Dietary Diversity Among Indian Adolescents: Evidence From UDAYA Study

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Abstract

Background: Adolescence is a period transition from childhood to adulthood , in which they undergo various rapid changes from physical appearances to changes in the food habits. During this period, childbearing age starts, particularly for women, which is one of the most precarious time wherein optimum nutritional status need to be achieved. So, Eating healthy during adolescence is important as rapid physical growth increases the need of several nutrients.

Methods: In our study, we have used the UDAYA longitudinal study design which provides a unique opportunity to determine the role of dietary pattern at one time point to the changes at the time 2. For analysis, cross-tabulation and chi-square test is used to test independence of various groups. Binary logistic regression is used to identify determinants of minimum dietary diversity (Yes=1, No=0) of the adolescents. Adjusted odds ratio are computed for Uttar Pradesh and Bihar separately, as well as for combined sample.

Results: In the present study, the average adherence to the dietary pattern in our adolescents was 58%, while in Bihar it was 61% , and in UP it was 56%. Using the logistic regression analysis, we found that there was significant difference in the MDD of adolescents by their socio-economic characteristics. But no differentials were found among young and old adolescents in UP and Bihar. Also, food consumption score index (A.O.R.=2.6, 95% CI (2.1-3.1), and media exposure of adolescents at wave1 (A.O.R.=2.1, 95% CI (1.7-2.7) were found significant in depicting the MDD at wave2.

Conclusions: India launched ICDS scheme in 1975s to strengthen the nutritional status of young children in the country, but the recent data of NFHS-5 (2019-20), shows that the nutritional status of the country improved only marginally, or rather decreased in some parts. Strengthening and proper evaluation of ICDS programme can help to improve the pro-nutrition among the adolescents. Also, there should be a specific state policy to address the needs of adolescents, and various educational programmes should be conducted in schools where students along with their parents should be educated about the need of healthy dietary habits.

Introduction

According to WHO, 1.2 billion adolescence live in the world which constitute 16% of the total population in the world[1], with over 253 million in India [2]. Adolescence is a period transition from childhood to adulthood , in which they undergo various rapid changes from physical appearances to changes in the food habits [3, 4] . During this period, especially in the low and middle income countries childbearing age starts, particularly for women, which is one of the most precarious time wherein optimum nutritional status need to be achieved. So, Eating healthy during adolescence is important as rapid physical growth increases the need of several nutrients. Adequate diversified diet is important for optimal health and development of physical and cognitive health. Adolescence malnutrition (overweight/underweight) is

associated with early onset of Non-Communicable Diseases and other morbidities that add on to Years Lived with Disability (YLD) [5].

In India, undernutrition and micronutrients deficiency is widespread. According to the latest round of National Family Health survey (NFHS), the level stunting among under five children was 38.4% which has decreased by ten percent points since 2005-06 [6, 7], but there exists a large gender differential in stunting among children of under 5 years age group. Different literatures related to nutrition has studied extensively the under-nutrition status of children, but a few studies have studied the micro-nutrient deficiency especially in Indian context. Micronutrient deficiency during early childhood can often transverse into adolescence with long-term effect on health, cognition, education and productivity [8]. Some research shows that there is no difference in the intra-household allocation of food in the case of pre-school and primary school-age children [9–12], but after a certain age the difference persists. A study by Borooah (2004) demonstrates a pro-boy bias in dietary diversity only in the case of children aged up to 24 months born to illiterate mothers[13].

