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DECIPHERING THE BLACK BOX OF CHILDHOOD UNDERNUTRITION: MATERNAL AUTONOMY AS A DETERMINANT OF CHRONIC UNDERNUTRITION IN MEWAT/ NUH DISTRICT OF HARYANA, INDIA

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ABSTRACT India has experienced improvement in child undernutrition in the last decade, but chronic childhood undernutrition has not improved as expected. Lack of Maternal Autonomy in intra household access to food is implicated as a determinant of early childhood onset of undernutrition. A purposive cluster sampling base line data on 100 mother infant pairs were collected from 15 villages in Tauru block, Nuh/Mewat district of Haryana, India. Along with a household survey by modified Kuppusamy method anthropometric and demographic measures, and maternal autonomy questionnaire was administered. Maternal Autonomy was studied by four variables of decision making, freedom of movement, financial autonomy and acceptance of domestic violence. Maternal health and nutrition status, exclusive breast feeding and stunting rate in children and access to health care services were collected from the household survey data. The results indicated that mothers in poorest families find it more difficult to exclusive breast feed and the rates of underweight for age and stunting were much higher than State and National averages. The results suggest that improving maternal, financial, and decision making autonomy can have a positive impact on childhood undernutrition, but maternal autonomy does not affect child undernutrition independent of other factors affecting the household.

KEYWORDS : Chronic undernutrition, Maternal Autonomy, Exclusive breast feeding, stunting, underweight, maternal health

INTRODUCTION:

India is a home to 46.6 million stunted children a third of the world's total as per the Global Nutrition report 2018. Nearly half of all under five child mortality is attributed to undernutrition (1). The improvement in child undernutrition has been slowest for stunting rates between 2006 to 2010 with decline from 48.0% to 38.4% amongst children less than five years of age (international Institute for Population Sciences 2017). The National prevalence of under- five stunting is 37.9% (2018). Despite a significant rise in GDP the fight against Chronic undernutrition has not met the targets of the Millenium Development goals. This has been attributed the multi- dimensional nature of the problem of Chronic undernutrition referred to as Black-box of factors found in South Asian countries like India (2).

Amongst the factors lack of maternal Autonomy and women's decision making powers have been implicated as strongly contributing to slow progress in improvement of stunting. The rates of child under-nutrition are significantly higher than National and State averages in Mewat/Nuh district Haryana, as reported by(3,4,) Aspirational Districts of India by IFPRI POSHAN (2018) with stunting at 52.3% wasting 17%under- weight for age 40.2% and childhood anemia 83.7%.Anemia amongst women 70.1% and low BMI 27.1%. Mewat/ Nuh is at position 464amongst 599 aspirational districts, which indicates undernutrition and Anemia as a grave Public health problem. In comparison to other compromised districts the progress of Mewat is the slowest (5) and ranked as bottom position of 101 with a transformation score of 26.02%. Related to women's status there is low women's literacy level 35.6%as compared to Haryana state 75%, low number of women with more than ten years of schooling 12.7% as compared to the state 50%. Early age of marriage before 18 years 37.6% versus 20% for the state. The total unmet needs for contraception were 31% as compared to the state's 10%.Low Antenatal coverage and treatment of maternal anemia as well as poor access to health care services including immunization, and institution births. The other determinants include lack of early initiation of breast feeding, and lack of exclusive breast feeding, lacking infant and young child care practices and feeding. Poor living conditions exist in socio economic constraints.

Methodology:

The study on maternal autonomy was done after clearance by Internal Institutional Ethical Committee. Verbal Consent to take part in study was taken after assurance of privacy from 100 women from households included in the community home based nutrition counselling ,new born care, antenatal and postnatal follow up program survey (7). Specific socio demographic information was documented by modified Kuppuswamy method (Table 1). The criteria of inclusion of respondents was (age 17 to 25 years) who had at least one child which was less than five years of age.

Nutrition status of mother was collected as Maternal BMI (weight in Kg/height X height in meter square) was recorded using a weighing machine, (bathroom scale) and height by a mounted portable height meter Seca 213 and anemia was diagnosed by Haemoglobin meter. Anemia was treated with oral Iron and Folic acid tablets and nutrition advice and follow up of pregnancy done while providing Antenatal services at the Mobile Health clinic (6). Low Birth weight was taken by mother's perception or if records were available. Identified children in nutrition distress were given nutrition counselling, and support in access to health care services. The health team had four health care workers one ANM and six village health volunteers trained by two doctors.

Maternal autonomy is multi- dimensional, defined as ability to obtain information and use it as the basis of making decisions about ones private matters and those of intimates (8). The control women have over their own lives and the extent to which women have an equal voice with their husband on matters affecting themselves and their families (9 - 13). High maternal autonomy is associated with low childhood stunting, better immunization rates and health care seeking for curative treatment of child and maternal health care utilization (14). The four dimensions of Household decision making pertaining to self-reliance, Freedom of movement pertaining to independent mobility, financial autonomy or control over resources, acceptance of domestic violence or self-esteem were studied by Questionnaire and calculation of composite score.

