NUTRITIONAL STATUS AND ASSOCIATED FACTORS AMONG NOMAD CHILDREN UNDER FIVE YEARS OF AGE IN DISTRICT FAISALABAD.

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Abstract

Background: Globally, more than 150 million under five children are malnourished. In Pakistan 43.7% of under five children were stunted, 15.1% were wasted and 31.5% were underweight according to NNS, 2011. Nomads are the shifted or migrated people, they are the neglected ones therefore have a very poor health status and knowledge about nutrition. The aim of this study was to improve the nutritional status of the under five nomad children in district Faisalabad. The objectives were to assess the nutritional status of nomad children, knowledge of mothers regarding the nutritional status of their children, factors associated with the nutritional status of these children.

Methods: A cross sectional study was conducted in nomad settlements of four Union councils of district Faisalabad. A structured questionnaire was used and anthropometric measurements like height, weight and MUAC of 296 children selected consecutively were calculated. Results were analyzed by using WHO Anthro to identify stunting, wasting and underweight cases whereas SPSS-20 was used for descriptive and inferential statistics.

Results: Results showed that the proportion of malnutrition among under five children was 86% in which 10.8% were wasted, 53.4% were stunted and 58.8% were underweight. About 76% of the mothers have no knowledge about their child’s nutritional needs. A significant association was found between malnutrition and sociodemographic, child health and maternal health characteristics including knowledge of mothers.

Conclusion: The nutritional status of the nomad children less than five years was unsatisfactory. Therefore efforts should be made to enhance nomad mothers knowledge through CMW’s and LHW’s and also provide nutritional support to them.

Keywords: Nomad children, stunting, wasting, malnutrition, faisalabad, Pakistan.

Introduction

Malnutrition is defined as the dearth of sufficient nutrition resulting from deficient food, unbalanced nourishment through diet or incomplete digestion of nutrients (1). The term malnutrition commonly denotes to both under nutrition and over nutrition. Malnutrition occurs when the diet is deficient of enough protein and energy contents and is deficient in all foremost macronutrients e.g. carbohydrates, fats and proteins. The other form of malnutrition which occurs when micronutrients are severely lacking in our diet, it can also causes due to the deficiency of absorption of minerals and vitamins which are essential for our healthy growth and development (2). More than 150 million under five children are malnourished around the world, around 54% of the young child mortality is linked to malnutrition (3). Around 178 million children under five years are stunted and almost 55 million are wasted and majority of these children are from sub Saharan Africa and South Asia (4).

Malnutrition is also a major problem in Pakistan. According to NNS, 43.7% of under five children were stunted, 15.1% were wasted and 31.5% were underweight in 2011. The prevalence of micronutrient deficiencies include 61.9% of anemia, 43.8% of iron deficiency, 54% vitamin A deficiency, 39.2% of zinc deficiency and 40% of vitamin D deficiency. Micro and Macronutrient deficiencies are lead to low immunity thus the children are prone to many morbidities like diarrhoeal diseases, ARI’s and many other. The main causes of these deficiencies are the lack of awareness and imbalance diet (5).