The stage of adolescence is considered as second window of opportunity to improve the nutritional status and to ensure expansion of health life expectancy. Ample evidence on dietary diversity shows a significant associations with nutritional indicators[14]. Dietary diversity is also strongly associated with components like as food insecurity, socio-economic and educational status, knowledge of nutrition, taste preference and cultural acceptability [15]. Undernutrition nutrition is most prevalent among women belonging to lower quintile and over-nutrition among highest quintile related to their standard of living. The inequalities in the calorie intake among the non-poor are mainly due to choice than inadequacy of food[16]. Gender based inequalities in diet and nutritional indicators is prevalent among reproductive age group (15-49 years). For instance, female across India less frequently consumes nutrient-rich food compare to males[17]. Across India, gender difference exist in childcare giving that include physical care and supervision. Gender discrimination is more predominant in families practicing son preference [18]. Gender-based disparity in intra-household diet consumption exist at all life stages but the gap widens markedly at 15 years old. The mid- adolescent girls tends to consume few protein and vitamin rich foods[17]. The younger adolescent girls (10-14 years) have a twofold higher risk of being undernourished than older adolescent girls (15-19 years) as the young adolescents are more active and outflow more energy in compare to older adolescent thus the requirement of energy increases[19]. Therefore, increasing the variety of food in diet helps in providing adequate intake of essential nutrients. Government has launched various policies and intervention program to create awareness about importance of on dietary diversity but failed to sojourn the anthropometric failures especially among adolescent girls. Gender-based dietary disparity is a Therefore, it essential to study the dietary pattern at the time of adolescence can contribute to the healthy lifestyle for the entire lifespan, as diet and nutrition are main essential factors in the maintenance and promotion of good health throughout the entire span of life.

In our study, we have used the UDAYA longitudinal study design which provides a unique opportunity to determine the role of dietary pattern at one time point to the changes at the time 2. The use of the panel data set can help in determining the changing intentions and attitudes in terms of dietary pattern. So in

this study we tried to examine the role of food consumption at younger ages to the dietary diversity at the older ages among adolescents in UP and Bihar.

Data Source

Data is taken from the UDAYA study conducted by Population Council, New Delhi and funded by the Bill and Melinda Gates Foundation and the David and Lucile Packard Foundation. UDAYA is a longitudinal study done in Uttar Pradesh and Bihar following a cohort of adolescents aged 10-19 years. These two states are large, highly populated, predominantly rural, high poverty states in northern India and account for 28% of the adolescent population in the country [20].

For sampling at the point of wave 1, the study used both cross-sectional and longitudinal designs and a multi-stage systematic sampling design was employed. UDAYA was designed to provide estimates at two time points for the state as a whole as well as for the urban and rural areas of the state for each of the five categories of respondents, namely younger boys in ages 10–14, older boys in ages 15–19, younger girls in ages 10–14, unmarried older girls in ages 15–19, and married older girls in ages 15–19. A total of 150 primary sampling units (PSUs), 75 for rural respondents and 75 for urban respondents were sampled in each state using Probability proportional to size (PPS) technique. PSUs list was stratified using four variables, namely, region, village/ward size, proportion of the population belonging to scheduled castes and scheduled tribes, and female literacy. The household sample in rural areas was selected in three stages, while in urban areas it was selected in four stages.

Data collection for Wave 1 was done is 2015-16 and after three years wave 2 data was collected in 2018-19. This paper analyses dietary intake in past 24 hours and this information was collected only in wave 2. Hence, for the current study, cross-sectional sample of only wave 2 is used, consisting information of 13-22 years old adolescents. For a fair comparison between boys and girls, sample of married females was dropped as information for its counterpart, i.e., married males is not collected in the survey. Final sample consisted of 4221 male and 5987 female unmarried adolescents. Sampling weights were used as mentioned in the UDAYA guidelines.

Methods

The **outcome variable** of the study, i.e. minimum dietary diversity is defined as the intake of food belonging to at least 5 or more food groups in the past 24 hours, as defined by FAO and FHI 360, 2016. For the computation of the standard measure of Minimum dietary diversity (MDD-W) for women, FAO defines 10 diverse types of food groups as: Grains, white roots and tubers, and plantains; Pulses (beans, peas and lentils); Nuts and seeds; Dairy; Meat, poultry and fish; Eggs; Dark green leafy vegetables; Other vitamin A-rich fruits and vegetables; Other vegetables and; Other fruits. Out of these 10, UDAYA asks information only for the first seven food groups in its data. For the last three food groups, questions are asked on the overall intake of “fruits” or “vegetables”, without giving emphasis to whether they were vitamin-A rich or non-rich fruits and vegetables. In order to adjust for this data limitation, a weightage of 1.5 is given to the instead of 1, to the two proxy food groups namely “Fruits” and “Vegetables”, as they

may be vitamin-A rich as well as well as vitamin-A non-rich. This way, we get the total dietary diversity score to fall in the range of 0 to 10 as it generally should, where consumption of food from five or more food groups is defined as the proxy measure of minimum dietary diversity among male and female adolescents.

