Pak. J. Agri. Sci., Vol. 47(1), 59-65; 2010
ISSN (Print) 0552-9034, ISSN (Online) 2076-0906
http://www.pakjas.com.pk

SOCIO-CULTURAL FACTORS AFFECTING ANEMIA AND THEIR EFFECTS ON MOTHER, AND CHILD HEALTH IN RURAL AREAS OF DISTRICT FAISALABAD, PUNJAB, PAKISTAN

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This present study was conducted to investigate socio-cultural factors and their effects on mother, child health. Cross-Sectional study was conducted in rural areas of District Faisalabad, Punjab, Pakistan. A random sample of 400 mothers aged 18-49 with at least one child (under five year) was taken through probability sampling design to explore causes of anemia in mother and children. Blood samples of mothers and children were obtained to know of hemoglobin. Descriptive, inferential and multivariate analysis was carried out to explore the research objectives. It was found that with the increase of mother education and family income, the symptoms of anemia decreased and level of hemoglobin increased both for the mother and child. Gender preferences, attitudes towards utilization of health facilities, smoking and gender based violence were also found significant affecting the mothers and children health. Improving female education, enabling women for generating income, and motivation for utilizing health facilities at the health outlets, knowledge, attitude and practice towards the balanced diet and discouraging non-food items are suggested as appropriate measures to enhance health status of mothers and children. Sensitization of gender issues in health care, and nutrition needs special attention in relation to improved mother-child health status.

Keywords: Socio-cultural factors, symptoms of anemia, nutrition, hemoglobin, pre-postnatal care, calories intake and violence

INTRODUCTION

Anemia affects approximately 2 billion people at worldwide but disproportionately affects women and children. Pakistan has lagged behind from its neighbors and other low-income countries in terms of health and population outcomes. Total life expectancy in Pakistan is 64.13 years. 63.07 years for males and 65.24 years for females. Adult literacy rates have slightly increased to 43% with discouraging adult female literacy of 28%. Women are 50% of Pakistan's population. Population of female of ages 15 to 49 is 23% of total population. Children under 5 years are 18 % of population and 45-60 % is anemic due to poor diet (World Fact Book, 2008).Ten percent of the children die before the 1st birthday reflecting alarming level of infant mortality and another 14 percent before reaching 5 years of their age. One child out of three children suffers from malnutrition and anemia. Approximately a half of children under the age of five are anemic. Seventy percent of all under 5 years deaths are attributed to food deficiencies (Waqar, 2006). Maternal morality rate ranges from 350 to 400/1Lac. Major reasons of high maternal mortality are malnutrition, severe anemia, poor access to prenatal care (28%) and dearth of trained attendants at birth (20%) (Federal Bureau of Statistics, 2006).

Anemia is a blood condition in which there is too few red blood cells or is also defined as Hb < 11.5 gm/dl and severe anemia is defined as Hb < 8.0 gm/dl (World Fact Book, 2008). Anemia appears in different symptoms as faint skin, cold hands and feet, lack of sensation or itching in hands, feet and legs, problem in appetite, sore of tongue and mouth etc. There are primary and secondary factors of anemia. Primary Factors basically have two types as exogenous and endogenous factors. Exogenous causes are social dimensions of illness and are potentialy preventable. Education of mothers, household income, health services, marriage at early age and communicable diseases are prominent issues of exogenous factor. Exogenous causes are external factors to the body and degenerate diseases defined within socio-cultural and demographic context. Endogenous factors are internal agents operating within the body, leading to biological defects in the mother and new born, as well as degenerative diseases of later life. Excessive damage of RBCs, loss of blood and inadequate production of red blood cells (RBCs) are main concerns of secondary factors. The number of pregnancies, age of mother, malnutrition, smoking, abortion and knowledge about diet are internal factors of the mothers causing severe health complications (Feresu, 2004).

The study was designed to explore the relative significance of socio-economic, cultural, demographic and nutritional factors in predicting symptoms of anemia in mothers and children (mothers and children health status).