Wealth quintile was calculated (15) by documentation of fixed asset in the household, employment and education and wages. The type of housing and environment and access to potable water was also documented. The data collected by Quantitative method was followed by Qualitative analysis by two focus group discussions of the same 100 women respondents from the maternal autonomy and wealth quintile study.

Results and findings:

The determinants of chronic undernutrition were studied in the UNICEF analytical framework in three factors immediate, underlying and basic (16). Maternal factors though an underlying cause is very closely linked to immediate causes. The society is Patrilineal in which women do not have a high status, majority were in rural villages and were Meo Muslim (OBC) by caste and religion, the number of nuclear families were more than extended families. The stunting rate calculated by Anthropometry Weight/height Z score by WHO Growth charts was 66% (13% higher than district statistics) of 53% stunting by IFPRI Poshan study for Mewat district. The highest number of stunted children were in the 2to 5 year age group. Infant Mortality rate 91/1000 live births, Neonatal mortality rate 47/1000

Table 1: Household survey variables (n=100)

	Socio-demography Basic variable	Percentage

1	Rural Residence	94
	Caste – OBC	64
	Religion – Meo Muslim	64
	Family type – Nuclear	53
	Poor living Condition*	84
2	Access to Healthcare Immediate variable	
	ANC first trimester	10
	4 + ANC visit	8
	Taken IFA during pregnancy	20
	Full Immunization (Child 3-5 months)	6
	Place of delivery – Home	94
3	Maternal variable Intermediate variable	
	Age at marriage <18 years	84
	Low BMI#	64
	Maternal Anemia	96
	Illiteracy – No Schooling	89
	Employment – Farm help	66
	Wages – Irregular	54
4	Infant Characters Immediate variable	
	Boys	46
	Girls	54
	Low birth weight	24
	Normal birth weight	76
	Feeding practices – Exclusive breast fed	0
	Colostrum discarded	34
	Pre-lacteal feed	86
	Early complementary food	22

*Standard of living score created based on weighted index created by NFHS (Demographic Health Survey Index)
#Low BMI =Weight in Kg/ Height in m^2

Household wealth Quintile was calculated by the following finding of assets

Wealth index calculation		
Ownership of land	Small plot<60 square feet 1	Large 4
Owning vehicles	Bicycle 1/2 motorbike 1	four wheeler 4
TV yes 1	Radio yes= 1/2	
Housing	kutcha 1	Own house 4
Potable water access For drinking at home	R.O/buy bottled water 3	PWD supply 1
Water for cleaning Has to be carried	Handpump/bore pond 1/2 well	Piped water at home 1
Employment	unorganized sector irregular wage 1	organized sector regular wage 3
Skilled worker 2		
Semi skilled 1		

Grading of Wealth (wealth index)
Poorest score< 5; Poor score 5-10; Middle class score 10-12; Rich score >12

Grading of wealth quintile was the following
Poorest Score <6=76% Poorer score 6 to8=14% Middle 8 to 12=10% Rich >12=0%
Most of the households belonged to the Below Poverty line Section but only 24% possessed BPL cards.

Maternal Autonomy
Maternal autonomy was calculated according to the following table

Table 3: woman's autonomy and self- esteem index

Questions	Possible responses	Score
1. Household decision making		
Who has final say on :		
a. Person who decides how respondent money is used	Respondent alone	1
b. Respondent's health care	Respondent and husband	1
c. Making large household purchase	Respondent and other person	1
d. Visits to family or relatives	Husband/partner alone	0
e. What to do with money wife's earnings	Someone else	0
	Other	0
Total score for household decision making (A) = score(a)+score(b)+score(c)+score(d)+score(e) Maximum attainable score for final decision making =5		
2. Attitude toward wife beating		
Wife beating is justified if wife:		
a. Goes out without telling husband	Yes	0
b. Neglects the children	No	1
c. Argues with husband	Don't know	-
d. Refuses to have sex with husband		
e. Burns the food		
Total score for attitude towards wife beating (B)= score(a)+score(b)+score(c)+score(d)+score(e) Maximum attainable score for wife beating =5		
3. Property ownership:		
Woman:		
a. Owns a house alone or jointly	Does not own	0
b. Owns land alone or jointly	Alone only	1
	Jointly only	1
	Both alone and jointly	1
Total score for property ownership (C) = score(a)+score(b) Maximum attainable score for property ownership=2		
Overall score for woman's autonomy= A+B+C Maximum attainable score for woman's autonomy =12		

Maternal autonomy
Results women in this study had very low maternal autonomy score. 65% had a score of 5 and less. 35% women scored between 5 and 7. No woman owned property. The dimensions of decision making, self –esteem, self -reliance and mobility were very low. Qualitative analysis -After analysing the questionnaire a focus group discussion was held to gain better understanding about the low Maternal autonomy domains.