High prevalence of food insecurity and no access to clean water also lead to the development of nutritional deficiencies (6). Many socioeconomic aspects like low educational status, low socioeconomics, poor nutritional knowledge and lack of resources can also lead to the nutritional problems and malnutrition in under-five children (7). Nomadic tribal populations are the most ignorant population of all others with a very poor environmental conditions; they do not have proper health care services e.g. lack of education, no infrastructure, inaccessibility to hospitals or other
institutions to seek health care services, mistreated by
government staff due to lower background status and
lack of acceptance and affordability so all these
problems contributes in their poor health status (8).
The word "nomad" derived from Greek word "Nomos"
means Pasture. According to Simpson Weiner (1989) it
connotes a rover wandering pastoral community.
Nomads are the people who move about in search of
their livelihood and relaxation from place to place along
with their homes and belongings. Today, in numerous
regions of world including Faisalabad, Pakistan,
nomadic populations are faced with crucial challenges to
their current existence, future viability, and especially to
their cultural identity (9).
The nutritional status is more importantly associated
with child morbidity status, maternal characteristics,
environmental conditions and socioeconomic and
community factors (10).
The stunting and wasting rates are much higher in rural
areas as compared to the urban areas due to their poor
living conditions, poverty, maternal factors and low
literacy rates. (11) Faisalabad has a high population of
nomads. Nomads have large family sizes consists of 5-
10 children on an average and their main source of
income is labour or sometimes picking of waste, they
have very poor living conditions, low education level and
immunization status leading to increase morbidity and
mortality (12). Nomadic people live like a separate group
in the society and support themselves by occupations
that require systematic travel. The health status of
nomads is very poor also they did not have proper
awareness and access to health services as they keep
on migrating from one to another place.
The aim of this study was to improve the nutritional
status of the under five nomad children in district
Faisalabad. The objectives of the study were to assess
the nutritional status of under-five Nomad children living
in Faisalabad, knowledge of mothers regarding the
nutritional status of their under-five children and to
identify the factors related to the nutritional status of
under-five children in district Faisalabad.
Methodology
It was a community based observational cross sectional
study conducted in the four union councils of district
Faisalabad and was completed in three months. The
study population consisted of all nomad children less
than five years of age and their mothers residing in these
union councils of district Faisalabad. All nomad children
up to 59 months of age with their mothers agreed to give
the written consent and residing in the rural areas of
district Faisalabad. Very sick children and those
suffering from congenital abnormalities were excluded
from the study. Consecutive sampling method was used
as the nomads do not live in houses in any locality. Union
Councils 193, 195, 196, and 205 were selected
pursposely because majority of the nomads were residing
there and then identify the households with children
under five year who meet the inclusion criteria until the
sample size was reached. The sample size was
calculated by the formula for estimation and the following
assumptions were made: Prevalence of malnutrition
P=45% with 95% Confidence interval, 5% margin of
error. The calculated sample size was 269 and after
including 10% non-response rate the total sample size
was 296. A structured questionnaire was used for data
collection. The questionnaire was translated into Urdu
language for the convenience of study participants. Pre-
testing of the questionnaire was done on 10% of the
study population in the different area but having the
similar characteristics. The tool was edited after pre-
testing. Five lady health works were hired and trained
properly as research assistants during data collection.
The translated versions of questionnaire were filled in
the presence of principal researcher's supervision. Data
analysis was done by using SPSS version 20 and WHO
Anthro software.
Anthropometric measurements like Height, Weight and
MUAC of the under five nomad children were also
calculated to measure the Stunting and Wasting.
Descriptive statistics were calculated like frequencies,
percentages, summary statistics and inferential
statistics like chi square tests used for association.
Those children whose weight for height/length z-score
were less than -2 but more than or equal to -3 standard
deviation from the median for that reference population
will be considered as moderately wasted while those
whose WFH z-score were less than -3 standard
deviation from the median will be considered as severely
wasted, those children whose height/length for age z-
score were less than -2 but more than or equal to -3
standard deviation from the median for that reference
population will be considered as moderately stunted
while those whose height/length for age z-score were
less than -3 standard deviation from the median of that
reference population will be considered as severely stunted. The criteria was that those children who had
one z-score less than standard from the two conditions
(underweight and stunting) were considered as
mynamished and those children who had both z-scores
of the chronic malnutrition more than standard were
considered as normal. Those mothers who had
knowledge scores equal to or less than mean were
considered as having insufficient knowledge and those
mothers who had knowledge scores more than mean
were considered as having sufficient knowledge.
Chi-square test was used to measure the association of
malnutrition with the study variables. Proposal was
approved by Internal Review Board. Written informed
consent was obtained from all participants and the
confidentiality of information was maintained at every
level. No risk or benefit was given to the participants and
monetary benefit was not provided.
Results
Percentage of males to female children was 51% and
49% respectively. The socio demographic
characteristics of the study have been shown in the
The results showed that the majority of the mothers were illiterate (68.9%) and likewise, a major proportion of the fathers were also illiterate (88.9%). Most of the families had a monthly income less than or equal to ten thousand rupees (83.1%), and the results also revealed that their sanitary conditions were not satisfactory, with 53.7% having poor sanitary conditions.