Independent variables consist of socio-demographic characteristics like age of the adolescent, sex, completed years of education, whether doing paid work in the past 1 year, caste, number of siblings, media exposure, mother's completed years of education, presence of any grandparent in the household, food consumption behaviour of the household, wealth index of the household, place of residence and state. For making of media exposure index, firstly, eight binary indicators are created representing frequent (high) and infrequent (low) watching of television, reading of newspaper, listening of radio, watching movies, usage of internet; Owning of mobile and laptop; and using of social media in last three years. All of these are added together to make a score of range 0 to 8, which is then categorised in to three terciles as Low (0-3), Medium (4-5) and High (6-8). Here, frequent usage refers to "almost every day" and "at least once a week", whereas infrequent usage refers to "at least once a month", "rarely" and "not at all".

The Food Consumption Score (FCS) is an index that was developed by the World Food Programme (WFP) in 1996 to represent household caloric availability. The FCS aggregates household-level data on the diversity (quality) and frequency (quantity) of food groups consumed over the previous seven days, which is then weighted according to the relative nutritional value of the consumed food groups. For instance, food groups containing nutritionally dense foods, such as animal products, are given greater weight than those containing less nutritionally dense foods, such as tubers. Broad food groups and associated FCS weights are: main staples—weighted at 2, pulses—weighted at 3, vegetables—weighted at 1, fruit—weighted at 1, meat and fish—weighted at 4, milk—weighted at 4, sugar—weighted at 0.5, and oil—weighted at 0.5. (Condiments can also be captured but are weighted at 0). Consumption frequencies are computed by adding the number of days a food item is eaten in a week's time is added and is rounded off to a maximum limit of 7 per food group. An additive score combining the weighted consumption frequencies of each food group result in a total score ranging from 0 to 112.

UDAYA study in their wave 1, instead of following the standard measure of 7-days recall, uses a 30 days recall and collects information on 6 responses namely, whether a food item was eaten daily, once in a week, 2-3 times a week, once in two weeks, once in four weeks or never. For finding number of days per week a food item was consumed, these responses were substituted with 7, 1, 2.5, 0.5, 0.25 and 0 number of days respectively. To represent food consumption status of a household as poor, borderline or acceptable, cut offs defined by WFP are 0-21; 21.5-35 and >35. But these cut-offs are often criticised in literature and are termed as subjective because assigning cut-off points to a continuous quantitative measure is usually a matter of analytical judgment about the extent to which such categorical cut-offs are universally applicable [21]. Hence, instead of using these cut-offs, we have simply divided the score in to three terciles as Low (0-70), Medium (70-85), High (85-112).

Statistical Analysis

For analysis, cross-tabulation and chi-square test is used to test independence of various groups. Binary logistic regression is used to identify determinants of minimum dietary diversity (Yes=1, No=0) of the adolescents, the MDD was constructed using the wave 2 of UDAYA which was conducted in 2018-19. The explanatory variables was used for the wave 1 of UDAYA which was conducted in 2015-16, to majorly explain the role of food consumption score in wave 1 on the MDD in wave2. Adjusted odds ratio are computed for Uttar Pradesh and Bihar separately, as well as for combined sample.

