

Association of Socio- demographic factors with dietary practices of mothers in under five children with diarrhea

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Abstract

Background: Nutritional status has a strong impact on children's survival as malnutrition and diseases are linked together synergistically². There is evidence that shows that protein-calorie malnutrition contributes to increased susceptibility to infections in children and diarrheal infections can predispose them to malnutrition^{3, 4}. Many risk factors have been identified for malnutrition in such age groups, such as inadequate diet, restriction of certain of food during illness (i.e. complementary feeding like potato, banana etc.), high illiteracy rate and the poor feeding practices of mothers^{3, 4}.

Methods: 332 mothers having children under five years of age were interviewed from clinics of a tertiary care Hospital during June to December (2013), through non-probability convenient sampling using a structured questionnaire. Univariate and multivariate analyses was performed on SPSS 19.

Results: A total of 332 mothers were included in the study showed that mothers between the ages 26 and 30 years had correct feeding practices comprising of almost 44.9%, while mothers less than 25 years of age had incorrect feeding practices. Higher the mother's education status (p-value 0.000) was associated with the correct feeding practices almost 50%. Mothers working status was also found to be affecting the feeding practices (p-value 0.002) as mothers who were house wives had correct feeding practices 39.3% than those mothers who were employed.

Conclusion: Study indicates that there is a need of right dietary awareness amongst mothers so their dietary practices during diarrheal infections can combat malnutrition in children.

Keywords: Diarrheal infections, mother's dietary practices.

Introduction

Adequate nutrition is important during childhood for a healthy growth and proper nourishment of all essential systems of the body¹. Nutritional status has a strong impact on children's survival and healthy growth as malnutrition and diseases are linked together synergistically². There is evidence that shows protein-calorie malnutrition contributes to increased susceptibility to infections and diarrhea being a common infection predisposes children under five years of age to malnutrition^{3, 4}. Numerous risk factors have been identified for malnutrition of children, such as inadequate diet, restriction of certain of food during illness (i.e. complementary feeding like potato, banana etc.), unhygienic living environment, high illiteracy rate and the poor feeding practices of

mothers^{3, 4}. Therefore Malnutrition resulting from insufficient diet may be aggravated by diarrheal infections⁵. According to the United Nations Children's Fund (UNICEF), diarrhea is one of the leading cause of death in children under five years of age¹. The World Health Organization (WHO) states that diarrhea accounts for 15% of all deaths in under five years of age⁵.

Diarrheal infection is amongst the most common causes of death in children under five years of age⁶ and studies have shown that malnutrition in this age group of children is frequently associated with these deaths⁴. Globally, amongst the major determinants of malnutrition amongst children under five years of age due to the diarrheal diseases are hygienic conditions and improper sanitation, mothers educational status along with the number of children

under five years of age in a single household, mother's dietary knowledge and their feeding patterns i.e. the type of food given or restricted that is in turn followed by either their learned behaviors or cultural practices⁷.

Approximately 10% of children in Pakistan do not survive to their sixth year of life and the major contributing factor to the high childhood mortality in Pakistan is the prevalence of malnutrition, secondary to the diarrheal diseases. These high figures are the synergistic effect of inadequate dietary intake and diarrheal infections in children under five years of age¹. Studies have shown a direct relationship between different causes i.e. unhygienic living conditions, inadequate diet given, withdrawal of certain foods during diarrheal illness etc. that relate towards development of malnutrition due to diarrheal diseases in children under five years of age^{7,8,9}.

As mothers play the most key feature in child's nutritional status and his growth, their feeding practices have a direct impact on the child's nutritional outcomes especially during diarrheal episode¹⁰. In our society mothers play a vital role in child's nutrition⁶ but inappropriate feeding practices and irrational use of different herbal remedies during diarrheal episodes by the mothers, may contribute to worsen diarrheal morbidity and mortality^{11, 12}.

In Pakistani culture, people believe that several food should be restricted during children's illness; like, during diarrhea a child should not be given breast milk, during diarrhea a child should not be given milk and rice, etc. Studies have shown that foods containing essential nutrients are withheld during illness that contributes to worsening of child's nutrition thus ends up in malnutrition¹¹.

Diarrhea is a curable and treatable disease but the incorrect practices of mother's regarding nutrition and diet during diarrheal diseases will ultimately lead to malnutrition in children under five years of age¹³.

Methods

The study was conducted in the Family medicine clinics of a tertiary care hospital where there was high influx of mothers with their children along with the diversity of different communities. An ERC approved pilot tested coded questionnaire was formulated through literature search (8, 10, 11, 14, 15 and WHO manual for diarrhea⁸.

