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The Effectiveness of Community Center on the Nutritional State of Under Five in Wana

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ABSTRACT

Objective: This study has aimed to find the effect of community center on nutritional state and health of under five children.

Type of study: case and control groups of children are compared in this case-control study, 100 children were registered in the community center and other 100 child not registered.

Study setting and time of study: the study was conducted in Wana community center and Wana primary health care (PHC) center during the period from 20 July till 20 september2003.

Data collection: questionnaire form was filled by interview the mothers, the nutritional state was measured by weigh for age and weigh for height.

Results: comparison between the two group show that there is significance association between the registration in the community center and the normal state of nutrition (P<0.02), it is also showing that 14% of registered children was malnourished while 26%of non-registered children was malnourished.

It is also seen that there is significant association between registration and some Ministry of health (MOH) programs, regarding immunization program 75% of the registered children was completing their vaccination while it is only 39%in the other group (P<0.00). Also, the percentage of ARI attack and diarrhea spells was more in not registered children 10%, 27% respectively compared to 4%, 19% in the registered group.

Conclusion: The registration of under five children in the community center and the coverage of all the children by these centers is the excellent way to protect them from malnutrition and to treat those malnourished.

Keywords: community center, nutritional state, malnutrition, Mosul city.

INTRODUCTION

UTI The best global indicator of children's wellbeing is growth, because infections and unsatisfactory feeding practice, or more often a combination of the two, are major factors affecting their physical growth and mental development. Children who suffer from growth retardation as a result of poor diet and/or recent infections tend to have increased number of sever diarrheal episode and heightened susceptibility to certain infectious diseases.[1]

Nutrition is blessing from god for life to continue, malnutrition early in life affect both physical growth and mental development.[2]The limitation of food on one or two form and for long time decreases the nutritional elements and cause malnutrition.[3]

Although children, and adult, may not have control of the amount of food available, and when it can be eaten, it is vital to provide the best possible nutrition from what is available.[4]

Malnutrition is a pathological state resulting from a relative or absolute deficiency of one or more essential nutrients, sufficient to produce disease which may be clinically manifested or it may be detectable only by biological or physiological test.[5] By far the greatest word health problem is that of protein energy malnutrition[PEM].[6]

Malnutrition in early childhood is a spectrum of diseases, kwashiorkor which occurs most often in the second year of life when the child is weaned from the breast on to a diet low in protein,[7] and Marasmus which is total inanition of the infant usually under one year of age which is due to a sever and prolonged restriction of all food energy sources and other nutrients in addition to protein. It is usually occurring in the second six months of life. [8]

Size of the problem: Malnutrition remains one of the most common causes of morbidity and mortality among children word wide. [9] Protein energy malnutrition [PEM] is the widest form of malnutrition in the word.[10] That is only 1%-2% of the words children exhibit visible sign of malnutrition but an estimate 190 million child under 5 years chronically malnourished locked into a pattern of ill health and poor development.[1[1] To have sustained impact on childhood morbidity and mortality, health programs must include intervention to reduce malnutrition.[12]

Economic embargo imposed on Iraq from1990 to 2003 have been responsible for death of more than half million children.[13] Over all the economic and social condition in Iraq, lower purchasing power, shortage of basic foods, coupled with exceptionally high prices,[14] and breakdown of health service has caused a continual worsening of living standered throughout the whole country.[15] Young children are the group mostly affected by these consequences, reveled by their deterioration in nutritional status.[16] Since august 1990 those children of ninavah governorate [population nearly two million]were the victim of equitable economic and drug blockage[17] disruption of supplies and service, all these will lead to increase rate of disease between 1991-1999 (2-2.6% respectively). [15]

Community centers :These centers considered an active agent reach to most Iraqi families for protection and treatment of malnutrition in children under five years of age, pregnant and lactating woman. These centers need to be supported by health office, republic organization and this assist this center to raise the level of nutrition in the community. [18]

Aims of community centers is to emphasize community participation in health care through raising consciousness of important of health nutrition through people by:

A. Monitoring of malnutrition among children and mothers.
B. Assessment of growth.
C. Improvement of health and nutritional habits by health education.
D. Supplying of children and mothers in additional nutrient.
E. Support the ministry of health [MOH] programs like immunization, ORT, ARI ….est. In connection with health centers.

A study done in Mosul showed that 90%and 98% of malnourished child according to weigh for age and weigh for height respectively are improved, when optimal use of HPB and health education of mothers are done.[20]

High Protein Biscuit (HPB):It is a supplementary food given in addition to the natural meals taken by the child. Each 100gm of HPB contain:400-600 k calories, 70-73 g carbohydrate,12-18 g protein, and 5-10 g oil.

