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The Impact of Community Nutrition Workers on Reducing Malnutrition in Pregnant Lactating Women of Tharparkar

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ABSTRACT

Background: Malnutrition is more prevalent in Pakistan. **Objective:** To assess the role of community nutrition workers in reducing malnutrition among pregnant lactating women of district Tharparkar. **Methodology:** A cross-sectional study was conducted among 305 pregnant and lactating women selected in the District Tharparkar. The data was analyzed by using SPSS version 25. The performance indicators of community nutrition workers and malnutrition status were described using mean, median, standard deviation, and IQR for quantitative variables, frequencies, and percentages for categorical data. The association between categories of MUAC and performance indicators (Home visits, IYCF sessions, and Sessions) of community health workers was assessed by applying the chi-square test. A P-value of 0.05 was considered significant. **Results:** The study's results revealed that approximately 305 pregnant lactating women were selected with a mean of 4.99 ± 2.395 and 85.9% of women belonged to the age group above 30 years. Hence the pregnant lactating women's nutrition status was based on MUAC at the time of screening and exit. At the time of screening, out of 305 PLW, 218(71.5%) were screened with MUAC of > 21 cm and identified as normal, 87(28.5%) were screened with MUAC of <21 cm and identified as malnourished pregnant lactating women. **Conclusion:** The study concluded that a local community-based worker selected by community participation can elevate the nutritional status of pregnant and lactating women in the district of Tharparkar.

INTRODUCTION

The word "malnutrition" can be used for both "nutrition and "undernutrition". Hence, undernutrition is mainly used for the deficiency of nutrition. It is further branched in; "stunting" and "wasting". Stunting is known for low height for age and wasting is known for low weight for height [1]. The evidence of some literature suggests that malnutrition is an emerging public health issue in most of the developing countries especially among children under five and with lactating and pregnant women [2]. The women of low and middle-income countries are facing serious problems of malnutrition as compared to developed countries. However, literature has also revealed that malnutrition is a common issue in developing countries, particularly in Africa and South Asia. The three main countries of South Asia are Pakistan, India, and Bangladesh which have a high prevalence of malnutrition. High rates of morbidity and mortality are due to the malnutrition of children and pregnant or lactating women [3]. Tharparkar is a desert district of Sindh, Pakistan which covers nearly 19638 km of area. It is located in the southern part of the Sindh. The majority of the population lives in desert areas. Tharparkar is witnessing huge climatic effects, with droughts coming every 4-5 years and uneven rainfall, with an average of 50-300mm, which affects the socio-economic conditions of the area [4]. Tharparkar has scattered geographical areas with poor primary healthcare systems and a lack of basic health facilities, which is attributed to the vulnerability [5]. Since, the emergence of the malnutrition issue in Tharparkar, many projects have been implemented by UN and NGO nutrition partners [7]. The UNICEF and WFP run the Community-based Management of Acute Malnutrition (CMAM) project to cater to the malnutrition issue in Tharparkar [6]. Apart from international agencies, the government has adopted different programs and

initiatives by expanding the role of lady health workers [8]. To fill the gap of uncovered areas, the Health and Nutrition, Development Society (HANDS) has adopted and practiced an innovative model in which they hired a rural woman who has no or low literacy level to serve their communities regarding family planning (FP) and reproductive health (RH) services. These ladies were called the "Marvi Workers". Health and Nutrition, Development Society (HANDS) is a Pakistan-based Non-Profitable Organization (NGO) founded by a renowned pediatrician of all time, Prof. A.G. Billoo (Sitara-e-Imtiaz) in 1979. During the journey of 35 years, it has emerged as one of the largest organizations in the country with a different type of integrated expertise. Currently, this organization has a network of more than 30 offices in Pakistan with the support of nearly 18 volunteer board members and access to a nearly 16.2 million population with 20,274 direct or indirect villages. The strength of this organization is approximately more than 1700 full-time staff and more than five thousand volunteers from community-based organizations. (HANDS Pakistan). HANDS has implemented the project called "Implementation of Nutrition Activities under the Nutrition Support Program for the non-covered area of Tharparkar District" from 2016 to 2018. Nearly half of the population of Pakistan is facing the malnutrition problem, particularly in rural areas where unfortunately few facilities exist but without having equipped facilities like; the problem of staffing, equipment, medicine availability, and funding issues. Mostly the areas of Tharparkar are rural areas devoid of Lady Health Workers, as there is low literacy prevailed, even up to Grade 8 passed girls or women are not available. HANDS Marvi's (community-based health workers) model is the most suitable solution to the existing situation. HANDS offices already exist or are in the vicinity of intervention districts and we are present at the grass-root level, forming/strengthening local CBOs and as a result of interaction with key stakeholders, are aware of the existing situation. This study is conducted in non-covered areas (where there is no LHW) therefore, to address the issue of chronic and acute malnutrition in the community an innovative approach has been adopted which relies on using Community Nutrition Workers/Marvi Workers.

