Gender Equity in Nutritional Status:
A Study among Muslim and Hindu Children (0-6 Years)
of North 24 Parganas District of India

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ABSTRACT Gender study is a major area of interest in anthropology. The present research seeks equity in nutritional status among preschool Muslim and Hindu children. Research has been conducted among 2000 Muslim and 500 Hindu preschool children of North 24 Parganas of West Bengal. Anthropometric measurements were collected from the children below 6 years of age and were classified in respect of age and sex by means of WHO standardised reference values and were statistically analysed to observe level of significance in respect of gender (p<0.05). Near about forty percent children were found possessing low height and weight in respect of age as according to WHO cut-off values. Gender discrimination was not found in any statistical analysis between Muslim children but in case of Hindu children height-for-age showed significant high (p=0.002) rate of stunted boys than girls. Gender equity in health status, thus, almost exists among the children under study.

INTRODUCTION

Gender has always been a topic of anthropological investigation. Primary question in early studies were focused on how and why women were subordinated in patriarchal social systems (Delaney 2014). It should be ensured that gender discrimination and the resulting bias do not masquerade as 'natural' biological difference (Sen and Östlin 2008). The term gender bias carries different misconception to applied researchers. But life expectation of male and female are not the same. The growth pattern of different age groups are not same for male and female. Direct comparison of height, weight etc. between them at different age groups are not meaningful (Paul et al. 2011). Gender equality is basically similarity between men and women which entails the concept that, both men and women can freely develop their personal abilities without any limitations caused by gender roles and prejudices. There are continuing traditions of stereotypes and conceptions of what it means to be a woman or a man which are embedded in

systems and practices. The biology and society interact to shape human behaviour – this may not seem controversial, but researchers disagree over exactly how this interaction should be understood. Is sex the biological and genetic substrate from which gender distinction emerge, or do gender distinction lead us to perceive two, easily distinguishable sexes? Is sexual dimorphism itself a social construction (Wharton 2013). Equity can be defined as "fair opportunity for everyone to attain their full health potential regardless of demographic, social, economic or geographic strata." The developing realization of the rights to health involves a concuss effort to improve health across all populations and reduce inequities in the enjoyment of health. Inequities are inequalities that are judged to be unfair and also both unacceptable and avoidable (Human Rights 2014). Gender discrimination is universal and knows no boundaries. However, as because gender is a social construct, discrimination against women and girls varies from country to country and within different religions and cultures (Espey and Dolata 2011). Discriminatory practices have resulted in the systemic devaluation of attitudes, activities and abilities ascribed to women. For men, this discrimination has contributed to devaluation of feminised characteristics in males and reinforced the prevalent male stereotype. The equity approach attempts to recognise these differences and address the underlying reasons for these

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differences. This approach also acknowledges that addressing the impacts of gender on health will often require different strategies for women and for men and that these will be influenced by a range of social and cultural factors (Gow and Murty 2000). The life advantage for girls and women that characterises the health statistics of industrialised countries is blurred in South Asia. Gender discrimination at each stage of the women lifecycle contributes to health disparity, sex selective abortions and neglect of girl children, reproductive mortality, and poor access to health care for girls and women. Attempts to address gender disparities must take into account these underlying issues (Fikree 2004). A man beating his wife because he thinks, she has been looking at another man while they were out in the public. A girl being regularly kept off school for babysit her younger siblings are all very popular examples in Asian context (Scourfield 2010). According to the World Health Organization, one woman dies in childbirth every minute of every day (WHO 2014). Child and infant mortality rates may exhibit sign of inequality in nutrition, medical care and so on. The study by Evans et al. (2010) showed high disability rate among girls below 4 years in health. As the children are the future of a community, it is recommended to have a commitment of the society towards their children, mostly to their health. In recent times consciousness and commitment have increased in the caring facilities of children. Healthy children are more likely to become healthy adults (Ettinger 2004). Studies revelled that gender inequity is common across different parts of the world which is often vulnerable for maternal and child health (MacPherson et al. 2014; Singh et al. 2015; Scott et al. 2017). The seed of adult gender inequality are sewn in early childhood. In the early years' gender equality issues, in particular, gender socialization, feeding practices, and access to schooling are determinants of early childhood development. Gender equity from early childhood onwards influences human agency and empowerment in adulthood (Siddiqi et al. 2007). Gender equity is increasingly identified as one of the goals of health policy at both national and international levels (Doyal 2000). Discrimination against girls in medical treatment is particularly pronounced in the contiguous states of Rajasthan, Madhya Pradesh, Bihar, Orissa, and West Bengal. The effect of son preferences is weaker among Muslims than among Hindus when we consider the parity progression of women with two surviving children. In fact, for Muslims the ratio of parity progression among women with two sons to women with no sons is not statistically significant in most states. Only in Jammu and Rajasthan do Muslims exhibit a significant son preference. In every state except Kerala, son preference has some effect on fertility for Hindus, and the effect is statistically significant in 14 states (Mutharayappa et al. 1997). A study by Desai and Temsah (2014) on the comparisons of Hindu and Muslim women on various markers of gender performance showed striking differences between Hindu and Muslim women in external markers of gender performance, but this relationship is absent for indicators of gender performance that are not easily visible to outsiders. In a study among the rural women of West Bengal, Goswami (2013) reported the effect of unhealthy and polluted environment, lack of immunization, malnutrition and absence of educational exposure on the women and children in country sides. Sadly, their physical, emotional and intellectual growth is stunted from a very early age. The situation with respect to women's health in the rural areas is no different; rather their health is neglected the most. Discrimination is also seen in social customs and habits. Most of the mothers are conscious about their daughter's socialization than boys. The girl child's expertness at household activities is indicated for themselves as good qualities regarding the decision of their matrimonial relations keeping them backward from proper education and other facilities obtained by the boys.