MATERIALS AND METHODS

Rural area of highly populated District Faisalabad was selected as sample area, for collection of data. In order to enhance the scope and for capturing the maximum variation, all the four rural towns were selected. Multistage sampling technique was used to collect the data. Two union councils were selected from each town at the first stage. At the second stage 2 villages were selected from each Union Council. Finally, at the third a sample of 400 (25 women from each village) mothers aged 18-49 with at least one child (under five year) were interviewed to explore the research objectives. Data was collected through well designed interview schedule. Before actual data collection questionnaire was pre-tested to examine the workability and sensitivity of the questionnaire. Students from the discipline of social sciences were recruited for the purpose of field work activities. Two pathologists/ lab technicians were hired to collect the blood sample to measure the hemoglobin level of mother and children. After ensuring all the aspects for gathering reliable, unbiased, and quality data the actual field work was started. Descriptive analysis such as frequency distribution, percentages mean and standard deviation was used to describe the data. Relationship among different variables was examined through bivariate analysis. Significance of relationship was tested through Chi-square and Gamma tests. The relative importance of independent variables in explaining dependent variable is based upon multivariate analysis (multiple linear regression).

RESULTS AND DISCUSSION

Table 1 shows that 39.3 percent of the respondents got married in the age group 20-24 years, 27.8 were married when they were 25+ years. About 33.3 percent of the respondents had their marriages in teen ages with mean age of 16.43 years. The average marriage age is increasing in Pakistan, as 26.5 for men and 22 for women (Hakim *et al*., 1998). The table reflects that although age at marriage for women is increasing, still marriage patterns are young as the mean age at marriage was 21.31 with standard deviation 4.8 years. Educational attainment show that 26.80 percent of the respondents had education up to primary level, 24.3 percent had intermediate (12 years of schooling) and 8.8 percent had up to graduation and above level of education. Majority of the respondents (40.30 percent) were illiterate due to lack of facilities and educational awareness. Pakistani women's literacy rate is the lowest and educational rate for rural women is less than five e times than for urban women (UN, 1995).

Mean levels of education for 1-5, 6-12 and 13+ educational categories were 4.08, 9.04, 12.48, respectively, indicating the poor female enrollment at primary, high and college levels in Pakistan. The over all mean of women education was 4.38 with standard deviation of 4.49 years reflecting poor education status in the study area. Results further indicate that 21.3 percent of the respondents belonged to a family with monthly income up to Rs.3500. Majority of respondents (45.0 percent) were from family having monthly Rs.3501-10000 and 33.2 percent had 10001 and above income.

Descriptive analysis indicates that a substantial number of respondents reported existence of symptoms of anemia to a great extent reflecting prevalence of high level of anemia in mothers. The percentages of respondents who reported to a great extent the prevalence of different symptoms of anemic were 46.0, 45.5, 26.8, 25.0, 21.0, 19.3, 23.3, 23.0 and

Table 1. Socio-economic characteristics of the respondents

Age at marriage of respondents	Frequency	Percent	Mean	Std. Deviation
Up to 19	133	33.3	16.91	2.55
20-24	156	39.0	21.75	1.94
25+	111	27.8	25.95	5.00
Total	400	100.0	21.31	4.80
Education-(No. of Schooling)				
Illiterate	161	40.3	0.00	0.00
1-5	107	26.8	4.08	1.48
6-12	97	24.3	9.04	1.20
13+	35	8.8	12.48	2.16
Total	400	100.0	4.38	4.49
Family's monthly income (Rs.)				
Up to 3500	85	21.3	5457.65	6246.80
3501-10000	180	45.0	8357.22	3168.81
10001 & above	135	33.2	19459.27	15683.36
Total	400	100.0	11488.00	11357.53

Table 2. Distribution showing prevalence of symptoms of anemia

Symptoms of anemia	To a great extent		To some extent		Not at all	
	Freq.	%age	Freq.	%age	Freq.	%age
Unusually tired or fatigued	184	46.0	188	47.0	28	7.0
Unusual weakness	182	45.5	179	44.8	39	9.8
Shortness of breath	107	26.8	183	45.8	110	27.5
Confused or lost your concentration	84	21.0	213	53.3	103	25.8
Dizziness	100	25.0	177	44.3	123	30.8
Faint	84	21.0	177	44.3	139	34.8
Pale skin	70	17.5	214	53.5	116	29.0
Decreased pinkness in your lips	77	19.3	206	51.5	117	29.3
Decreased pinkness in your gums	74	18.5	201	50.3	125	31.3
Lining of your eyelids	93	23.3	187	46.8	120	30.0
Decreased pinkness in your nail beds	82	20.5	182	45.5	136	34.0
A rapid heartbeat	87	21.8	175	43.8	138	34.5
Unusually cold	92	23.0	181	45.3	127	31.8
Sad or depressed	117	29.3	186	46.5	97	24.3

29.3 percent of the respondents had usually tired or fatigue, unusually weakness, shortness of breath, dizziness, faint, decreased pinkness in lips, lining of eyelids, unusually cold and sad or depressed respectively.