Mothers were approached in the waiting area outside the clinics. Measures were taken to maintain the confidentiality of participants. Verbal and written consent was taken from the mothers who participated in the study. Mothers who full filled the inclusion

criteria were enrolled and this study excluded mothers of children having chronic diseases. Information was taken from the past three months to reduce chances of recall bias. Questionnaire was filled in 10-15 minutes by the Principal Investigator by asking the mothers a set of questions that were coded to assess their feeding practices during diarrheal episodes. A dietary knowledge material on the diet during Diarrheal infections was provided to the mothers after filling the questionnaires.

Non-probability convenience sampling was used. The Sample size was calculated with WHO software (52) for sample size determination. Data was double entered and analyzed in SPSS version 19. Baseline information on demographics was analyzed using descriptive statistics. For continuous variables such as age mean and standard deviation was reported. The outcome variable i.e. Practices of mothers regarding diet in children under five years of age during diarrheal infections was calculated to fulfill the objectives. All the correct answers were calculated as percentages. A total score of 60% or above was marked as correct practice and below 60% as incorrect practice.

Logistic regression analysis was performed taking practices (Yes & No) as binary outcome variable. Univariate analysis was performed and the explanatory variables at the univariate level (p value < 0.25) was selected for inclusion in the multivariable model, and results were reported as unadjusted odds ratio with their 95% confidence interval.

A multivariable logistic regression analysis was performed to assess the independent effect of all demographic variables (age, working status, education, no. of children etc.) on the practices during diarrheal infections in the form of adjusted odds ratio and their 95% confidence interval. All of the analyses was two tailed, and p values of 0.05 or less were considered statistically significant.

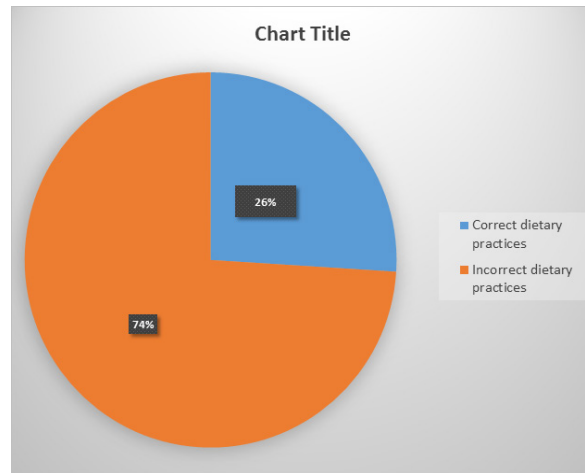
Results

A total of 332 mothers participated in the study (Demographic characteristics in table 1). Majority of the mothers were between ages of 26 to 30 years and majority them were housewives and had achieved higher education as shown in table 2. The study showed that 74% of the mothers had incorrect dietary practices during their child's diarrheal episode as shown in figure 1.

Univariate analysis showed that a higher educational status of mother and her being at home had a strong association with her dietary practices during her child's diarrheal episodes as mentioned in table 3. Multivariate analysis as shown in table 4 showed that mother's higher educational status had a strong association with her correct diarrheal dietary practices.

SN	Variable name	Number (n=332)	Percentage %
1.	Age of mother (In years)		
	Less than and equal to 25	99	29.8
	26-30	137	41.3
	31-34	49	14.8
	35 and above	47	14.2
2.	Mothers educational status		
	Primary	49	14.8
	Secondary	80	24.1
	Intermediate	88	26.5
	Higher	115	34.6
3.	Current working status of mother		
	Housewife	242	72.9
	Employed	90	27.1
4.	Number of children under five years		
	1	212	63.9
	2	120	36.1
5.	Child's age (In years)		
	Less than 1	141	42.5
	1-3	110	33
	More than 3	81	24.4
6.	Joint family		
	Yes	115	34.6
	No	217	65.4
7.	Husbands job		
	Private	213	64.2
	Government	39	11.7
	Self-employed	77	23.2

TABLE 1: SOCIODEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS (n=332)



Total n=332

Figure 1: Frequency of Dietary Practices of Mothers during their child’s diarrheal episode: Figure 1: Frequency of Dietary Practices of Mothers during their child’s diarrheal episode:

Table 2: Relationship of Demographic Factors with Dietary Practices of mothers during their child’s diarrheal episode

SN.	Variables	Diarrheal Dietary practice adequate n (%)	Diarrheal Dietary practice inadequate n (%)	p-value
1.	Age of mother (In years)			
	Less than and equal to 25	17(19.1)	82(33.7)	0.051*
	26-30	40(44.9)	97(39.9)	
	31-34	18(20.2)	31(12.8)	
	35 and above	14(15.7)	33(13.6)	
2.	Mothers education			
	Primary	7(7.9)	42(17.3)	0.000*
	Secondary	13(14.6)	67(27.6)	
	Intermediate	19(21.3)	69(28.4)	
	Higher	50(56.2)	65(26.7)	
3.	Number of children under five years			
	1	50(56.2)	162(66.7)	0.078
	2	39(43.8)	81(33.3)	
4.	Mothers current work status			
	Housewife	54(60.7)	188(77.4)	0.002*
	Employed	35(39.3)	55(22.6)	
5.	Joint family			
	Yes	27(30.3)	88(36.2)	0.319
	No	62(69.7)	155(63.8)	

