

Biomedical Communication

Health and Nutritional Status of Certain Lactating Mothers of Bahawalpur, Pakistan

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ABSTRACT

Diet is the vital part to survive, and balanced diet is the key to better and healthy living. Our daily needs of the body depend upon food to intake for better and proper functioning of vital organs and all organs. These include carbohydrates, proteins, fats, vitamins, and minerals. The amount required for living is much lower than required for the nourishing an offspring. Lactation is an astonishing procedure in which the mother's body makes a secretion that has no immediate advantage to them but may completely support the baby. It was descriptive hospital-based study conducted among lactating mothers visiting Bahawal Victoria Hospital, Bahawalpur Pakistan. Sample size comprised of 200 lactating mothers. The Chi-square statistical test was used to analyze the difference between the groups by SPSS of latest version. The results revealed that groups of Body mass index (BMI), age groups, breast feeding status, working status, health status, family income, family member, mode of delivery, infant age status, parity, energy intake, protein intake, fat intake and carbohydrate intake had statistically significant differences while the educational status had no significant differences. In this study dietary intake pattern of lactating mother was normal because mostly mothers were educated, they have good knowledge of balanced diet.

KEY WORDS: BAHAWALPUR, DIET STATUS, HEALTH STATUS, MILKING MOTHERS.

INTRODUCTION

Nutrition is a significant part of health among more seasoned populace and affects the growth. Pervasiveness of lack of healthy sustenance in this population is increasing and linked with decrease in functional status, disabled muscle function decreased bone density, insusceptible brokenness, paleness, decreased subjective action, poor injury mending and delayed recovery from medical procedures, higher readmission rates for emergency clinics, and death. Older people have often decreased appetite along with a reduction in biological and physiological capacities such as decreased

lean body mass, increases in cytokine and hormonal levels, and improvements in the regulation of liquid electrolytes, slowing the emptying of the stomach and increasing the senses of smell and taste (Mardani et al. 2020). Nutritional Assessment is a method of acquiring and analyzing data in order to make decisions regarding the type and cause of food-related medical problems that affect a person (Anjos et al. 2021). Lack of nutrition is characterized as a disorder in which a lack, excess or clumsiness of energy, food and various supplements cause unpleasant ramifications for body structure, work and clinical outcome (Rajpoot et al. 2020; Leite et al. 2020).

The diet of a breastfeeding mother can have an impact on the composition of human milk. The degree of the maternal diet's influence on milk composition varies per nutrient;

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for certain nutrients, no effect has yet been established. The necessity for properly controlled investigations on the impact of nutritional shortages and supplementation on milk composition is demonstrated by this review (Wessells et al. 2019). Milk is a nutrient-dense, white liquid produced by mammals' mammary glands. It is the principal source of sustenance for baby animals (including breastfeeding humans) until they are able to digest other foods. Colostrum, which delivers the mother's antibodies to the young and can lessen the risk of numerous illnesses, is found in early-lactation milk. It also includes a variety of other nutrients, including as protein and lactose. Milk consumption across species is ubiquitous, especially among humans, who ingest the milk of other animals (Kaliwile et al. 2019; Leite et al. 2020).

Delay in starting breast-feeding, colostrum deprivation, and inappropriate weaning are all risk factors for malnourishment in children below the age of five. To improve children's nutritional status, proper baby feeding habits must be promoted and protected (Chudal 2018; Leite et al. 2020). Because of its favorable influence on baby health and nutrition, the breastfeeding phase is a key source of concern in underdeveloped nations. Because this phase creates a significant nutritional demand on the mother, lactating women from impoverished nations are considered nutritionally vulnerable populations. Inadequate mother nutrition at this time will result in poor nutritional production in breast milk, which can have long-term consequences for the child's health (Ding et al. 2020).