In Pakistan, almost seven visits are needed for improved health status of women for normal cases. More visits are recommended according to pregnancy health. Table 3 shows that 26.3 percent of the respondents did not visit to any health professional and 45.0 percent made 1-3 visits, 28.7 percent visited 4+ times. It means that only 28.7 percent of the respondents had awareness about the importance of pre-natal and post-natal care. Visits for postnatal care can save from different problems like low level of hemoglobin, tetanus, gastrointestinal problems for both mother and child. As results show that 46.5 respondents did not pay any visit, 42.5 percent visited once, while 11.0 percent visited twice for postnatal checkup. Safe motherhood is critical to save newborns. Result shows that 31.72 percent of the respondents used smoking and 68.25 percent of the respondents never used to smoke. Passive smoking adversely affects on pregnancy, child birth and health of child. It associates with premature birth, still-birth as well as asthma, acute respiratory infection, disorder in RBCs metabolism in the children. Women reported that 59.3 percent of them were facing violence from their husbands or other family elders clearly an indication of women subordinate and poor social status in the family and society. Societies with high level of violence against women are characterized as male dominant societies.

Table 3. Cultural and demographic characteristics of the respondents

Loss of blood during abortion	Frequency	Percent
Yes	100	25.00
No	300	75.00
Total	400	100.00
Visits of pre-natal care		
No visits	105	26.30
1-3	180	45.00
4 +	115	28.70
Total	400	100.00
Visits of post natal care		
No visit	186	46.50
1	170	42.50
2 +	44	11.00
Total	400	100.00
Smoke/huka		
Yes	125	31.72
No	275	68.25
Total	400	100.00
Violence		
Yes	237	59.30
No	163	40.80
Total	400	100.00

Table 4 shows that 45.0 percent of the respondents took up to 1500 calories per day, as result indicates that majority of the mothers were deficient in food intake due to low socio-economic status. Only 29.8 percent of the respondents took 1501-2300 calories while 25.3 percent took 2301+ calories. It shows that

one third of the respondents were able for normal food intake per day. Recommended nutrition for most children under the age of five was not available to ensure their normal growth. Majority of the children comprised of 44. 0 per cent hardly takes up to 900 calories, while 35 and 21.0 per cent took 901-1300, 1301+ and calories per day respectively. Results show that 44.0 percent of the children were taking food below the recommended nutritional level. It can be said that in the study area the majority children were under mal-nourished because they were not able to take food required to maintain the growth of their bodies as recommended by health scientists due to one or another reason.The health of children is closely linked with health of the mother. In Pakistan, almost 74,800 children under the age of 5 years die every year, 25 children in every 100 die before even completing the 1st year of their life, 25% babies are born with low birth weight and 40% are malnourished signifying poor nourishment in the uterus, poor nourishment continuing through out breast feeding, weaning, and child hood period. A high rate of malnutrition causes infant mortality, stunting and physical and mental retardation (PPSEAWA, 1987).

Table 4. Nutritional characteristics of the respondents

Calories intake per day (mothers)	Frequency	Percent
up to 1500	180	45.0
1501-2300	119	29.8
2301 +	101	25.3
Total	400	100.0
Calories intake per day (children)		
Up to 900	176	44.0
901-1300	140	35.0
1301 +	84	21.0
Total	400	100.0