Objectives

Here in present research among the preschool (below 6 years) children of the seond highest populated district of India, the major objectives are to find out -

1. Their nutritional statuses such as 'height-for-age', 'weight-for-age', 'weight-for-height' and 'arm circumference-for-age'.
2. To understand if the children of both sexes possess proper nutritional status in respect of WHO standardised reference population values.
3. To understand gender equity in health status and among reference children of the region.

4. To compare if there are significant differences between Hindu and Muslim children in respect of gender equity.

METHODOLOGY

The present research was conducted in North 24 Parganas District of the state West Bengal, which has been marked as second highest populated district of India as per 2011 census. Five blocks were selected from the district where Muslim population is above fifty percent of the total through random sampling method. Five villages were selected randomly from each block for the study. A total 2000 Muslim child that is 1000 of each sex below 6 years of age was selected along with 500 Hindu children (250 of each sex) from the same area by means of purposive sampling method.

Inclusion Criteria

Families having at least one child of each sex below 6 years of age were selected for collection of data by random sampling method as per availability.

Cross sectional anthropometric measurements like height, weight and arm circumference were collected from the children along with age, sex and community information.

Nutritional status was evaluated by 'height for age', 'weight for age', 'weight for height' and 'arm circumference for age' status as per NCHS/WHO standardized reference value in respect of sex (Onis 2006; WHO 2007). After completion of data collection, quantitative data was primarily tabulated in Microsoft Office 2007, on the basis of WHO classified z-score distribution tables and percentile values. Later the data has been processed with the help of IBM SPSS Statistics, Version 22 software for statistical analysis and clarifications. Probability value less than 0.05 was considered as significant in case of chi-square test to find out the association of statuses between boys and girls.

RESULTS

Primarily, overall distribution of the children was studied in respect of age and sex. It was observed from Table 1, that near about 12.88 percent children belong to the age group below one year, whereas, in the age group between five to six years the percentage is 20.72 percent. Results also show a continuous increase in the number of children from low age group to high age groups.

Next part deals with the nutritional statuses of the children. First one deals with height-for-age analysis.

Statistics from Table 2 show that among Hindu children, 61.6 percent boys' possess normal height for age and 38.4 percent are stunted, where as in Hindu girls 74.4 percent possess normal height for age and 25.6 percent are stunted. Among Muslim children, 59.7 percent boys possess normal height for age and 40.3 percent are stunted where in girls 60.6 percent possess normal height and 39.4 percent are stunted. Chi-square statistic among the Muslim children is 0.169, and the p-value is 0.681 which denotes that among the Muslim children height-for-age standards are not significantly different in respect of gender. When dealing with Hindu children the Chi-square statistic is 9.412. The p-val-