**Table-1: Sociodemographic characteristics of the respondents**

| Variable                | Frequency | Percentage |
|-------------------------|-----------|------------|
| Mothers age             |           |            |
| <18 years               | 23        | 7.8        |
| >18-35 years            | 234       | 79.1       |
| >35 years               | 39        | 13.2       |
| Mothers education       |           |            |
| Illiterate              | 204       | 68.9       |
| Literate                | 92        | 31.1       |
| Fathers education       |           |            |
| Illiterate              | 263       | 88.9       |
| Literate                | 33        | 11.1       |
| Monthly income in (PKR) |           |            |
| >10,001                 | 50        | 16.9       |
| Normal sanitary condition |      |            |
| Poor                    | 159       | 53.7       |

The child health characteristics are described in the figure-1, with 33% of the children suffering from diarrhea, 13% suffering from cough/ARI, 10% suffering from other diseases such as fever, etc., and 56% suffering from no disease in the last 14 days.

**Child Health Characteristics:**

- **Diarrhea:** 33%
- **Cough/ARI:** 13%
- **Other Diseases:** 10%
- **No Disease:** 56%

**Table-2: Number and percentage of baseline characteristics of respondents**

| Variables               | Count | %age |
|-------------------------|-------|------|
| Gravidity               |       |      |
| >4                      | 177   | 59.8 |
| ≤4                      | 119   | 40.2 |
| No of abortions         |       |      |
| ≤2                      | 149   | 50.3 |
| >2                      | 28    | 9.5  |
| None                    | 119   | 40.2 |
| Still births            |       |      |
| ≤2                      | 89    | 30.1 |
| >2                      | 80    | 27   |
| None                    | 127   | 42.9 |
| ANC by skilled person   |       |      |
| Yes                     | 28    | 9.5  |
| No                      | 268   | 90.5 |
| Mode of delivery        |       |      |
| Vaginal                 | 291   | 98.3 |
| C-Section               | 5     | 1.7  |
| Ever used any CP method |       |      |
| Yes                     | 20    | 6.8  |
| No                      | 276   | 93.2 |
| CP method used          |       |      |
| Condoms                 | 4     | 1.4  |
| Pills                   | 16    | 5.4  |
| None                    | 276   | 93.2 |

Baseline maternal health indicators of the maternal health are shown in the table 2, the results revealed that the higher frequency of the women (79.1%) were between 18 to 35 years of age, 39 (13.2%) of the women were above 35 years of age, and only 23 (7.8%) were below 18 years of age. The frequency of women with more than four children was 177 (59.8%) while those had less than four children were 119 (40.2%). Majority of the women had not done any antenatal care visits during their pregnancy 268 (90.5%) whereas most of the deliveries were vaginal and done at home 291 (98.3%).
The frequency of the women that had not used any contraceptive method ever 276(93.2%) whereas 16(5.4%) were using condoms and 4(1.4%) were using pills for contraception.

Anthropometric measurements for Nutritional Status:

Wasting:

The results displayed that 32.4% of the children were normal, 50.7% were acutely wasted, 10.8% were moderately wasted and 1.0% were severely wasted as displayed in the figure-2, the frequency of moderately stunted were 53.4%, 0.7% were severely stunted, 0.7% were showed sever dwarfism and 10.8% of the children were normal as displayed in the figure-4. About 58.8% were moderately underweight, and 1.4% were severely underweight as displayed in the figure-5.

Malnutrition in Nomad Children:

Table-3: Factors associated with nutritional status in children:

