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Impact of gender bias on health and nutrition of adolescent girls in Purnia district of Bihar

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ABSTRACT

Gender bias can be a cause as well as an effect of hunger and malnutrition. Not surprisingly, higher levels of gender bias are associated with higher levels of under nutrition, both acute and chronic under nutrition (FAO, 2011). Gender and nutrition are not stand-alone issues; agriculture, nutrition, health and gender are inter linked and can be mutually reinforcing (UNDP, 2011). Women were most vulnerable during menses, pregnancy and the post-partum period. As per NFHS-5 (2020-2021) 69 % women were anaemic. The aim of study is to assess the impact of gender bias on health and nutritional status of the adolescent girls in Purnia district of Bihar. Cross-sectional study was carried out over a period of one year on 600 girls of age 13-17 years were examined during that period. Data was collected by interviewing the girls using predesigned, pre tested, semi-structured schedule. Anthropometric measurements were recorded using standardized methodology as recommended by World Health Organization (WHO). Body Mass Index (BMI) was calculated using the formula Weight in kg/height in m^2. The subjects were categorized into various grade based on BMI according to WHO International Standard. The mean Mid Upper Arm Circumference (MUAC) was 20.09 ±1.34 ($p<.0001$), Body Mass Index (BMI) 18.35±1.38 ($p<0.0001$) and their mean hemoglobin level was very low. There is a high prevalence of under nutrition and clinical anaemia among adolescent girls .Pre-maternal nutrition is critically important for two main reasons: a substantial proportion of pregnancies are unplanned and many birth defects, abnormalities occur during the first weeks of gestation. Usually little bit attention given on nutrition activities addressing women are only initiated during pregnancy. Improvement in the nutrition status of girls and adolescents will help to ensure that women's status throughout the life cycle and decrease in level of anaemia and malnutrition.

KEYWORDS

Gender Bias, Health, Nutrition, Adolescent Girls

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Adolescence is a most vulnerable period; it is transition period between childhood and adulthood. In this period, physical and neuro-maturational changes take place in the body of a young girl. According to WHO the age of adolescence is 10-19 years. India is at serious level with GHI score 29.1 in (Global Hunger Index, 2022) and ranks 107th out of the 121 countries. India ranks 125 out of 159 countries on the gender inequality index (Jāhāna, 2016).

There was evidenced with disparities in education, employment, nutrition, health and at many parameters in India and abroad. Gender-based discrimination and violence affects about half of women and girls around the world (UNICEF, 2014). In India, there has been a steady decline of sex ratio from 972 in 1901 to 943 females per 1000 males in 2011 as per population census of 2011. However, as per sample registration survey (SRS) sex ratio in rural India declined from 902 (2014-15) to 898 (2015-17).

Least sex ratio in Haryana i.e. 828 from 1961 to 1991. In India boys gets more preferred than girls due to various factors such as economic, social and religious reasons, including financial support, old age security, property inheritance, dowry, prestige and power, birth and death rituals and beliefs about religious duties and salvation (Arnold *et al*., 2002). Consequently, women and girls are accorded lower status in the Indian society. Gender inequalities affecting the work, education, food pattern, health care facilities and even fertility choices (Arokiasamy, 2003). Mother's lap is first school for children but due to early marriages of under nourished girls, it is impossible for her to give birth of healthy fetus. Because, if mother will be under nourished, illiterate and lack of awareness towards basic need of health care and Nutrition. It is impossible for her to fight for herself and for her fetus. Still sex determination and abortions are prevalent in communities. The path of nutritional and economic security of country is looking deemed due to dominance of gender bias. Many studies have indicated that women carry a high burden of chronic ailments in the absence of care or total neglect of illnesses. This situation is mainly due to women's health needs getting the least priority in the family.
Keeping above point in view, present study conducted in Purnia district of Bihar with the aim:

- To know the impact of gender gap on life style of adolescent girls
- To analyze the impact of gender bias on nutrition and health status of adolescent girls

Methodology

Study Design, Study Population and Sample Size

A population-based cross-sectional study was conducted in two blocks (Jalalgarh and Kasba) of Purnia district, Bihar, over a period of one year on 600 girls (300 from each block) of age 15-17 years. Samples were selected by purposive sampling. Data was collected by interviewing the girls using predesigned, pre tested, semi-structured interview schedule and nutritional assessment by standardized method by WHO.