Findings

Table 1 represents consumption of items from different food groups in the past 24 hours among younger and older adolescents by the sex of the respondents. It was found that almost 100% young and old adolescents were found consuming Grains, White root tubers and Plantains in their diet. It was found that 80% younger adolescents consume dairy food products, while 83% older adolescents consume dairy (milk) products. The difference among males and females in terms of their consumption of dairy products were found to be significant, where males consume more dairy products than females. Among the young and older adolescents, the intakes of fruits was almost similar (65%), while the differences was found among male and females adolescents, where female adolescents were found to have more fruits than males. The intake of nuts and seeds was also found more among the older adolescents and differences were seen in the males and females, where 28% young males were found to consume more nuts than young females. And among the old adolescents, there found a three percent point difference in the nuts intake among male and females, where 30% males were found consuming the nuts and seeds compare to 27% female adolescents. Also, the intake of non-vegetarian food was found more among the older adolescents than younger. The intake of Meat, Poultry and fish was among 15% young adolescents, while it was 16% among old ones. The gender differentials can be easily visible in the non-veg eating practices among adolescents. 14% young female compared to 17% males was found to consume Meat, Poultry and fish, while the differences with the age of the adolescents, 17% of older male adolescents and 12% female adolescents were found to have meat in their dietary pattern. Similar pattern was observed in the consumption of eggs where 10% compared to 18% male older adolescents consume eggs in the past 24hr, while there was less differences in the consumption of eggs at the younger ages.

Table 2 shows prevalence of minimum dietary diversity where Bihar portrays better dietary habits (MDD=61%) compared to Uttar Pradesh (MDD=57%). Sex differentials were more evident in UP compared to Bihar, where almost no gender inequality was observed. With age, and increasing education level of self as well as that of mother's education showed positive effect on minimum dietary diversity of the adolescents. Those working in the last one year showed ate a less diverse diet compared to those not working. Adolescents belonging from SC/ST caste were less likely to have a diverse diet compared to OBC, General and other caste people. Adolescents from urban area and those belonging to households with better food consumption and wealth status had more chances to eat a diverse diet compared to their counterparts. Media exposure showed good association with minimum dietary diversity, as those with

high media exposure had their minimum dietary diversity as high as 74%. Living arrangement in the household could also affect intake of a balanced diet. Lesser number of siblings and presence of grandparent in the household was more associated with intake of a diverse and nutritious diet by the adolescent. Food consumption score also significantly affected the MDD among adolescents in UP, and Bihar, where those with low food consumption in wave 1 was less likely to have MDD in wave 2, and 73% adolescents have higher MDD when they have high food consumption score in wave1.

Table 3 shows output of Binary logistic regression analysis. We find out that media exposure, wealth index and household food consumption status plays a major role in determining minimum dietary diversity of the adolescents. The caste of the household also holds a significant impact on the dietary pattern of adolescents. Those belonging from OBC caste was 1.3 times odds more likely to have minimum dietary diet (A.O.R.=1.3, 95% CI (1.1-1.5). Wealth of the household also determined the pattern of diet, where richer adolescents were 40% more receiving the minimum dietary diversity than poor (95% CI (1.0-1.7)). Those belonging to households with high food consumption are three times more likely to have a diverse diet compared to those belonging to households with low food consumption (A.O.R.=3.0, 95% CI (2.3-3.8) for U.P.; .O.R.=2.2, 95% CI (1.6-2.9) for Bihar; A.O.R.=2.6, 95% CI (2.1-3.1) overall). Adolescents highly exposed to media are twice as much likely to have a minimum dietary diversity compared to those with low media exposure (A.O.R.=2.1, 95% CI (1.7-2.7)). Better education level and high caste correspond to better dietary diversity in the state of U.P. Overall, adolescents from Bihar are 20% more likely to have a minimum dietary diversity compared to those from Uttar Pradesh.

Discussion

In the present study, the average adherence to the dietary pattern in our adolescents was 58%, while in Bihar it was 61% , and in UP it was 56%. From the chi-square analysis, we find out, that the most widely eaten food group from almost 100% of adolescents is that of “Grains, white root tubers and plantains”. Food groups consumed by more than half of the adolescents included Dairy, Fruits, Pulses and Vegetables. Females consumed more fruits compared to their male counterparts, whereas males consumed more eggs and meat ($p<0.01$). This was observed among both the age-groups, but the gap is even wider in case of older adolescents. Not much differences were observed in intake of food groups w.r.t. age, except for pulses and dairy products that were consumed more by older adolescents compared to younger ones. Also, no much differences was observed in the consumption of vegetarian diet among male and female adolescents (Dairy, Fruits, Pulses and Vegetables). Similar to this finding, a study conducted in Iran found that girls were found consuming cereals, and vegetables in their MDD [22]. Though, the research found huge differentials in the non-vegetarian diet practices among male and female adolescents in UP and Bihar.