*P-value from Pearson Chi square of 0.05 or less is taken statistically significant

Table 3: Univariate Logistic Regression Analysis of Factors affecting Dietary Practices of mothers during their child’s diarrheal episode:

SN.	Variables	Unadjusted OR	95% C.I	P-Value
1.	Age of Mothers (In years)			0.085
	Less than and equal to 25	0.489	0.216-1.104	
	26-30	0.972	0.471-2.008	
	31-34	1.369	0.583-3.213	
	35 and above	Ref		
2.	Mothers Education			0.001*
	Primary	0.217	0.090-0.523	
	Secondary	0.252	0.125-0.507	
	Intermediate	0.358	0.191-0.670	
	Higher	Ref		
3.	Mothers work status			0.003*
	House wife	0.451	0.268-0.770	
	Employed	Ref		
4.	Joint Family			0.320
	Yes	0.767	0.455-1.293	
	No	Ref		
5.	Number of children under five years			0.079
	1	0.641	0.390-1.053	
	2	Ref		

*P-value from Pearson Chi square of 0.05 or less is taken statistically significant.

Table 4: Multivariate analysis of factors affecting Dietary Practices of Mothers during their child’s diarrheal episode:

SN.	Variables	Adjusted OR	95% C.I.	P-Value
1.	Mothers education			0.009*
	Primary	0.254	0.981-0.650	
	Secondary	0.294	0.132-0.637	
	Intermediate	0.394	0.195-0.794	
	Higher	Ref		
2.	Mothers work Status			0.162
	Housewife	0.660	0.361-1.182	
	Employed	Ref		

*P-value from Pearson Chi square of 0.05 or less is taken statistically significant

Discussion

The study showed association between different socio-demographic factors and mothers dietary practices during diarrheal diseases in children under five years of age. Mothers play the most key feature in child's nutritional status and his growth, their feeding practices has a direct impact on the child's nutritional outcomes especially during diarrheal episode¹⁰. As it's already evident from literature that one of the main cause of death in under five children are diarrheal illnesses³.

Our study showed that out of 332 mothers, 89 (26.80%) mothers had correct practice whereas almost 243 of then mothers had incorrect diarrheal dietary practices (73.2%) as mentioned in a study done on the beliefs of mother's in diet to be given during diarrheal episodes in India showed that only 5% had reported about increasing diet during the illness¹⁵. A similar Iranian study showed that only 2.3% of the mothers had correct feeding practices during diarrheal episodes¹⁶. In our culture people believe that several food should be restricted during children's illness; like, during diarrhea a child should not be given breast milk, or complementary feeds like potato, banana, etc. Literature shows that foods containing essential nutrients are withheld during illness, which ends up with child having malnutrition and poor growth parameters^{8, 18}. The reasons for this gap could be the different cultural norms related to hot and cold foods in our society as cold food (i.e. rice, juices, banana etc.) is perceived to worsen symptoms. Family influence of elders could also affect family's own traditional beliefs which restrict mothers from following correct practices and in turn they restrict diet that are healthy and nutritional for their children especially in the times of diarrheal episodes.

Regarding the factors affecting the dietary practices of mothers during diarrheal diseases mothers' age seemed to play a vital role (p-value 0.05). Results showed that mothers between the ages 26 and 30 years had correct feeding practices comprising of almost 44.9%. These results are similar to a study done in the Primary care centers of Saudi Arabia that majority of the women practicing correct diet, included young mothers¹⁷. This could be due to the awareness through easy media access and reachable health facilities.

Amongst the other determinants mothers education also affected mothers feeding practices (p-value 0.000) as higher the mother's education status was associated with the correct feeding practices almost 50% which was similar to the results from a study conducted in Ghana and Ethiopia showing mothers of higher educational background demonstrated more correct dietary practices in childcare as compared to mothers of low educational background^{18, 19}.

Mothers working status was also found to be affecting the feeding practices (p-value 0.002) as mothers who were house wives had more correct feeding practices 39.3% than those mothers who were employed. The results are consistent with the results of a study conducted in Riyadh that showed working mothers not being able to cope up with correct feeding practices in children during diarrheal episode¹⁸. A reason for this difference in feeding

practices of mothers could be because working mothers may find it difficult to manage their time for preparation of healthy nutritious and prefer pre-formed meals.

Conclusion

Mother dietary practices in children's diarrheal episodes need more awareness. By having more informed mother we can reduce the disease burden in children under five years.

The limitation of the study included limited sample size, and sample was drawn from only one location of Karachi, limiting external validity. This study can be a useful resource for primary care centers for educating the mothers and helping them realize that cultural beliefs and practices should not hinder a child's right to proper nutrition. Future population based studies are recommended in order to validate the findings of this study.

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