On household decision making the questions asked were to know if the respondent had control over her the money she earned .A few mothers 10% were homeworkers only and did not earn wages so the question went unanswered. The farm help as well as migrant women said their wages went in paying of past debts and to household expenses so very little money was available for health care, visits or large purchases which required fresh borrowing of money. Maternal employment did not provide financial autonomy as it was irregular and small in amount.

On attitude towards wife beating or self- esteem proxy, the women condoned Domestic violence to male unemployment and rise in Alcohol consumption and addiction. Though they received awareness messages and training by the NGO and Self Help groups it did not translate into actuality of standing up to violence. Socio cultural constraints create require role model behaviour to accepting Domestic

violence even if they know it is not justified.

No woman owned property or land or expensive jewellery. On maternal mobility, no woman could go outside the village independently because of lack of Public transport facility and social norms, it is possible to travel only if accompanied by others.

The mothers included in maternal autonomy survey belonged to very poor socio economic background, households were from rural area belonging to OBC Meo- Muslim families with poor living conditions and difficulty in access to water and electricity. Family structure has moved from extended to nuclear family. The family size is 4 to 5 children. There is poor provision of Public facilities electricity, water supply and lack of roads and public transport. Affecting mobility of men and women as they do not any mode of transport. Access to health care services is poor, low child immunization, poor antenatal care access, and low institution births. Maternal nutrition status is low with very high rate of anemia, high number of low BMI status and low IFA coverage, poor treatment of maternal anemia. Illiteracy is high for both male and female but more for female as no schooling is very high. No ownership of property by males or females, male unemployment has risen recently and more women including younger women are working now.Though more women are employed than men the wage differences due to gender, give irregular less pay to women farm help. Child anthropometry shows very high stunting rate a proxy of chronic undernutrition, low exclusive breast feeding and poor infant and young child feeding and care practices early introduction of complimentary food which is lacking in both quality and quantity. The maternal autonomy score is also very low and cannot be analyzed as independent from standard of living and quality of life .Most of the findings are higher than district averages of POSHAN IFPRI study.

DISCUSSION:

Mewat/ Nuh district in Haryana occupies the lowest position 21 in Haryana state according to the DLHS4 survey of the district (17). According to the Poshan study by IFPRI it is amongst the 239 districts which have greater than 40% of stunting in under five year children. The aspirational districts have high inequity for women with low BMI , high rate of maternal anemia, low access to Antenatal care and families, below poverty line are more than state average.(18) These are the immediate determinant factors of stunting including low birth weight, and high infant and neonatal mortality and low exclusive breast feeding. The dimension of low maternal health or women's BMI explains one fifth of difference of stunting in high and low districts of stunting prevalence. Early marriage, access to Antenatal care, women's wellbeing explains half of the difference in regions. Gender discrimination, and social cultural context (Meo muslim OBC) contribute to stunting. The multi- dimensional nature of maternal autonomy and stunting are closely entwined in Mewat and amongst aspirational districts the progress is slowest to improve.

The region also has poor services of water, education, governance and health (19, 20) as well as poor Public transport facility, needed for freedom of mobility to access curative heath care. Weak provision of preventive health services affect utilization of immunization, institution births, and antenatal care (DLHS4) and affects maternal autonomy and vice versa health system (21). Religion Hindu or Muslim does not affect stunting but rural region is a significant factor. The low standard of living, unequal wages due to gender inequality, high illiteracy, unemployment (male as well as female,) in rural areas contributes negatively. While improved male employment and wages positively affect maternal autonomy. Due male unemployment more maternal time is spent on work for wages compromising on breast feeding and time spent on infant and child care (22, 23). If mothers are in the younger age group as in this study financial autonomy does not have impact on child nutrition status (24). Maternal income contributes positively to child nutrition if the percentage of contribution to household income is high, unlike the results of this study where maternal wages are low. Women Empowerment and Economic Development (25) are like two levers which go hand in hand, control over intra household finances and food contributes more to empowerment than development can.

In conclusion, if individual mothers had autonomy or access to robust Health care services (26) movement or mobility by affordable Public transport, or money separately the risk of children being in nutrition distress would be lower. If other explanatory community level factors affected these relationships in very poor families, then individual maternal autonomy in any of the domains is not associated with the outcome of stunting. In very poor household, it is better to improve accessibility only then maternal autonomy is available to allocate more resources to children (27). Maternal Autonomy may not be a major mediation of the link between child stunting but broader action is needed for improving household livelihood, intra-household finances and improving the access to resources within the family and at community level.

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Conflict Of Interest:

I declare there was no conflict of interest while conducting this study.

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