Table 1: Age- sex distribution of the children under study

Age group (year)	Below 1 Number (%)	1+ To 2 Number (%)	2+ To 3 Number (%)	3+ To 4 Number (%)	4+ To 5 Number (%)	5+ To 6 Number (%)	Total
Muslim boys	133 (13.3%)	148 (14.8%)	159 (15.9%)	175 (17.5%)	179 (17.9%)	206 (20.6%)	1000
Muslim girls	127 (12.7%)	166 (16.6%)	167 (16.7%)	159 (15.9%)	179 (17.9%)	202 (20.2%)	1000
Hindu boys	25 (10%)	46 (18.4%)	42 (16.8%)	35 (14%)	42 (16.8%)	60 (24%)	250
Hindu girls	37 (14.8%)	37 (14.8%)	41 (16.4%)	42 (16.8%)	43 (17.2%)	50 (20%)	250
Total	322 (12.88%)	397 (15.88%)	409 (16.36%)	411 (16.44%)	443 (17.72%)	518 (20.72%)	2500

Table 2: Distribution of nutritional status in respect of sex and community

Nutritional indicator	Community	Nutritional status	Sex		Total Number (%)	χ^2
			Boys Number (%)	Girls Number (%)		
Height-for-age	Muslim children	Normal	597 (59.7%)	606 (60.6%)	1203 (60.2%)	0.169
		Stunted	403 (40.3%)	394 (39.4%)	797 (39.9%)	
	Hindu children	Normal	154 (61.6%)	186 (74.4%)	340 (68%)	9.412*
		Stunted	96 (38.4%)	64 (25.6%)	160 (32%)	
Weight-for-age	Muslim children	Normal	598 (59.8%)	595 (59.5%)	1193 (59.7%)	0.019
		Overweight	6 (0.6%)	6 (0.6%)	12 (0.6%)	
		Underweight	396 (39.6%)	399 (39.9%)	795 (39.8%)	
	Hindu children	Normal	163 (65.2%)	176 (70.4%)	339 (67.8%)	1.548
		Overweight	0	0	0	
		Underweight	87 (34.8%)	74 (29.6%)	161 (32.2%)	
Weight-for-height	Muslim children	Normal	766 (76.6%)	790 (79%)	1556 (77.8%)	3.122
		Obese	19 (1.9%)	11 (1.1%)	30 (1.5%)	
		Wasted	215 (21.5%)	199 (19.9%)	414 (20.7%)	
	Hindu children	Normal	196 (78.4%)	186 (74.4%)	382 (76.4%)	1.124
		Obese	1 (0.4%)	1 (0.4%)	2 (0.4%)	
		Wasted	53 (21.2%)	63 (25.2%)	116 (23.2%)	
Arm-circumference-for-age	Muslim children	Normal	596 (75.6%)	612 (74.6%)	1208 (75.1%)	0.215
		Wasted	192 (24.4%)	208 (25.4%)	400 (24.9%)	
	Hindu children	Normal	132 (69.5%)	155 (77.1%)	287 (73.4%)	2.921
		Wasted	58 (30.5%)	46 (22.9%)	104 (26.6%)	

*$p < 0.05$; Significant

ue is 0.002. The result is significant at $p<0.05$, that is, some sort of gender disparity exists among Hindu children regarding height-for-age as per WHO standard and also that boys have a significantly higher rate of stunted than girls.

Weight-for-age statuses were classified into three groups, that is, Normal, Underweight, and Overweight as per WHO guidelines. It was observed that among Hindu children 65.2 percent boys possess normal weight for age and 34.8 percent underweight, whereas among Hindu girls 70.4 percent possess normal weight for age and 29.6 percent underweight. No case of overweight found among Hindu children. The chi-square value is 1.548 between them in respect of sex which is not significant. Among the Muslim children 59.8 percent boys and 59.5 percent girls possess normal weight for age where 39.6 percent boys and 39.9 percent girls are underweight. Only 0.6 percent children of both sexes found as overweight among Muslim children. The chi-square statistics shows p-value 0.991 between boys and girls of Muslim community which is also not significant.

Next part deals with weigh-for-age status. Among the Muslim children 76.6 percent boys and seventy-nine percent girls possess normal weight for height status and 21.5 percent boys and 19.9 percent girls found wasted. Only 1.9 percent boys and 1.1 percent girls found obese. It was seen that in this case more boys are wasted than girls but the statistics showed p value 0.210 which is not significant. Among the Hindu children 78.4 percent boys and 74.4 percent girls found possessing normal weight for height status and 21.2 percent boys and 25.2 percent girls are wasted. The chi-square value found 1.124 which is not significant at 0.05 levels.