Objectives

To identify the role of community nutrition workers in the reduction of malnutrition among pregnant lactating women of district Tharparkar.

METHODOLOGY

A cross-sectional study was carried out among pregnant and lactating women of Dahli, District Tharparkar to assess the role of community nutrition workers which comes under the umbrella of a non-governmental organization (HANDS). The data was extracted from the MIS registers of HANDS using a multistage cluster random sampling procedure. This sampling procedure was divided into two stages, In Stage 1st, we selected a cluster of five villages from each union council using probability proportional to size (PPS) given an equal chance of selection for each village and in Stage 2nd, we extracted data PLW using systematic.

A total of 354 sample sizes were calculated using an open EPI online calculator. HANDS head office and district office shared relevant documents and data in hard and soft as well. The available reports and project data were reviewed in detail. The sample of community-based MIS enrollment registers was identified and separated from all registers for PLWs. The six-month performance data of identified community nutrition workers was extracted from community-based MIS registers on the predesigned extraction sheet on Microsoft Excel. The extraction sheet included data on screening for MUAC of children under five, pregnant and lactating women, and the number of registered, cured, and exited malnourished cases.

The number of community engagement/sessions (Health & hygiene, Cooking Demonstration) and the number of supplements given. One data entry person was hired to enter data on the extraction sheets of PLWs. Although the hired data entry person had been part of this project, orientation was given to him about data extraction and data entry on predefined extraction sheets. The completed data entry was supervised and cleaned by the researcher. Before analysis, the missing data and errors were checked. Therefore, ethical approval was obtained from the Institutional Ethics Review Board (IRB) of Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology (SZABIST), Karachi Campus.

The data was analyzed by using SPSS version 25. The performance indicators of community nutrition workers and malnutrition status were described using mean, median, standard deviation, and IQR for quantitative variables, frequencies, and percentages for categorical data. The association between categories of MUAC and performance indicators (Home visits, IYCF sessions, and Sessions) of community health workers was assessed by applying the chi-square test. A P-value of 0.05 was considered significant.

RESULTS

This study population included 305 pregnant and lactating women. The socio-demographic characteristics of pregnant and lactating women are included in Table 1. The 305 PLWs were selected from eight union councils of taluka Dahli with a mean of 4.99 ± 2.395 and 85.9% of women of the selected sample were above 30 years of age while only 14.1 years of age as shown in table-1.

Table 1

Socio-Demographics details of Pregnant and Lactating Women (PLW) assessed for malnutrition by Marvi Workers (n=305)

Variables	Number	Percentage
Union Councils		
Dahli	22	7.2
Gadhro	32	10.5
Jese Jo Par	52	17.0
Khensar	41	13.4
Laplo	17	5.6
Parno	33	10.8
Peerane Jo Par	30	9.8
Tar Ahmed	78	25.6
The age group of Pregnant Lactating Woman in Years		
>30 Years	262	85.9
<30 Years	43	14.1

The mean with standard deviation, median, and interquartile range (IQR) was calculated for quantitative variables of PLW in Table 2. The median age of PLW in years and home visits was found 27 with IQR (5) and 3 with IQR (0). Iron supplements (Folic acid and LNS) were also distributed to PLW, the mean and standard deviation for Iron Folic acid (LNS) and LNS were found 88.82 ± 5.842 and 164.14 ± 26.613 respectively.

Table 2

Analysis of Mean, Standard Deviation, Median, and IQR for quantitative variables of the study.

Pregnant and Lactating Women Beneficiaries	Mean ± SD	Median (IQR)
Age of Pregnant and Lactating Women PLW (In Years)	27.574 ± 4.4428	27(5)
Total Home Visits by Marvi Workers	2.94 ± .236	3(0)
Number of LNS distributed to pregnant lactating women	164.14 ± 26.613	180.0(60)
Number of Iron Folic Acid (IFA) distributed to Mothers	88.82 ± 5.842	90 (0)

The performance indicators of Marvi Workers (MWs) were also assessed for under-five children and PLWs from the selected sample during the study and it was presented in Table 3. The results of Table.4 indicated that MW had also identified 87(28.5%) malnourished pregnant and lactating women and 218(71.5) normal pregnant and lactating women from the total sample of 305 PLW.