- HPB contain: wheat, sugar, vegetable oil, milk, milk powder, eggs, soya wheat, lecithin, vitamins and minerals like iron and calcium.
- HPB considered as important especially for children aged 6-24 months, the child need 2.5 kg /month i.e. about 85 gm. /day which gives300 k calorie.
- HPB supply the child under one year of age about half of his nutritional needs, however in children 1-5 year, HPB supply about 15-20% of child's need of nutrient.[18]

Measuring malnutrition: Most standardized indicator of malnutrition in children is based on measurement of the body to see if growth has been adequate. [21]

1. Weigh for age: Growth chart and Standard deviation unit (SD). [8][22]
2. Weigh for age is composite indicator of both long term malnutrition (deficit in high “stunting”) and current malnutrition (deficit in weigh “wasting”).
3. Height for age H/A : by using normalized reference H/A. height for age is an indicator of chronic malnutrition. [21]
4. Weigh for Height (W/H): Thinnest measure chart (weigh for height wall chart.[23] and Standard deviation measure or z-score by using CDC/WHO normalized reference W/H for combined sexes. [24]

W/H is an indicator of acute malnutrition that tells us if the child is too thin for a given height (wasting).
For all three indicators, we compare individual measurement to international reference values for a healthy population.[21]
Aim of the study: To examine the effect of community center on the nutritional state of children less than five years of age in wanna 2003.

MATERIAL AND METHODS

Study setting: Wana village is located 50 Km north to Mosul city near the Mosul dam, inhibited by 18400 population with about 3150 child under five years of age .Wana school for boys become the community center of wana in Jun 1999,three teachers who were trained in community health and communication skills by primary health department were working in it, The period of study was from 20th July to 20th September 2003.

Study population and method of sampling: composed of two groups:-
Cases, composed of the one hundred under five years of children who registered in the community center, and controls, comparative group composed of one hundred under than five years children who attend the PCH center for vaccination and they are not registered in community center.

Case Definition The nutritional status by W/A and W/H of the children was estimated by using SD unit (SD) by comparing the weigh to WHO/NCHS normalized reference W/A and W/H for each sex.Those children whose W/A:

- Median are considered normal
- -1SD are mildly under nourished need health education and regular checking in the community center.
- -2SD are moderately undernourished to be treated in the community center by HPB and health education.
- -3SD are severely malnourished to be referred to the nutritional rehabilitation center.

Data collection: A questionnaire form was filled by interviewing mothers visiting the primary health center and community center individually by the investigator himself.

Technique of measuring; Weigh is measured by uniscale of UNICEF .Length is measured to children less than 2 year of age while child is laying and while standing for children 2-5 years age.

Statistical analysis: Two by two and by three tables was used for presentation of data. Cases and controls were compared by these tables.X2 test used for test of significance and odd's ratio used in the analysis as a case control study.

RESULTS

Table 1 shows that normal and mild under nutrition (-1SD) groups of children was significantly higher among registered than nonregistered children p<0.022, the moderately (-2SD) and severely (-3SD) undernourished children groups were higher among non-registered children (table 1)

Table 1. shows that normal and mild under nutrition

Nutritional state weigh\age	Not registered						Registered						P-value	OR	95%CI
	Male% N=50		Female % n=50		Total N=100		Male% N=49		Female % n=51		Total N=100				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Median	21	42	28	56	49	49	39	79.6	26	51	65	65	0.022	O,42	0.29-0.91
-1SD	13	26	12	24	25	25	7	14.3	14	27.4	21	21	N.S	1.25	0.65-2.43
-2SD	13	26	8	16	21	21	2	4.1	9	17.6	11	11	0.054	2.15	0.99-4.68
-3SD	3	6	2	4	5	5	1	2.0	2	4	3	3	N.S	1.70	0.40-7.21
Total	50	100	50	100	100	100	49	100	51	100	100	100	N.S	-	-

Weight for height measurement which indicate acute malnutrition show that the registered children are mostly normal nutritional state70%while malnourished children were more among non-registered group than registered one (Table 2).