Study Instruments

Pre-designed, pre-tested, semi-structured Interview schedule, weighing machine, measuring tape, stadiometer etc.

Body Mass Index (BMI)

BMI was calculated using the formula (BMI =Weight in kg/height in m^2). The girls were categorized into various grade based on BMI according to WHO International Standard (WHO Report, 1995, 2000 and 2004, Cole *et al.*, 2000). Underweight (BMI < 18.5 kg/m^2), normal (BMI 18.5-22.99 kg/m^2), overweight (BMI 23-24.99 kg/m^2) and obese (BMI >25 kg/m^2) (WHO Report, 1998).

Assessment of Nutrition Status

Anthropometric assessment: BMI was calculated using the formula: weight (kg) / Height (m^2)), Mid Upper Arm Circumference (MUAC) by using standard measuring tape by WHO. Food frequency questionnaire, 24-hour diet recall and biochemical assessment: haemoglobin testing by using standardized methodology as recommended by World Health Organization.

Analysis of Data

Data were analyzed using computer software Microsoft Excel for windows and all results were evaluated statistically by applying the SPSSPC package (version 9.0, SPSS, Chicago, Illinois, USA.). Data were presented as percentages for qualitative variable. Qualitative variable mean and Standard deviation were calculated.

Result and Discussion

While going through survey it was found that in both blocks Jalalgarh and Kasba it was found that there was majority of girls were from Muslim religion 55.3 percent and 70.2 per cent respectively in both blocks while Hindu were 46.6 and 29.8 percent respectively (figure 1). It is self-explaining the caste details of both the blocks. Majority of girls were from OBC caste, Jalalgarh block had more SC and Maha Dalit adolescent girls and Kasba have only few percent of ST adolescent girls. In both blocks education level of girls are poor especially in Muslim communities (figure 2) explaining the educational status of adolescent girls affected due to household work, majority of girls were dropout due to far distance of high school and not have permission from parents.

Nutrition is not an independent parameter it is linked with heath, gender, education, poverty etc. Average nutritional statuses of adolescent girls in both blocks were poor in respect to BMI, MUAC, Hb Level and dietary diversity score. Girls were not getting proper nutrients as per recommended dietary allowances and they are becoming anaemic. Majority of girls were under weight, the average BMI was less than 18.5, which was really a serious condition for her health. MUAC was less than the normal MUAC level that is 21-23 cm. Nearly 30 per cent girls were severe anaemic but average of both blocks were showing moderate anaemia.

Out of ten food groups, the average dietary diversity score of both girls were only 3.5, which was very low. Food taboos, preferences and consumption patterns have an impact on the nutritional status and frequently have a gender dimension in Purnia. In poor families of both blocks, there was a trend mother give food to her husband and son first and remaining leftover food for her and daughter. The meal was both scares in quantity and quality. Various can see this condition studies such as (Arif, 2012) he also explained in his study and concluded insufficient and poor-quality food is left for females.

