A STUDY OF INTELLECTUAL CAPACITY OF MOTHERS OF

MALNOURISHED AND MOTHERS OF WELL-NOURISHED CHILDREN

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## ABSTRACT



**OBJECTIVE**

To compare the intellectual capacity of mothers of malnourished verses mothers of well-nourished children.

## STUDY DESIGN

Cross sectional

## PLACE OF DURATION OF STUDY

The study conducted from April 2003 to October 2003 at pediatrics department PGMI, Lady Reading Hospital,Peshawar, KPK,Pakistan.

## SUBJECTS AND METHOD

The total sample was 200 mothersincluding 100 of malnourished and 100 well-nourished children's mothers admitted in Pediatrics unit lady Reading Hospital Peshawar. All mothers were administered Raven's Standard Progressive Matrices (RSPM) test for testing theirintellectual capacity.

## RESULTS

Although majority of mothers in both groups had below average intellectual capacity, a drop was noticed in the intellectual capacity of mothers of malnourished children, and 56% of the mothers in this group had IQ score suggestive of Borderline Mental Retardation (34%) or Mild Mental Retardation (22%). Intellectual impairment was associated with malnutrition in children.

## CONCLUSION

Our results demonstrate that mothers of malnourished children had lower intellectual capacity.

## KEYWORDS

Maternal intellectual capacity, Malnutrition, nourishment of children.

## INTRODUCTION

World health organization estimatesthat malnutrition is implicated in morethan half of all children's deaths worldwide'. Nutritional deficiencies at all stages of growth havelong-term damaging effectson the intellectual andpsychological development of children'·'. Early malnutrition can also have a significant impact on cognitive functioning, presumably due to the adverse impact of the malnutrition on the very young brain. Depressive symptoms are elevated in adolescents who experienced significant malnutrition early in life as proposed by developmental cascademodel'

Intellectual disability affects an individual'scapacity to parent a child effectively, and low maternal intelligence (OR 3.8,95% Cl 1.3 to 11.1) hasbeen found to be associated with malnutrition in children'.

Studieshave shown a correlation between postnatal depression and impaired child growth'. Others have concluded that common mental disorders in the mothers increased the risk of malnutirion in children to double fold'. Although the fact that maternal mental illnesses contribute to malnutrition in children along with other factors such as poverty, and the fact that malnutrition hasvast physical and mental consequences for the children have been established, the correlation of maternal intelligence and malnutrition in children hasnot been well explored in observational and controlled studies.

The present study aims at comparing the intellectual level of mothers of under nourished and well-nourished children and to test if the difference found is statistically significant.

## SUBJECTS AND METHODS

### Participants

It wasa hospitalbased cross-sectional comparativestudy conducted on 200mothers consecutively admitted in the department of Pediatrics, Lady Reading Hospital Peshawar, Khyber Pukhtunkhwa, Pakistan from April 2003 to October 2003. Sample was divided intotwo groups A&B.Group Aconsisted of 100Mothersof Malnourished Children (MoM-C) [weight for age below the National Centre for Health Statistics (NCHS) World Health Organization (WHO) third centile] while Group B consisted of 100 Mothers of Well-nourished Children (MoW-C) [weight for age above 10th centile).Mothers who did not consent for the study were excluded.

### Instruments

Each of the 200 mothers with malnourished and well-nourished children received



40

35

* **MoM-S** ■**MoW-S**

38%

33%

34%

30

25

15

10

0

0%

High Average Average Below Average Borderline Mild Mental

■5%

(JQ:110-119) (IQ:90-109) (JQ:80-89)

(JQ:70-79) Retardation

(IQ:<70)

**L**

22%

20

Raven Standard Progressive Matrices (RSPM) test' to find out their intellectual capacity which wascalculated fromtheir raw score on the test.RSPM isa 60 item test used in measuring abstract reasoning and because of its independence of language and reading and writing skills,and the simplicity of their use and interpretation is regarded as anon-verbal estimate of intelligence.

## RESULTS

The meanageof the mothers in both groups was 22.7 ± 4.5.Majority of the mothers were young as shown in Table 1 and had no formal education (table 2).Socioeconomic condition of the subjects was not satisfactory with almost uniform distribution between the two

groups (Table 3). Although majority of mothers in both groups had below average intellectual capacity, a drop was noticed in the intellectual capacity of Mothers of malnourished Children, and 56% of the mothers in this group had IQ score suggestive of Borderline MentalRetardation (34%) or MildMentalRetardation (22%) asshown in figure 1.