Table 2. Weight for height measurement

Nutritional state weigh\height	Not registered						registered						p-value	OR	95%CI
	Male% N=50		Female % n=50		Total N=100		Male% N=49		Female % n=51		Total N=100				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Median	29	58	39	78	68	68	37	75.5	33	64.7	70	70	N.S	0.91	0.5-1,66
-1SD	13	26	5	10	18	18	10	20.5	13	25.5	23	23	N.S	0.73	0.37-1.46
-2SD	7	14	5	10	12	12	1	2	5	9.8	6	6	N.S	2.14	0.78-5.83
-3SD	1	2	1	2	2	2	1	2	0	0	1	1	N.S	2.02	0.19-21.64
Total	50	100	50	100	100	100	49	100	51	100	100	100	N.S	-	-

Table 3 shows that most of our sample were breast fed, there is no relation between type of feeding and malnutrition in both group. While regarding time of giving supplementary food 45.2% non-registered mothers gives Supplementary food before 6 month of age compared to only 11.5% after 6 month of age. The same for registered group 35.8% give supplementary food before the age of 6 month and only 21.4% after6 months of age.(Table 3)

Table 2. Samples that breast feed

	Malnourished not registered % N=26		Malnourished registered % N=14		Total n=40		p-value	OR	95%CI
	No.	%	No.	%	No.	%			
type of feeding									

Exclusive breast feeding	4	15.4	4	28.6	8	20.0	N.S	0.45	0.10-2.15
Non-exclusive breast feeding	10	38.5	4	28.6	14	35	N.S	1.56	0.39
Artificial feeding	1	3.8	0	0.0	1	2.5	N.S	-	-
Weaned	11	42.3	6	42.8	17	42.5	N.S	0.98	0.24
Time giving Supplementary food									
Before 6 month	12	46.2	5	35.8	17	42.5	N.S	1.54	0.41-5.86
After 6 month	3	11.5	3	21.4	6	15.0	N.S	0.48	0.08-2.70
Weaned	11	42.3	6	42.8	17	42.5	N.S	0.98	0.24-3.94

Table 4 shows that vaccination state of the registered and nonregistered children, children who were not vaccinated at all were more among nonregistered group, those who have incomplete vaccination was significantly higher among nonregistered p<0.000 while those with complete vaccination were significantly higher among registered children(75%) p<0.000 (table 4)

Table 2. Vaccination state of the registered and nonregistered children

Vaccination state	not registered % N=100		registered % N=100		Total n=200		p-value	OR	95%CI
	No.	%	No.	%	No.	%			
Not vaccinated	3	3.0	1	1.0	4	2.0	N.S	3.06	0.35-26.86
Incomplete	58	58.0	24	24.0	82	41.0	0.00	4.37	2.42-7.90
complete	39	39.0	75	75.0	114	57.0	0.00	0.21	0.12-0.38

The registration rate of malnourished children whose mothers attending the health meeting , take ferrofolic tablet and vitamin A tablet was significantly higher than those children whose mothers not attending the health meeting , take ferro folic tablet and vitamin A tablet P<0.000. Home visit of health worker are more frequent in those registered than non-registered group. (Table 5)

Table 2.Malnourished children whose mothers attending the health meeting

	Malnourished not registered % N=26		Malnourished registered % N=14		Total n=40		p-value	OR	95%CI
	No.	%	No.	%	No.	%			
Attending the health meeting									
+ve	0	0.0	7	50.0	7	17.5	o.oo	0.00	0.00-0.000
-ve	26	100.0	7	50.0	33	82.5			
Home visit by health worker									
+ve	0	0.0	1	7.2	1	2.5	invalid		
-ve	26	100.0	13	92.8	39	97.5			
Ferrofolic tablet intake by mother									
+ve	5	19.2	12	85.7	17	42.5	0.00	0.04	0.01-0.19
-ve	21	80.8	2	14.3	23	57.5			
Vitamin A tablet intake by mother									
+ve	5	19.2	12	85.7	17	42.5	0.00	0.04	0.01-0.19
-ve	21	80.8	2	14.3	23	57.5			

There is only mild difference regarding ARI attack among malnourished children non registered (11.5) than those registered (7.5) ,while there is no difference in diarrhea attack among malnourished children in both study group. (Table 6)

ARI and Diarrhea Attack of children

	Malnourished not registered % N=26		Malnourished registered % N=14		Total n=40		p-value	OR	95%CI
	No.	%	No.	%	No.	%			
ARI attack									
+ve	3	11.5	1	7.1	4	10	N.S	1.7	0.16-17.67
-ve	23	88.5	13	92.9	36	90			

diarrhea attack									
+ve	9	34.6	5	35.7	14	35	N.S		0.25-3.63
-ve	17	65.4	9	64.3	26	65			

To achieve the aim of this study, a total of 200 women were enrolled in a case-control study design to compare 100 married women with UTI (cases) with 100 women without UTI (controls) selected according to the method of unpaired sampling from Tammuz Health Center in Mosul, Iraq during two months' period December 2020 and January 2021.