Table 3

Performance Indicators of Marvi Workers to reduce the malnutrition status of under PLWs for a six-month duration.

Pregnant and Lactating Women Beneficiaries	Number	%
Total number of malnourished pregnant lactating women identified	87	28.5
Total Number of Healthy Pregnant Lactating Women Identified	218	71.5
Number of sessions (Infant Young Child Feeding Program IYCF, Health and Hygiene) conducted	205	67.2
Number of Cooking Demonstration sessions conducted	172	56.4

Table 4 shows the comparison of PLW nutrition status based on MUAC at the time of screening and exit. At the time of screening, out of 305 PLW, 218(71.5%) were screened with MUAC of > 21 cm and identified as normal, 87(28.5%) were screened with MUAC of <21 cm and identified as malnourished PLW.

Table 4

Comparison of Pregnant Lactating Women nutrition status based on MUAC at the time of Screening and Exit

MUAC	At the time of Screening (n=305)		At the time of Exit (n=87)	
	Number	%	Number	%
Normal (>21cm)	218	71.5	83	95.4
Malnourished (<21cm)	87	28.5	4	4.6

For pregnant and lactating women(PLW), the analysis for the association of performance indicators of Marvi Workers with the outcome of nutrition intervention was undertaken. Results showed a statistically significant association of performance indicators on the nutrition status of PLW as shown in table 5. When comparing the performance indicators of Marvi Worker on the outcome of nutrition intervention for pregnant and lactating women (PLW), a positive influence of Marvi Worker was observed on nutrition status of PLW, namely home visits (P=<0.01**). This value shows that home visits have strong associations with the outcome of nutrition intervention as shown in table 5.

Table 5

Associations of performance indicators of Marvi Workers with outcome of nutrition intervention for under five PLW

Association of home visits with the outcome of Nutrition Intervention for PLW	Normal n (%)	Malnourished n (%)	P-Value
Equal or greater than 3 Home visits	80(94.4)	1(25)	<0.01**
Less than 3 home visits	3(3.6)	3(75)	

DISCUSSIONS

The evidence of this study suggested that the community nutrition workers/Marvi workers played a vital role in the reduction of malnutrition status. The community worker was well equipped and trained on their subject to deliver their services on the reduction of malnutrition status. The locally selected Community Nutrition Worker/Marvi Worker with proper supervision and training was able to deliver nutrition support with easy access and quality care at the doorstep and was trusted by the community. The study has demonstrated that high levels of health and nutritional status can be improved with the help of trained local healthcare workers [9].

In the underprivileged area of Tharparkar, Pakistan, this research emphasized the critical role of community-based Marvi Workers as they played a major part in reducing malnutrition among pregnant and lactating

women (PLWs). The results are further confirmed by reviewing the literature that throughout the world the model of community health workers (CHWs) is considered a successful intervention plan in those areas where resources are low [10]. Studies highlighted that the influence of CHWs on maternal and child nutrition outcomes is consistent with the increase in nutritional status among PLWs, especially the notable decrease in malnutrition from 28.5% to 4.6%. Further, the results revealed that well-suited treatments like IYCF and culinary demonstrations, along with home visits, helped in promoting behavior change and enhancing eating habits [11]. Tharparkar has distinct socio-environmental problems such as poverty, lack of health facilities, and climate adversities. The study's findings are supported by a comprehensive evaluation regarding local women considered as CHWs to improve program sustainability and community acceptability [12, 13].

Results from other South Asian treatments are consistent with the substantial correlation ($P < 0.01$) between home visits and improved MUAC. For example, frequent home-based counseling improved maternal dietary patterns and decreased malnutrition under five years old children [14].

Another essential element of the study was the supply of supplements, such as iron-folic acid [15]. According to recent research, supplementation programs combined with CHW models have two advantages such as in treating nutritional deficiencies and boosting confidence [16,17]. The lack of long-term follow-up to evaluate long-term nutritional changes are two main limitations of this study. Future studies should be conducted to investigate cost-effectiveness evaluations for scaling the Marvi Worker model and use longitudinal designs to assess the benefits' durability.

CONCLUSIONS

The study concluded that an effective strategy is essential for addressing malnutrition in isolated and underprivileged communities with the help of community health workers, such as Marvi professionals. Hence, they are essential resources for reaching global nutrition goals because of their capacity to adjust to changing community requirements and fit into larger health systems.

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