Using the logistic regression analysis, we found that there was significant difference in the MDD of adolescents by their socio-economic characteristics, educational status of respondents (significant only in UP), caste , and wealth quintile of the household. But no differentials were found among young and old adolescents in UP and Bihar. Also, food consumption score index, and media exposure of adolescents

were found significant in depicting the MDD. But, no differences were observed in the minimum dietary pattern of girls and boys, and by the age of the respondents. Also, our study showed that presence of grandparent has no role in the MDD among the adolescents in the states.

Similar to our study, a study in Australia found little differences in the dietary pattern of male and female adolescence[23]. Contrary to this, a study based on a longitudinal cohort of adolescents showed that young adolescents eat better than older one in Andhra Pradesh and Telangana [17], also a longitudinal study using four developing countries from world found that there was no gender differentials in terms of the dietary pattern of the individuals but as the age of the respondent increases the disparity w.r.t dietary practices increases[24]. A study based on rural India, found gender disparity in the dietary pattern of adolescents which eventually resulted in the low BMI among female adolescents[25].

Various studies in the past found that the one's status of living always impact the dietary practices[22, 26–28], and on the similar lines, our study found that the adolescents belonging to the richest quintile were found to have higher odds of reporting MDD than poorer quintiles. A study in Gujarat, India found that the higher family income was positively associated with the higher diversity score [29]. A study conducted in Bangladesh also stated the positive role of Socio-economic status in the MDD among adolescents [30].

The choices of food in initial years always impacted the dietary pattern lifetime. Our study also suggested the same where adolescents with medium food consumption score in wave 1 was 80% more likely to have MDD than those with low food consumption score (95% CI (1.5-2.1). Similar pattern was observed for UP and Bihar. Also, various studies conducted in and around world has shown that mass media always found important predictor for explaining the behaviours among adolescents[31–33]. In our study also, we found that the role of mass media exposure found positively associated with the higher level of dietary patterns among adolescents in the two states. Similarly, a study based in India found social media exposure on the high MDD among girl adolescents[25]. Also, a study in Austria found that more exposure to mass media tend to increase the fruit consumption among adolescents[34].

Overall, the present paper contributed to examine the association of food consumption practices at younger ages with the dietary pattern at older ages. When the FCP increases at the lower ages the MDD tends to increase at the older ages. So, improving the dietary practices at the younger ages can eventually help in increasing the BMI at later ages which can help in living a healthy lifestyle especially for female adolescent which marry early and expose to the early childbearing ages.

Conclusion

In this study we observed relatively low SES gradient in adolescents dietary pattern. Both the household wealth and Caste of the household was found significantly associated with the MDD. Furthermore the role of FCS at wave 1 on the MDD at wave 2 can never be ignored. The increase in the consumption of healthy food at the initial years of the adolescents age can have a significant role in the dietary practices at the later years. India launched ICDS scheme in 1975s to strengthen the nutritional status of young

children in the country, but the recent data of NFHS-5 (2019-20) [35], shows that though the stunting status of children has decreased but wasting increased in many parts of India. Strengthening and proper evaluation of ICDS programme can help to improve the pro-nutrition among the adolescents. Also, there should be a specific state policy to address the needs of adolescents, and various educational programmes should be conducted in schools where students along with their parents should be educated about the need of healthy dietary habits.

Abbreviations

UDAYA – Understanding the lives of adolescents and young adults

WHO - World Health Organisation

SC/ST – Schedule Caste/ Schedule Tribe

OBC- Other Backward Caste

ICDS- Integrated Child Development Services

Declarations

Ethics approval and consent to participate: Ethical approval for this study was not necessary as it is based on analysis of secondary data available in public domain.