A case-control study design was used. Cases were married women with UTI, controls were married women visit the health center for another disease rather than UTI. Cases diagnosed as UTI patients depending on symptoms of patients. The sample of control was selected according to the method of unpaired sampling [25]. So, for each case of UTI, a control was selected and interviewed.

The questionnaire form includes information about the patient age, pregnancy, food consumption like (spicy food, citrus, acidic fruits, coffee, cola), drinking of water (number of glasses), Calcium supplement, diabetes, birth control (IUD, condom), family history of UTI, using Catheter, retaining Urine (hold it in), constipation, sitting occupation, personal hygiene.

Data collection was conducted during two months period. All patients have been personally interviewed by the researcher and the main source of data was obtained by filling in the questionnaire form directly from Cases and controls.

Odds Ratios (OR) and 95% Confidence Intervals (CI) for the OR were calculated. The P-value calculated using the x2 test, a P-value > 0.05 was not significant (NS).

DISCUSSION

The health of children particularly those under the age of five years was to a very great extent affected by the 1991 war. The economic sanction and material blockage had additional effect on the health and nutrition of this sensitive group, so the Iraqi MOH and UNICEF tried to help the Iraqi children to overcome the problem of malnutrition.[25]

Wana community center serving 3150 children , one hundred child who were registered in this center were compared to other hundred not registered child from Wana PHC center which serve 18450 inhabitant.

A significant association between non registration state and the early giving of supplementary food before the age of six month was probably due to the lake of knowledge of the mother about the benefit of exclusive breast feeding .[26]

A significant association was found with the effect of registration stat on some activities of the PHC center as mothers attendance to health meeting ,ferro folic tablet and vitamin A tablet intake and home visit by the health worker.

ARI attacks and diarrhea episodes in the month previous to the study have had more in those children not registered in the community center and significance association between registration status and those children have no illness in the same month. This finding was in accordance with a study in Mosul 2001 which showed that there is association between optimal use of HPB and health education of mothers with decreased number of ARI attacks and diarrheal episodes .[20]

The number of children who complete their vaccination show significance association with registration rate in community center. while number of children who did not complete their vaccination were significantly associated with non-registration state.

The measurement of weigh and height was adopted in the community center and our study because they are simple to carry and well accepted as reliable indicators and inexpensive and need only limited training .[27] So they used by the international organization to assess the nutritional status of the nation .[15]

By using W/H which indicate acute malnutrition the registered children shown to be in normal nutritional state [70%] while malnourished children were more among those not registered than registered one. These finding was in accordance with studies done in Indonesia, where the use of HPB show great benefit in the nutritional state of children. [26] A study done in Mosul 2001 showed that the rate of malnutrition by W/A were decrease from 100% to 10% when optimal use of HPB and mother health education done.[20] Another study in Mosul 1996 in Sherikan village show that there is increase in rate of children who make consequence visit from 2% to 61%when the community health worker monitor the growth while it's from 2% to 42% when the mother monitor child's growth.[28]

The study also revealed that non registered mother of malnourished child use to give supplementary food too early before 6 month of age 46.2%compared to only 11.5% who give supplementary food after 6 month of age. Also it show

that most of malnourished child have illiterate mothers and the higher level of mother education have minimum number of malnourished children , similar result were also observed in other study in Mosul.[29] This is probably due to the effect of health education in mothers attending the community center.

Conclusions: Registration in the community center significantly associated with normal state of nutrition (P<0.02), while high percent of malnutrition are found in the non-registered group 26%.

The mixed feeding and early giving supplementary food can be improved by registration of the child in community center.

The community center has positive effect on some MOH programs, high rate of Ferro folic tablet and vitamin A tablet intake among registered mothers 87%,83% respectively and it is of significant importance.
ARI attacks &diarrhea spells found to be higher in non-registered children , while those with no illness found to be significantly higher in registered group (P<0.00).

The children who complete their vaccination significantly higher in registered group 75%(P<0.00),while those incomplete vaccination higher in the non-registered group 58% &it is of statistical significance(P<0.00).

CONCLUSION

As previously mentioned, the prevalence of UTI in women places it among the most common ailments encountered in medical Practices and efforts should be focused not only on Proper antibiotic treatment but also on preventing recurrence as a way to help limit the widespread use of antibiotics.

All these risk factors, which are associated with UTI are modifiable. They should be taken into consideration for more trials to educate women about behavioral modification.

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