| Variable          | Normal (n%) | Malnourished (n%) | P-Value |
|-------------------|-------------|-------------------|---------|
| Child gender      | Boys        | 127(42.9)         | 17(5.7) | 0.321  |
|                   | Girls       | 128(43.2)         | 24(8.1) |         |
| Child age         | < 6 months  | 29(9.8)           | 2(0.7)  | 0.379  |
|                   | > 6-24 months| 104(35.1)         | 16(5.4) |         |
|                   | > 24 months | 122(41.2)         | 23(7.8) |         |
| Child sick in last 14 days | Yes | 155(52.4)       | 11(3.7) | <0.001*|
|                   | No          | 100(33.8)         | 30(10.1)|         |
| Mothers age       | < 18 years  | 22(7.4)           | 1(0.3)  | 0.15   |
|                   | > 18-35 years| 197(66.6)         | 37(12.5)|         |
|                   | > 35 years  | 36(12.2)          | 3(1)    |         |
| Mothers education | Illiterate  | 184(62.2)         | 20(6.8) | 0.003* |
|                   | Literate    | 71(24)            | 21(7.1) |         |
| Fathers education | Illiterate  | 241(81.4)         | 22(7.4) | <0.001*|
|                   | Literate    | 144(47)           | 19(6.4) |         |
| Monthly HH income in PKR | < 10,000 | 220(74.3)       | 26(8.8) | <0.001*|
|                   | > 10,001    | 35(11.8)          | 15(5.1) |         |
| Sanitary condition| Normal      | 107(36.1)         | 30(10.1)| <0.001*|
|                   | Poor        | 148(50)           | 11(3.7) |         |
| Gravidaity        | > 4         | 162(54.7)         | 15(5.1) | 0.001*  |
|                   | ≤ 4         | 33(11.4)          | 26(8.8) |         |
| No of abortions   | ≤ 2         | 136(45.9)         | 13(4.4) | 0.026*  |
|                   | > 2         | 24(8.1)           | 4(1.4)  |         |
| Still births      | ≤ 2         | 84(28.4)          | 5(1.7)  | <0.001*|
|                   | > 2         | 74(25)            | 6(2)    |         |
| ANC by skilled person | Yes    | 11(3.7)          | 17(5.7) | <0.001*|
|                   | No          | 244(82.4)         | 24(8.1) |         |
| Mode of delivery  | Vaginal     | 252(85.1)         | 39(13.2)| 0.088  |
|                   | C-Section   | 3(1)              | 20(7)   |         |
| Ever used any     | Yes         | 8(2.7)            | 12(4.1) | <0.001*|
| CP method         | No          | 247(83.4)         | 29(9.8) |         |
Knowledge status of the mothers of nomad children:

Table-4: Association of knowledge with malnutrition

| Knowledge   | Malnutrition | P-Value |
|-------------|--------------|---------|
|             | Yes n(%)     | No n(%) |<0.001*|
| Sufficient  | 48(16.2)     | 23(7.8) |
| Insufficient| 207(69.9)    | 18(6.1) |

The results in the figure-7 showed that majority of the mothers had no knowledge about their child's proper diet and nutritional practices 225(76%) while only 71(24%) of mothers had knowledge about their child's nutritional practices with the mean score of 4.58 and the standard deviation of 1.29. The association of knowledge have been displayed in the table-4.

Discussion

The results displayed that the proportion of wasting was 6% moderate and 3.3% were severely malnourished. Main factors responsible for the poor nutrition were mainly parental education as mostly both mother and father were illiterate (76.7% and 54.0% respectively). (13)

The results of this study showed that (35%) of the children suffered from acute malnutrition according to the weight for height z-score. (14) The study displayed that the malnutrition rates decreased in the test children as WAZ (17.7%), HAZ (36.5%), and WHZ (3.2%) respectively and these values for the control group were (5.5%, 19.0%, 1.5%) respectively and these differences were statistically significant. (15) This study revealed that the stunting rate of under five children was (45%) that showed chronic malnutrition in the study population and wasting rate was (10.5%) that showed the acute malnutrition among the study population. (16) The results showed that stunting rate was 48.1% and wasting rate was 9.7% among under five children, the study revealed that the socio demographic factors, maternal characteristics and the child characteristics lead to the malnutrition in children. (17)

This study was conducted at the Nomad population of district Faisalabad on under five children. However this study had some limitations like cause and effect relationship could not be established. The results of the study cannot be generalized to the entire population because the sample was not representative. The shortage of time and money was another limitation of the study.

Conclusion

The nutritional status of the nomad children less than five years was very poor and unsatisfactory. The stunting and wasting rates were high hence the situation is very alarming there. They were having very poor lifestyles with less awareness and no health services available. Another major issue was the lack of family planning and poor hygienic and sanitary conditions prevailing there. A significant association was demonstrated between malnutrition and socio demographic characteristics, maternal health care characteristics, child health characteristics and the knowledge of mothers about the diet of their children. Health Education campaigns and Awareness through LHW’s and CMW’s regarding nutrition of their children including maternal health. Govt, civil society and NGO’s should provide proper jobs to them so they can improve their lifestyle. They should be properly registered by NADRA and should also be provided nutritional support and shelters for living. Additional research in the area of the nutrition of nomad children.

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