According to reports, a nursing woman should make 700 to 800 mL of milk per day, which demands an additional 500 calories per day in energy. Because extremely malnourished women have lower lactation performance, the amount of milk produced is heavily influenced by the mother's nutrition. The mother's diet will not only meet her own nutritional requirements, but will also allow her to produce adequate milk for her child (Willett et al. 2019; Ding et al. 2020). Nutritional status is a good indicator of a population's overall health. Lactation has been shown to have varying impacts on mother nutritional status based on its length, intensity, and cultural variety. Breastfeeding, whether done exclusively or not, showed no significant detrimental influence on the nutritional health of the moms, according to a cross-sectional research. Similarly, a longitudinal research indicated that lactation had no significant effect on mother body composition regardless of nursing method. However, in low-resource countries, the high energy cost of nursing, as well as the nutritional and health risks it may bring to women, highlights the need for constant monitoring of their nutritional status and food consumption (Lundgren et al. 2018; Ding et al. 2020).

MATERIAL AND METHODS

For study design, hospital based descriptive study was done. Study was conducted among lactating mothers visiting immunization center at BVH.

Sample size comprised of 200 lactating mothers. The study

was carried out during 2020-2021 in the Bahawal Victoria Hospital. All lactating mothers were included who visited Immunization center Bahawal Victoria Hospital. The mothers were included who have a baby of less than two years. All others mothers were excluded who have age less than 18 years and more than 40 years. A Food Frequency Questionnaire (FFQ) with frequency response section for subjects to report how often each item was consumed over a specified period of time. Semi-quantitative FFQs collect portion size information as standardized portions or as a choice of portion sizes. Portion size information is not collected in non-quantitative FFQs.

Figure 1: Map of the area of study was district Bahawalpur.



All the food item which was eaten in a week were written on the chart and they are categorized as carbohydrates, lipids and protein and the Kcal were measured through the converter. For the procedure and equipment of anthropometric measures, weight machine was used to find the weight and measure stand will be used to measure the height. All participants' weight should be assessed except for pregnant women, wheel chair individuals and people who have trouble standing straight. Data was collected by interviewing method. Questionnaire contains demographic characteristics i.e., name, age, breast feeding status, working status, educational status, health status, family income, family member, mode of delivery such as LSCS (lower segment caesarean section) SVD (Spontaneous Vaginal Delivery), infant age status and parity.

For ethical considerations, logistic and ethical issues were thoroughly discussed with supervisors and a written permission was obtained from the Ethical review committee of Allama Iqbal Open University Islamabad, and the authorities of BVH hospital Bahawalpur. All of the participants signed a written informed consent form. All information and data gathered were kept private. Throughout the trial, participants were kept anonymous. The subjects were informed that there are no risks or drawbacks to the research technique. Participants were also informed that they might withdraw from the research at any moment during the procedure. Data was kept under lock and key while the keys were maintained in hand. For the data analysis, the Chi-square statistical test was used to analyze the difference between the groups by SPSS of latest version.

RESULTS AND DISCUSSION

In the present study the result of BMI of lactating mothers showed in (figure 2) 2% were underweight 72% were normal weight and 26% were over overweight. Chi-square statistical test revealed that groups had significant ($P<0.0001$) differences in (table 1). The feeding practice among lactating mothers was 88% and 12% was not feeding to their babies due to some health issues. The chi-square statistical test revealed that lactating mothers which were feeding their child had significant high frequency than the lactating mothers which were not feeding their child. The global picture of breast-feeding practice shows that exclusive breastfeeding rates are low comparison to the present study, at about 25% in Africa, 45% in Asia and 31% in Latin America and the Caribbean (Lauer et al. 2004). In present study, the rate of breastfeeding appropriate to infant's age was found 88%. This finding was similar to the study done in the community assessment finding by Essential Service for Health in Ethiopia (ESHE) in Amhara (87%) (Kidane et al. 2008; Ali et al. 2021). But percentage less than the study showed in the previous studies (Seid et al. 2013; Widiyanto et al. 2021).