When the arm circumference were analysed in respect of age and sex among Hindu it was found that 69.5 percent boys and 77.1 percent girls possess normal arm circumference for age and 30.5 percent boys and 22.9 percent girls are wasted. This difference is though very high but statistically it was not significant as the chi square value found 2.921 and the p value is 0.087 greater than 0.05. Among the Muslim children 75.6 percent boys and 74.6 percent girls possess normal arm circumference for age and 24.4 percent boys and 25.4 percent girls found wasted. The chi square statistics showed p value 0.643 between boys and girls of Muslim community which is not significant.

DISCUSSION

In many parts of Asia and South East Asia and particularly so within the rural areas in the

north of India, there is little provision of social/ income security, or pension arrangements. As a result, it is thought children are partly defined and demanded as a means of transferring wealth into the future, in order to support their parents in retirement (Atella and Rosati 2000). Because female children in the northern kinship systems of India cannot fulfil this role at the level of the family, due to societal laws governing property rights and inheritance, their future economic worth is constrained. It has been proposed widely also that the demand for unskilled labour services, particularly in rural cultivated areas motivates the demand for male children since they are seen as a more valuable factor input from a fairly early age. Bhargava (2003) evidenced that sex discrimination is focused on higher order births of girls, who are born in an effort to obtain the desired number of sons. Sex deferential in mortality by birth order are shown to be far higher than by socio-economic status. Target family size considerations are seen to be driving higher order births; if female, the child is thus considered excessive. A study in Jharkhand showed huge health risk among children below 5 years of age (69% underweight), though almost equal for both boys and girls (Chatterjee et al. 2016). A study was conveyed by Biswas and Mallick (2008) to understand gender equity in nutrition and sex differences in growth among Rajbangsi's of North Bengal. The result of the study showed that most of the children are below - 2SD irrespective of sex regarding height-for-age (boys 53.57%, girls 68.75% stunting), weight-for-age (boys 65.17%, girls 58.93% underweight) and weight-for-height (boys 29.46%, girls 21.43% wasting) as per NCHS/WHO normalized reference value. Present study seeks to answer these imbalances if still exists or not in the era of science and development.

The present study not only deals on nutritional status but also focuses on bio-cultural aspect of gender equity. Thus discussion portion is also classified within the same approach. In the basic the total sample distribution with age group showed a continuous increase in concentration. It may be a major progress of the present area of study in the way to birth control as because below one-year age group has minimal number of children and above five years' age group have second highest numbr of children.

Nutritional status in respect of height, weight, arm-circumference with reference to age and sex showed a large variation in the dataset. Dealing with height-for-age status showed statistically high rate of stunted Hindu boys than girls, that is, gender inequity observed in this specific issue. Furthermore, as stunted is an impact of long term malnutrition, it is a critical outcome of the present research. In case of other parameters, the nutritional statuses like weight-for-age, weight-for-height and arm-circumference-for-age showed a large number of children fall in the wasted and underweight categories in respect of WHO standardised reference population. Boys and girls in both Hindu and Muslim communities showed differences in nutritional statuses such as 76.6 percent Muslim boys found normal in respect of weight-for-height status whereas among Muslim girls it is seventy-nine percent. But in each observation statistical calculation showed no significant difference at 0.05 level. Thus it is very clear from the present study that except significantly low height-for-age among Hindu boys than girls, no other cases were found that can prove gender inequity in health among the present children under study.

CONCLUSION

In the final phase it was observed from the collected health related parameter and their cut-off values provided by WHO that the health condition of the children is not satisfying. The child population had a great level of low height for age, low weight for age, and low arm circumference for age. Though these percentages are not significantly different between male and female child, but some important issues were observed from the data. In each case it was found that male child are more susceptible to stunted, or malnourished in respect of female child. It was observed that wasted rate is higher among the male than in female children. Now wasting is usually the result of acute significant food shortage and/or disease. So it can be an issue to observe intensely whether some sort of parental ignorance is working on male children or they are much exposed to outdoor work for family purposes in this age which is affecting their health.

RECOMMENDATIONS

The study is strictly observational and retrospective with a huge sample size of 2500 pre-

school children and their families. The different issues appeared in time of intensive field work by means of observation, interview, and anthropometric measurements depicts lack of knowledge, information, and suggestive measures of the population under study regarding child health. It was found and discussed previously that male children are more susceptible to health risk and possessing bad health status than female. Though this rate is not significantly high in all cases but it is necessary for the parents to take care about the nutrition of their children to overcome these deficiencies. Above all it is highly recommended that the parents should provide proper care and nutrition as much as possible to their preschool children as the study shows that the preschool children of this area have a high rate of malnourishment.

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