Table 5 indicates the relationship between socio-economic, cultural, demographic, nutritional factors and anemia. Chi-square value (21.86) shows a highly significant association between education of the respondents and symptoms of anemia. The gamma value shows a strong negative relationship between the variables. Data shows that 57.1 percent illiterate respondents had moderate anemia and 24.3 percent illiterate respondents had severe anemia. Among respondent with education up to 5 years, 20.60 percent showed severity of disease. Woman of with schooling up to 12 years, 43.3 percent showed moderate and 17.50 percent sever anemia. It means with the increase in year of schooling, symptoms of anemia decreased. As symptoms of sever anemia decreased and of mild increased with the increase in no of visits for pre-natal care. Major proportion of the educated (13+) had mild and moderate condition of anemia and only 8.6 percent had severe condition of anemia. It means with the increase in year of schooling, they were not anemic. In monthly family income, chi-square value (178.04) shows a highly significant association between family monthly income and anemia. The gamma value shows a negative relationship between the variables that indicates as income increases symptoms of anemia decrease. Data depicts that sever anemia reported at maximum in low income families. In this group about 41.47 percent showed condition of anemia, while high income families had mild (47.7%) and moderate (31.9%) condition of anemia. So data clearly indicate that low income is a cause of bad health. As concern with violence, chi-square value (13.63) shows a highly significant association between violence and anemia. The gamma value shows a strong positive relationship between the variables. Above table shows that those respondents who had faced violence had moderate and severe conditions of anemia, while those respondents who had no violence had mild (36.8%) and moderate (47.9%) condition of anemia. Lee *et al.* (2002) concluded that exposure to domestic violence is a psychosocial factor, associated with anemia and underweight for women as well as their children. The chi-square value (52.18) shows a significant association for the calories intake per day with anemia. The gamma value shows a strong negative relationship between the anemia and good nutrition. Table clearly indicates that those respondents who were taking more calories per day had mild or moderate condition of anemia. Pakistan's rural women have poor nutritional status and less calories intake than recommended level.

It is evident from the Table 5 that education reduced the symptoms of anemia. With increase in one year of schooling respondents reduced the risk of having symptoms of anemia by 0.185 units. Results are in lie with Mitra *et al*. (2002) that mother education influences links with better health and food practices such as proper use of medicines at proper time, proper consultation with health personnel, proper food in take and many more resulting in direct effect on her health. Respondent's type of family, monthly income, husband education, and walk/exercise have a negative sign for their respective regression coefficient indicating an inverse relationship with the dependent variable. Type of family has small but significant value for regression coefficient. It emerges that symptoms of anemia are not affected

Table 5. Relationship between the socio-economic, demographic, nutritional factors and symptoms of anemia in mothers

	Anemia (Symptoms) % (Number)			
Education of the respondents	**Mild**	**Moderate**	**Severe**	**Total**
Illiterate	18.6 (30)	57.1 (92)	24.2 (39)	40.25 (161)
1-5	23.4 (25)	56.1 (60)	20.6 (22)	26.75 (107)
6-12	39.2 (38)	43.3 (42)	17.5 (17)	24.25 (97)
13+	45.7 (16)	45.7 (16)	8.6 (3)	7.75 (35)
Total	27.3 (19)	52.5 (210)	20.3 (21)	100.00 (400)
Chi-Square: 21.86 Sig. Level: 0 .002	Gamma: - 0.267	Sig. Level: 0.000		
Family monthly income				
Up to 3500	10.6 (9)	42.4 (36)	41.47 (40)	21.25 (85)
3501-10000	15.0 (27)	71.7 (129)	13.3(24)	45.00 (180)
10000+	47.7 (63)	31.9 (43)	21.5 (29)	33.75 (135)
Total	24.8 (99)	52.0 (208)	23.3 (93)	100.00 (400)
Chi-Square: 178.04 Sig. Level: .000	Gamma: -.167	Sig. Level: .002		
Violence				
Yes	20.7 (49)	55.7 (132)	23.6 (56)	59.25 (237)
No	36.8 (60)	47.9 (78)	15.3 (25)	40.75 (163)
Total	27.3 (109)	52.5 (210)	20.3 (81)	100.00 (400)
Chi-Square: 13.63 Sig. Level: 0.001	Gamma: 0.304	Sig. Level: 0.000		
Calories intake per day				
Up to 1500	20.0 (36)	48.3 (87)	31.7 (57)	45.00 (180)
1501-2300	24.4 (29)	52.1 (62)	25.3 (28)	29.75 (119)
2301+	33.7 (34)	58.4 (59)	7.9 (8)	25.25 (101)
Total	24.8 (99)	52.0 (208)	23.3 (93)	100.00 (400)
Chi-Square: 52.18 Sig. Level: .013	Gamma: -.174	Sig. Level: .01		
No. of visits for pre natal care				
No visit	22.9 (24)	46.7 (49)	30.5 (32)	26.30 (105)
1-3	22.8 (41)	58.9 (106)	18.3(33)	45.00 (180)
4+	38.3 (44)	47.8 (55)	13.9(16)	28.70 (115)
Total	27.3 (109)	52.5 (210)	20.3 (81)	100.00 (400)
Chi-Square: 17.769 Sig. Level: 0.001	Gamma: -0.247	Sig. Level: 0.001		

