficiency. Various estimates and comparisons highlight that some prominent findings such as the health of the people have improved but the rate of improvement in health outcomes in some respects has been slow compared to its neighboring countries. The pace of improvement is not satisfactory due to various reasons such as resource constraints and rapid growth of population.

There is also a need for research to understand the links between malnutrition and disability in both children and adults in Pakistan. However, governments have not perceived the significance and effect of nutrition on the human health and development of the local population (Reinhardt and Fanzo, 2014). None of the studies has brought about a national intercession program for identifying the root cause of malnutrition. Additionally, some other factors are also involved in it: lack of management and nutrition research, lack of individual abilities to lead planned research, violation of laws and policies and their implementation, etc.

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