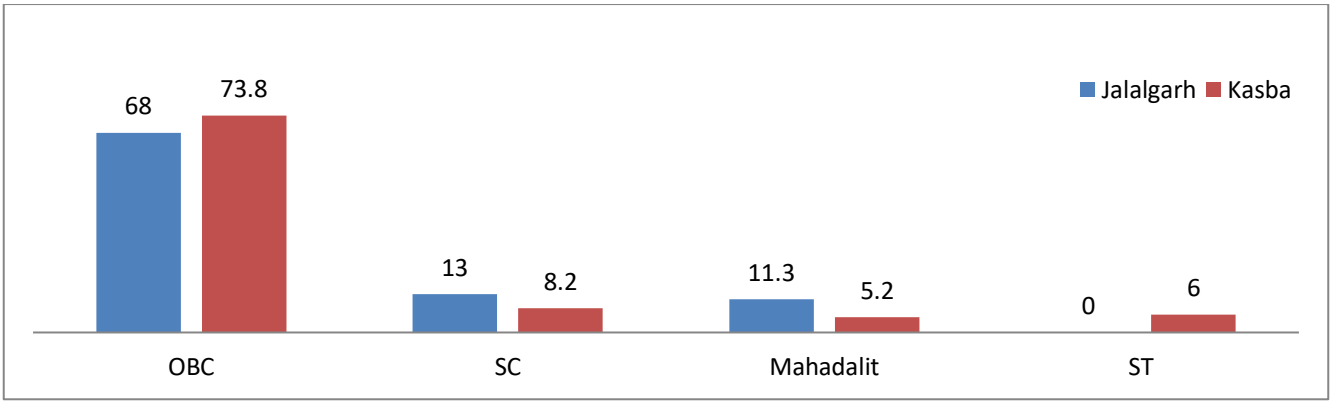

Fig 1. Caste wise details of Adolescent girls

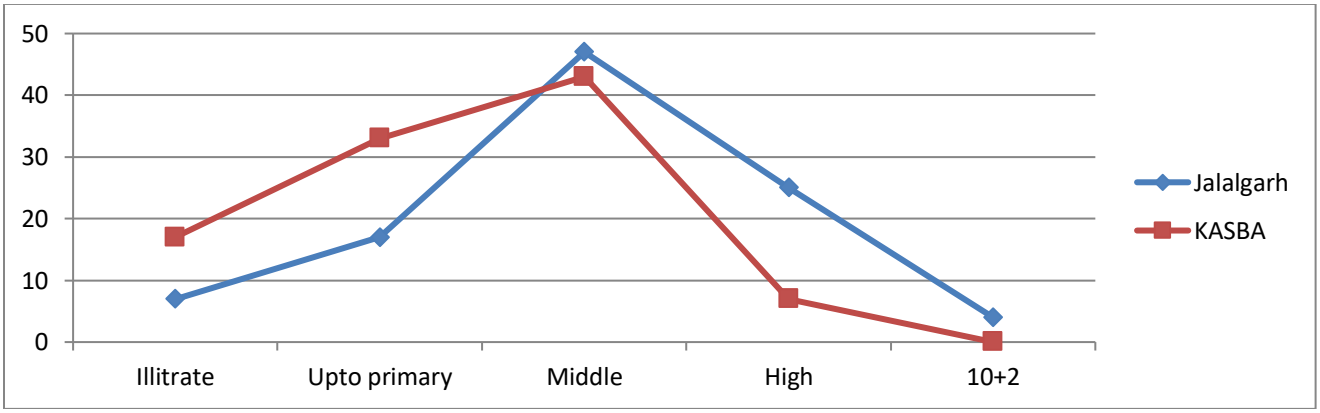

Fig 2. Impact of Gender Gap on Educational status of Adolescent girls

In study of (Jayachandran and Kuziemko, 2011) it was also explained that in poor houses, sons are more preferred than daughters and it is believed that sons would be their source of income in their old age, but the daughter would be a burden, she will go another house after marriage. Therefore, this conservative concept of parents and grandparents of households creates discrimination in the allocation of food, clothing and education in various facilities of their own son and daughter.

A diet that provides sufficient calories and micronutrients is also essential for girls because they are future mother. If expecting mother will not get optimum, nutritional and health care during pregnancy there are more chances of underweight birth of foetus. If mother is anaemic or suffering from malnutrition, various complications may occur such as stillbirth, preterm birth, mother's mortality. Infant mortality, birth of malnourished infant and many more. Social dietary taboos are also obstacle in malnourishment of girls.

A poor nutritional and health care girl has adverse effects on the health of both mother and child and ultimately affecting the future development of country.

Table 1. Nutrition Status of Adolescent girls (N=600) of both blocks

S. N.	Indicator	Nutrition Status
1	Body Mass Index	18.35±1.38
2	Middle Upper Arm Circumference	20.09±1.34
3	Hemoglobin level	10± 1.36
4	Diet diversity	3.5±1.42

Conclusion

Girl's optimum nutrition still needs gender justice. In India, there has been significant improvement in the health, education and employment status of women but health indices for girls are still bias and indicate a strong positive relation with the gender gap. Gender bias in nutrition and health care in childhood, early marriage and conception, lack of voluntary check on family size and poor state of pre-natal and maternal health care services only intensifies gender bias problems. Gender bias not only in the obstacle in the path of development of state but country. Optimum nutritional diet is the right of every country person but still girls in Purnia are malnourished in broad spectrum of development and gender equality.

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