Table 6. Multiple Linear Regression Model: Standardized regression coefficients, t values and level of significance of socio-economic, cultural, demographic and nutritional variables

Variable	Standardized coefficients	t	Significance level
Socio-Economic Variables	-0.185	4.072	0.000
Education of the respondents			
Type of family	0.0109	2.934	0.004
Family monthly income	-0.208	-5.453	0.000
Husband education	-0.119	2.743	0.006
Walk/exercise	-0.158	-3.326	0.001
Cultural Variables	-0.104	-2.671	0.008
Gender preference (in food)			
Attitude towards health Facilities	-0.114	2.889	0.004
Violence: Reproductive problems	0.619	3.273	0.000
Demographic Variables	-0.119	-2.514	0.012
Age at marriage of respondents			
Prenatal and postnatal care	-0.102	2.590	0.010
Blood loss during abortion	0.118	3.233	0.001
Communicable diseases	0.103	2.766	0.006
Nutritional Variables	-0.094	-2.624	0.009
Calories intake per day			
Non-food items	0.074	-1.985	0.048
R^2 0.510			

up to a great extent by family type. Respondents from the nuclear or joint family may have small differences in their symptoms. Among these factors family income reveals that an increase in income of one thousand rupees caused a decrease in respondent's symptoms by 0.2 units. Ziauddin (2000) reached on same results that there was an inverse relationship between family social status and severe anemia. Walk/exercise also depicts an important role in reducing the symptoms of anemia followed by husband education. A one unit increase in both, reduced symptoms by 0.14 and 0.17 units respectively. In cultural variables, gender biases in food and access to health facilities have an inverse relationship with anemia. With the increase in disparity against the women in food allocation deteriorates her health. On the other side an increase in access to health facility results in improved mother health. In the model violence is found to have highest impact on symptoms of anemia. In demographic variables, age of respondents at marriage and availability of pre-postnatal care showed a significant reduction in dependent variable. Mother age approaching mature (25+) years reduced the cause of symptoms. At younger age symptoms of anemia are more prevalent. Wagener (2000) also reported the prevalence and risk factor for anemia in young mothers. Blood loss during abortion and communicable diseases variables also showed an increase in symptoms of anemia significantly. Miscarriage/abortion resulted in heavy blood loss has a significant increase in anemia in mothers with the value of coefficient of regression (b) equal to 0.118. Communicable diseases link with increasing symptoms of anemia in the respondents.. Calories intake per day shows significant and inverse relationship while to eat non-food items has direct association with symptoms of anemia showing an increase by .07 unit in symptoms by one unit increase in non food item consumption. Improvement in calories, further improves physical condition and psychological condition of the respondents. In the table the value of R^2 (0.510) indicates that independent variables explained 51 percent variation in the symptoms of anemia. In social sciences if the value of R^2 is more than 0.40 of the regression model, the model is considered as best fit model reflecting that predicting variables in the regression model are to be relevant and appropriate for the issue or problem being investigated (Zafar, 1993).

CONCLUSION

The study demonstrates that socio-cultural factors play crucial role in identifying the anemia status in mothers and children. Anemia in mothers and children was significantly associated with socio-economic status. Mothers with poor socio-economic status have higher risks or chances to be anemic than the mothers with better socio-economic status. Respondents with better educational attainment, living in nuclear families, having regular habits for walk/exercise, have higher earning and living with husbands with better educational attainment are likely to have higher chances not to be anemic. Discrimination in food, age at marriage, pre-natal and post-natal care, blood loss during abortion and communicable diseases are also contributing factors in predicting symptoms of anemia. Provision of educational facilities to women and eradication of cultural norms or traditions which hinder their social, economic, cultural, nutritional autonomy will be viable strategy to enhance mothers and children health status. Treating women equally to men in food, respect, honor, job hunting, selection of life partner, ensuring their proper visits before, during and after pregnancy for health care counseling and treatment are workable option to achieve improved mother-child health in Pakistan.

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