The 48% lactating mother were government employ 20% working in fields and other 32% were housewife. Chi-square statistical test revealed that groups had significant ($P<0.01$) differences in (table 5 similar results were discovered in the previous studies (Abou-Rizk et al. 2021; Dewi et al. 2021). While the result of study was not in agreement with the study conducted in the previous studies (Susanto et al. 2021). According to disease status 70% mothers were healthy other were suffering from different disease like hypertension, renal stone, diabetes, asthma, HCV and anemia showed in (figure 2). Statistical analysis revealed that groups had significant ($P<0.0001$) differences in (table 6) and group of Healthy lactating mothers had a statistically significant ($P<0.0001$) high frequency (Susanto et al. 2021).

The result of current study was in agreement with the study conducted in the past (Abou-Rizk et al. 2020). While the low percentage found in the previous studies (Widiyanto et al. 2021; Ali et al. 2021). This was due to different geographical area and level of awareness in the resident of this area. The present study showed that 40% lactating mothers belong to families of income level having 5000- 25000 Pkr, lactating mothers 22% had family income between 26000-45000 Pkr, have their small business at their homes and remaining 38% have the government jobs and other income sources and income was more than 45000. Chi-square statistical test revealed that groups had significant ($P<0.05$) differences in (table 7).

Similar result found in the previous studies (Ali et al. 2021). In present study the knowledge and eating habits of mothers were enquired and effect of different socio- economic, cultural and different lifestyles were observed. Regarding socio-economic condition of study population 40% mothers belonged to lower social class and most of their husband were laborers and farmers, 32% lactating mothers was housewives only 1 member was earning and remaining

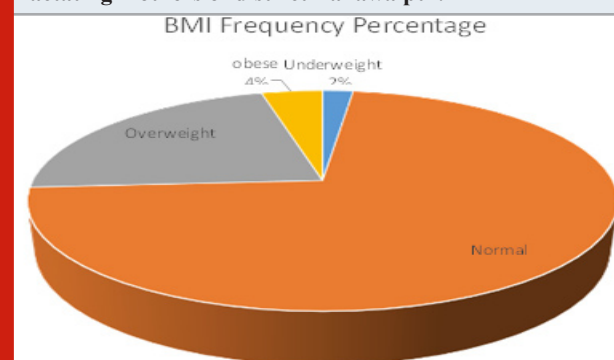
family member were dependent on his earnings. It shows economic conditions of family is affected 68% mothers were working women and their income level was handsome because they were educated and have awareness about balanced diet. So, they were taking as per recommended daily allowances (Ali et al. 2021).

The study explored that groups family members 3-5, 6-8 and 9-12 showed 88%,10% and 2% percentage frequency respectively. The group member 3-5 showed a statistically significant high frequency than others in table (4.8). It showed the awareness about family planning and population direction towards the small family. Similar to this study the result was found in the previous studies (Ali et al. 2021). According to mode of delivery status among lactating mothers 24% delivered their babies by LSCS and 76% by SVD. There was a significant difference between both of the group and SDV had a significant high frequency. The present study not in agreement with the study conducted in the past (Dewi et al. 2021; Susanto et al. 2021). In this study the infant age was one month to eighteen months. The groups of different ages had significant differences. The age group less than 6 months had a statistically significant high frequency than other groups (Susanto et al. 2021).

Table 4.1: The BMI Status of lactating mothers of district Bahawalpur (n=200)

BMI categories	Classification	Number of Subjects	P-Value
Less than 18.5 kg/m ²	Underweight	4	<0.0001
18.5-24.9 kg/m ²	Normal	144	
25.0-29.9	Overweight	44	
30kg/m ² and more	Obese	8	

Figure 2: The percentage frequency of BMI status of lactating mothers of district Bahawalpur.



The prevalence of continued breastfeeding is about 86% for infants 6–11 months of age in the developing world and for children 12–23 months of age, it is about 37% in Latin America, in the Caribbean 70% and 72% in Africa and Asia (Lauer et al. 2004). According to results of parity 32% mother were primary gravida and 68% were multi gravida. The age group Multi parity had a statistically

significant high frequency than other groups. In this study results explored that 74% lactating mothers were taking recommended calories and 18% were taking over calories and remaining 8% mothers were under calories. The recommended calories intake group had a statistically significant high frequency than other groups. The present study was in agreement with the study conducted in the past (Widiyanto et al. 2021; Ali et al. 2021; Taneja et al. 2020). While the result was not in agreement with the previous work conducted in the past (Abou-Rizk, et al. 2020).