Consent for publication: Yes, all authors have approved the final version and have given consent for publication.

Availability of data and materials: The data is available in public domain

Competing interests: None

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Authors' contributions: RS and AB were responsible for the planning and design of this manuscript. PR and AB were involved with the analysis of the data. All authors have contributed to the writing and editing of this paper. All authors have seen and approved the final version of this manuscript.

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Tables

Table 1: Intake of different food groups in the past 24 hours among younger and older adolescents, Udaya, 2018-19

Food Groups	Younger				Older			
	Male	Female	Significance	Overall	Male	Female	Significance	Overall
Grains, White root tubers and Plantains	100	99.5		99.8	99.6	98.5	***	99.3
Dairy	80.9	77.8	***	79.7	83.4	82.1	***	83
Other and vitamin-A rich fruits	63.7	67.2	***	65.1	64.2	71.2	***	66
Pulses (beans, peas and lentils)	58.6	58.8		58.7	63	61.6	***	62.6
Other and vitamin-A rich Vegetables	56.9	61.7		58.8	59.7	61.3		60.1
Dark Green leafy vegetables	33.8	32.5		33.3	32.8	32.1		32.6
Nuts and seeds	28.6	24.1	***	26.8	29.7	26.6	***	28.9
Meat, Poultry and fish	16.5	13.6	**	15.4	17.2	12.4	***	16
Eggs	16.7	10.8	***	14.3	17.6	9.2	***	15.4

Note: Significance is computed to see differences among males and females using chi-square test, where *** represents p<.01 and ** represents p<.05

Table 2: Minimum Dietary Diversity w.r.t. demographic and other background characteristics, Uttar Pradesh and Bihar, 2018-19

	UP	Bihar	Overall
Outcome Variable			
Minimum Dietary Diversity	56.3	60.8	58.0
Independent Variables			
Sex of respondent	**	***	ns
Male	57.6	61.0	58.7
Female	53.8	61.1	56.8
Age	***	ns	***
10-12 yrs	54.0	57.5	55.3
13-14 yrs	56.7	66.1	60.3
15-17 yrs	57.2	61.5	58.6
18-19 yrs	61.6	64.2	62.2
Completed years of Education	***	***	***
None	37.1	53.8	43.4
1-4	51.4	51.1	51.2
5-7	54.5	57.6	55.8
8-9	53.9	61.6	56.8
10-11	59.0	64.4	61.1
12 and above	62.8	67.5	63.9
Whether involved in paid work for the last 12 months	***	***	***
Yes	53.4	56.6	54.3
No	58.0	62.5	59.7
Mother's Completed years of education	***	***	***
None	54.3	58.9	56.1
1-7yrs	51.4	68.0	56.6
8-9yrs	64.6	67.0	65.2
10and above	66.1	68.2	66.4
Caste	***	***	***
SC/ST	48.3	55.5	50.6

OBC	58.9	61.2	59.8
General/Others	60.3	70.5	62.7
Place of residence	***	***	***
Urban	58.9	66.9	60.8
Rural	55.4	59.7	57.2
Wealth index of the Household	***	***	***
Poorest	39.0	53.8	46.5
Poorer	53.2	53.9	53.5
Middle	58.6	58.0	58.3
Richer	57.3	68.6	61.1
Richest	62.5	77.6	65.5
Food Consumption Score index	***	***	***
Low	43.6	51.2	46.3
Medium	63.8	62.7	63.3
High	70.1	71.9	70.9
Media Exposure	***	***	***
Low	49.2	56.8	52.2
Medium	57.8	62.0	59.2
High	73.8	75.6	74.3
Number of siblings	***	ns	***
<2	60.0	68.7	62.3
2-4	55.1	60.2	57.1
4+	57.5	60.7	58.6
Presence of Grandparent in the household	***	***	***
No	55.5	59.7	57.0
Yes	59.4	66.2	61.7