A chi-square test of independence was performed to examine the relation between the mothers of well nourishes children (MoW-C) and Mothers of Malnourished Children (MoM-C) for education level, socioeconomic status and intellectual capacity. Both age and educational level of the mothersdid not show significant association with malnutrition in their children, X2 (1) = 0.26, p = .87 and X2 (1) = 5.27, p = .26 respectively (see table 1 and 2). The associations between malnutrition and variables of socioeconomic status and Intellectual capacity of mothers were significant, X2 (1) = 9.17, p =

.027 and X2 (1) = 45.97, p < .001 respectively (see table 3 and 4).

Children of mothers with poor socioeconomic status (table 3) and low intellectual capacity were more likely to be malnourished than children of mothers with satisfactory socioeconomic status and high intellectual capacity (see figute 1).

**Table** I

Age Distribution of Patients

|  |  |  |  |
| --- | --- | --- | --- |
| **Age Distribution** | **MoM-C** | **MoW-C** | **Percentage** |
| 16-25 years | 48 | 47 | 47.50% |
| 26-35 years | 36 | 39 | 37.50% |
| 36-44 years | 16 | 14 | 15.00% |
| **Total** | 100 | **100** | **100%** |

*X'(I)=0.26, P=0.87*

**Table 2**

Educational Qualification of The Subjects(n=200)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Qualification** | **MoM-C** | **MoW-C** | **Total** | **Percentage** |
| Illiterate | 89 | 80 | 169 | 84.50% |
| Primary School | 3 | 6 | 9 | 4.50% |
| 1-iigh School | 7 | 13 | 20 | 10.00% |
| Graduation | I | 0 | I | 0.50% |
| Master Degree | 0 | I | I | 0.50% |
| Total | too | JOO | 200 | IOO¾ |

*X'(/)=527. P=0.26*

Table3

Socioeconomic status of the mothers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Monthly Income** | **MoM-C** | **MoW-C** | **Total** | **Percentage** |
| <5,000 | 26 | 22 | 48 | 24% |
| 5,000-10,000 | 49 | 33 | 82 | 41% |
| I 0,000-2,0000 | 12 | 22 | 34 | 17% |
| >20,000 | 13 | 23 | 36 | 18% |
| Total | 100 | 100 | 200 | 100% |



**Figure** I

Comparison of the intellectual capacity Between the two groups. (n=200)

*X'(/)=45.97, P<0.00/*

## DISCUSSION

Our study results are consistent with other studies on the subject in some respects while differ in other respects.For example,our results indicated that a significant number of mothersin both thegroup had below average intelligence however, more mothers were intellectually defective in the malnourished group as compared with the non- malnourished group.Thisisline with finding from Anoop 5 etal'.

An interesting finding in the current study was that although mental health problems were more prevalent in mothers of malnourished children (31%) compared to the well-nourished children (21%), however this difference was not found statistically significant. Another interesting finding was that a significant proportion (40- 50%) in boththegroups hadbelow average intelligence. Despite the fact that mothers with well-nourished children were having mental health and intellectual capacity problems, they were still able to deliver adequate childcare. This is in line with findings from recent Cochrane data base review' that revealed that some parents with intellectual disabilities are able to provide adequate childcare if they are given appropriate training and support to do so.One explanation could be that majority of the population in Pakistan and particularly in this part of the country, (Khyber Pukhtunkhwa) are living in joint families wherethey receive support and help from oneanother.

It is therefore imperative to integrate strategies of combating children malnutrition and intervention programs of improving



maternal mental health especially in regions with high malnutrition prevalence. Unfortunately, Child nutrition programmes do not adequately address maternal mental health in these regions". Even the World Health Organization's robust Integrated Management of Childhood Illness strategy does not tackle maternal mental health. Appropriate training and rehabilitation services for intellectually disabled mothers as well as addressing their psychological problems could potentially improve all aspects of childcare including their nutritional condition.

### CONCLUSION

Since malnutrition is found associated with malnutrition of the children. It is therefore needed to design parent training interventions for parents with intellectual disabilities which may improve nutrition in their children. Previously it is been studied that parent training interventions for parents with intellectual disabilities can improve parenting skills and such parents must be provided with allpossible training andsupport".

### LIMITATIONS

Intelligence measured through the Raven's Structure Progressive Matrices Test may not be the true gauge intelligence of the sample under study, as the test has not been standardized and validated for population other than children in Pakistan and Khyber Pukhtoonkhwa, but this limitation could be ignored because of presence of comparison group in the study. Although the study recruitedasample of mothers of well-nourishedchildren,it could not be a true representativeof the general population as boththe groups had children admitted in paediatric unit hence undergoing through stress.

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