Table 4.2: Age wise distribution of lactating mothers of district Bahawalpur (n=200)

Age Groups (years)	Lactating	%age	P-Value
18-25	48	24%	<0.0001
26-32	124	62%	
33-40	28	14%	

Table 4.3: Educational Status of lactating mothers of district Bahawalpur (n=200)

Educational Status	Frequency	%age	P-Value
Uneducated	44	22%	0.3543
Primary and middle	64	32%	
Matric and Intermediate	52	26%	
Bachelor and above	40	20%	

Table 4.4: Breast feeding practice among lactating mothers of district Bahawalpur (n=200)

Status	Frequency	%age	P-Value
No	24	12%	<0.0001
Yes	176	88%	

Table 4.5: Working Status of lactating mothers of district Bahawalpur (n=200)

Status	Lactating	%age	P-Value
Government employs	96	48%	<0.01
Worker	40	20%	
House wives	64	32%	

A nutrition indicator which showed that 2% were underweight 72% were normal weight and 26% were over overweight. Biru and Abeya (2017) showed that in Ethiopia, a significant proportion (19.5%) of respondents were exposed to under nutritional status and suffered from underweight (Biru and Abeya, 2017). The diet is highly

correlated with the welfare of the individual (Mushtaq et al. 2021). The study result from Rural India during 2010 indicated the prevalence of undernutrition among lactating women of 39.7% which is much higher than our study results by Rao et al. (2010) and Ali et al. (2021). The results revealed that 70% lactating mothers were taking normal protein intake and 14% were taking over protein intake and remaining 16% mothers were under protein intake. The normal protein intake group had a statistically significant high frequency than other groups.

Table 4.6: Medical History of lactating mothers of district Bahawalpur (n=200)

Disease Status	Status	P-Value
High blood pressure	8	<0.0001
Renal Stone	4	
Diabetes	20	
Asthma	4	
HCV	4	
Anemia	20	
Healthy	140	

Figure 3: The disease percentage frequency of lactating mothers of district Bahawalpur.

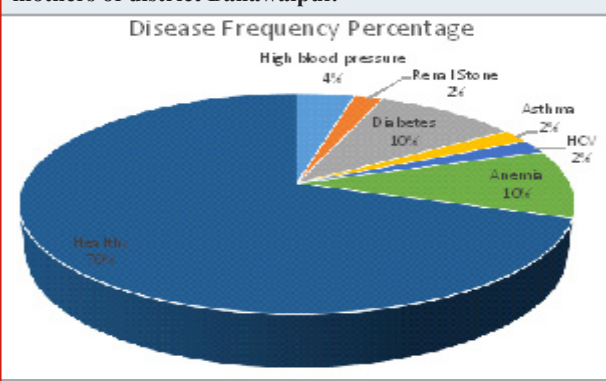


Table 4.7: Family income of lactating mothers of district Bahawalpur (n=200).

Family income in Pkr	Frequency	%age	P-Value
5000-25000	80	40%	0.04
26000-45000	44	22%	
Above than 45000	76	38%	

The result of present study was not in agreement with the study conducted by Widiyanto et al. (2021). The result difference occurred due to different geographical regions and economy and financial status of the people. Results also revealed that the 72% lactating mothers were taking normal fat intake and 26% were taking over fat intake and remaining 2% mothers were under fat intake. The normal fat intake group had a statistically significant high frequency

than other groups. Result reconnoiter that the 85% lactating mothers were taking normal carbohydrate intake and 14% were taking over carbohydrate intake and remaining 1% mothers were under carbohydrate intake (Widiyanto et al. 2021).

Table 4.8: Family members of lactating mothers of district Bahawalpur (n=200).

Family size	Frequency	%age	P-Value
3-5	176	88%	<0.0001
6-8	20	10%	
9-12	4	2%	

Table 4.9: Mode of delivery status among lactating mothers of district Bahawalpur (n=200).