Note: Significance is computed to see differences among males and females using chi-square test, where *** represents p<.01 and ** represents p<.05

Table 3: Binary logistic regression results presenting adjusted Odds ratio (A.O.R.) w.r.t. various determinants predicting minimum dietary diversity among adolescents in U.P. and Bihar, 2018-19

	UP	Bihar	Overall
State			
Uttar Pradesh			
Bihar			1.2 (1-1.4)**
Sex of respondent			
Male			
Female	0.8 (0.7-1)	1 (0.8-1.3)	0.9 (0.8-1.1)
Age			
10-12 yrs			
13-14 yrs	1.1 (0.8-1.5)	1.3 (0.9-2)	1.2 (1-1.5)
15-17 yrs	0.9 (0.7-1.3)	1 (0.7-1.4)	1.0 (0.8-1.2)
18-19 yrs	1.1 (0.8-1.6)	1 (0.6-1.5)	1.1 (0.8-1.5)
Completed years of Education			
None			
1-4	1.8 (0.9-3.6)	0.9 (0.4-2.2)	1.3 (0.8-2.4)
5-7	2.1 (1.2-3.7)***	1 (0.5-2.1)	1.5 (1-2.4)
8-9	2.0 (1.1-3.5)**	1.1 (0.5-2.3)	1.5 (1-2.3)
10-11	2.2 (1.2-3.8)***	1 (0.5-2.2)	1.5 (1-2.4)
12 and above	2.2 (1.2-3.8)***	1.2 (0.6-2.6)	1.7 (1.1-2.6)**
Whether involved in paid work for the last 12 months			
Yes			
No	1.1 (0.9-1.4)	1.2 (0.9-1.6)	1.1 (1-1.3)
Mother's Completed years of education			
None			
1-7yrs	0.8 (0.6-1)	1.3 (0.8-1.9)	0.9 (0.7-1.2)
8-9yrs	1.3 (0.9-1.8)	1 (0.6-1.6)	1.2 (0.9-1.6)
10and above	1.2 (0.9-1.7)	0.7 (0.5-1.1)	1.1 (0.8-1.4)
Caste			
SC/ST			

OBC	1.4 (1.1-1.7)***	1.1 (0.8-1.4)	1.3 (1.1-1.5)**
General/Others	1.3 (1-1.7)	1.3 (0.8-2)	1.3 (1-1.6)
Place of residence			
Urban			
Rural	1.2 (0.9-1.4)	1 (0.8-1.3)	1.1 (0.9-1.3)
Wealth index of the Household			
Poorest			
Poorer	1.5 (1-2.1)	0.9 (0.6-1.4)	1.2 (0.9-1.5)
Middle	1.7 (1.2-2.4)***	1.0 (0.7-1.5)	1.3 (1-1.7)**
Richer	1.5 (1-2.1)**	1.4 (0.9-2.2)	1.4 (1-1.8)**
Richest	1.4 (0.9-2)	1.9 (1.2-3.1)**	1.3 (1-1.9)
Food Consumption Score index			
Low			
Medium	2.0 (1.6-2.5)***	1.4 (1-1.9)**	1.8 (1.5-2.1)***
High	3.0 (2.3-3.8)***	2.2 (1.6-2.9)***	2.6 (2.1-3.1)***
Media Exposure			
Low			
Medium	1.3 (1-1.6)**	1.1 (0.8-1.4)	1.2 (1-1.4)**
High	2.3 (1.7-3.1)***	1.8 (1.2-2.6)***	2.1 (1.6-2.7)***
Number of siblings			
<2			
2-4	1.0 (0.7-1.3)	0.8 (0.5-1.3)	0.9 (0.7-1.2)
4+	1.2 (0.9-1.7)	0.8 (0.5-1.3)	1.1 (0.8-1.4)
Presence of Grandparent in the household			
No			
Yes	1.0 (0.8-1.3)	1.2 (0.9-1.5)	1.1 (0.9-1.3)

Note: *** represents p<.01 and ** represents p<.05