Mode	Frequency	%age	P-Value
LSCS	48	24%	<0.0001
SVD	152	76%	

Table 4.10: Infant age status of lactating mothers of district Bahawalpur (n=200)

Family size	Frequency	%age	P-Value
Less than 6 months	114	57%	P <0.0001
7-12 months	58	29%	
13-18 months	28	14%	

Table 4.11: Parity of lactating mothers of district Bahawalpur (n=200).

Gravida	Frequency	%age	P-Value
Primary	64	32%	0.0003
Multi	136	68%	

Table 4.12: The energy intake of lactating mothers of district Bahawalpur (n=200).

Rank	Energy intake	Lactating	P-Value
Recommended	2500-3000	148	<0.0001
Over	3100-3500	36	
Under	1500-1800	16	

The normal carbohydrate intake group had a statistically significant high frequency than other groups. The result of present study was in agreement with the study conducted

in the past (Abou-Rizk et al. 2021; Ali et al. 2021). While not in agreement with the study conducted by Dewi et al. (2021). A breastfeeding woman requires an additional 500 kcal for the first six months and 400 kcal for the remaining six months. This may be achieved by consuming extra 6-8 pieces of bread every day, for example. Simply eating a more balanced diet should help to cover the increased energy need while the woman breastfeeds. The caloric content of 100 ml of human milk is around 70 kcal. 750 ml of breast milk is produced per day for the first six months following birth. If excess energy needs aren't supplied through nutritional mean, fat reserves will be used instead (Dewi et al. 2021).

Figure 4:

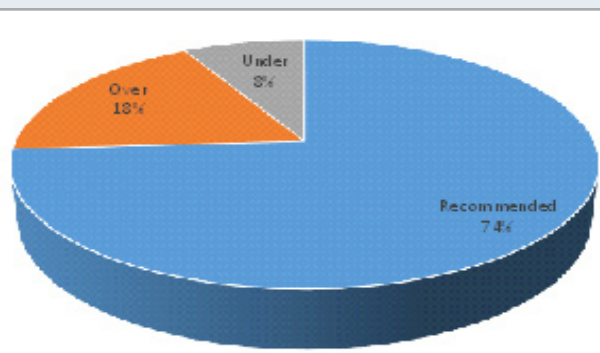


Table 4.13: Protein intake Status In lactating mothers of district Bahawalpur (n=200)

Intake	Frequency	%age	P-Value
Normal	140	70%	<0.0001
Over	28	14%	
Under	32	16%	

Table 4.14: Fat intake among of lactating mothers of district Bahawalpur (n=200).

Range	Frequency	%age	P-Value
Normal	144	72%	<0.0001
Over	52	26%	
Under	4	2%	

Table 4.15: Daily Carbohydrate intake of lactating mothers of district Bahawalpur (n=200)

Range	Frequency	%age	P-Value
Normal	144	72%	<0.0001
Over	52	26%	
Under	4	2%	

When compared to calorie needs, the increase in protein requirements during lactation is minor (Taneja et al. 2020). Protein, on the other hand, will be utilized for energy generation if your energy intake is minimal. Protein-rich meals can help meet the extra protein requirements during nursing (e.g., one egg or 25g of cheese or 175g of milk). If moms do not consume enough protein, the amount of casein in their milk may be lowered. Breast milk contains casein protein, which helps to deliver calcium and phosphate to the infant. It also causes a clot in the stomach, allowing for better nutrition (Susanto et al. 2021).

CONCLUSION

The findings of the present study was concluded that the eating practices among lactating mothers in Bahawal Victoria Hospital Bahawalpur were normal. The socio-economic conditions, education of mother was main reason for taking their balanced diet. The analysis of their intake shows that the nutrients intake of lactating mothers was balanced and sufficient as per their requirements. Nutrition interventions should be geared towards improving both the nutritional knowledge and the nutrient intake of the lactating mothers.

Conflict of Interests: Authors declare no conflict of interests to disclose.

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