

Original Research Article**Social context in which adolescents eat: Experience from an urban slum of India**Lopamudra,¹ Kariarath Cheriya Premarajan²¹Department of Community Medicine, Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, India²Department of Community Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India

Abstract

Adolescents develop more independence in food choices; parental control diminishes and peers become more influential. The social pressure to be thin can lead to unhealthy eating habits and poor body image and thus can have adverse health consequences. This study was undertaken to study the influence of self and non self factors (peer groups, parents and media) on eating and health status of adolescent girls. A mixed method design was adopted for our study in the service area of Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India. A proportionate sampling method was adopted to draw a sample of 250 adolescent girls by simple random technique. Assessment of influence of social factors on food intake and anthropometry was done quantitatively followed by focus group discussions in a subsample. Data were analyzed by SPSS (version 13), Epi info (version 3.5.1) and N Vivo (version 8). Eating was governed by preference of adolescent girls and their perception of healthy eating was significantly different from what they ate. Perception of healthy body shape was influenced by friends or parents; with influence from friends, the perception was 'to be thin' (52%) and those with influence from parents, perception was 'to be normal' (59%). On comparison with BMI, majority (45.5%) had normal BMI with influence from parents but with influence from friends, 60% were underweight ($p < 0.05$). Mothers' assessment of their daughters' eating was in agreement with the daughters' BMI, an important tool in shaping adolescent food habits.

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1. Introduction

Eating is a social behaviour and individuals tend to spend more time eating in the presence of others than when alone, called "Social Facilitation" of eating. The amount that is consumed depends on the social context (how much others are eating) and situations differ in

the extent to which they influence food intake.¹ Thus eating habits in children are formed in context of many social settings including family environment, peer groups and schools.² There is an extensive evidence that children's eating behaviours may be learned through parents' modelling of eating behaviours, via parenting practices.³ While adolescents often experience a

higher level of autonomy compared to younger children, their parents continue to play a key role in setting boundaries and supporting healthy lifestyle choices.⁴ However, parents' influence (role models of behaviour) is thought to be strongest in early childhood, but as the children move into adolescence, they develop independence in food choices; parental control diminishes and peers become increasingly influential.^{2,5} The need for peer acceptance, concern with appearance and changes in lifestyles in turn influence their eating patterns.^{6,7} The adolescents tend to spend more time away from home and are increasingly faced with dietary choices.⁸

The social pressure to be thin and the stigma of obesity lead to unhealthy eating practices and poor body image, particularly among female adolescents.⁹ Thus, food decisions are not taken in a social vacuum but are influenced by factors around.⁷ These factors can be categorised as, individual factors (psycho-social and biological factors that immediately drive behaviour), interpersonal factors (social environment constituting peers and family members) and cultural factors (influence in the perspective of the adolescents' own community and environment).^{7,10} As teen attitudes are shaped, dietary habits are formed and are likely to persist into adulthood. The nutritional requirement of adolescence is more, failing which may have a carryover effect into adulthood and particularly in girls, may lead to the cycle of intergenerational malnutrition.¹¹ Adolescent girls living in poor socio economic conditions like slum areas face double disadvantages. On one hand, there is deprivation due to poor social, economic and cultural factors and on the other, behavioural changes typical of adolescence imparts negative influence on their nutritional status. So, it is imperative to understand how food choices are influenced and thus we planned our study to determine the influence of self and non self factors (peer groups, parents and media) on eating and health status of adolescent girls of an urban slum of Pondicherry, India.

2. Materials and methods

Our study was community based, conducted among the adolescent girls (10-19 years) in the service area (urban slum) of Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India. The sample size was calculated to be 250 considering prevalence of 'skipping breakfast' among adolescent girls as 34%¹² (20% precision and 80% power including 25% drop out rate) using the formula $4 PQ/L^2$. A proportionate sampling method was adopted to draw sample of girls from the four wards of our service area. The required number of study subjects ($n = 250$) was drawn from the list of total adolescent girls by simple random sampling technique (lot method). Data were collected by an interview administered questionnaire (eating pattern, health beliefs and knowledge of health diet, food preferences etc.) by the investigator and certain responses in the instrument were designed for the mothers or the equivalent guardian of the respondents. The study was a mixed method design, completed in 2 phases. In phase I, quantitative information about the social factors (self factors and non self factors) on food behaviour was obtained from the respondents using a structured pretested questionnaire. The self factors were about their knowledge of healthy foods vis a vis their actual practice, barrier perceived by them for healthy food intake, food preferences, health beliefs and misconceptions. Under the non-self factors, influence of peer groups, media personalities and parents on their perception of healthy body weight was assessed which was in turn compared with their actual body weights. In phase II, six focus group discussions (FGD) were conducted in a subsample in the service area. Height and weight were measured and BMI was calculated (Asian classification). The respondents were divided into early (10-13), mid (14-16) and late (17-19) age groups for presentation of responses across age groups. Our study was approved by the Institutional Ethical Clearance Board (JIPMER Ethics Committee). Written informed consent was obtained from the major adolescent girls or

the parents/ guardians of the adolescent girls in case of minor age groups after explaining to them the purpose of the survey. Statistical analysis was done by Chi-square test or Fisher's exact test for assessing significance of difference using 'SPSS' (version 13) and 'Epi info' (version 3.5.1). For the focus group discussions, content analysis was done using 'N VIVO 8' (QSR International's Research Software, Demo version).

3. Results

3.1 Self factors

3.1.1 Knowledge of 'healthy diet'

A 'healthy diet' was believed to be consumption of fruits (94.4%), vegetables (80.4%), milk (77.2%), and green leafy vegetables (76.4%) and avoidance of excess of rice (60%) or non vegetarian food (52%) daily or on most days of week. It also meant taking the 'adequate' (required) amount of food (81.2%). In the FGD, it was discussed that even though they did not like the taste of healthy foods, they still consumed because of their nutritive value.

3.1.2 Comparison of 'perception' and 'practice' of eating healthy (Fig. 1)

Perception (what was considered as healthy food/habit) with respect to consumption of milk, vegetables, green leafy vegetables, fruits and non vegetarian items (daily or most days of the week) was compared to their actual practice of eating in daily life. Only about 36% consumed milk every day or on most days of week even though 77% considered milk as healthy. Even though, 20% did not consider vegetables as healthy, still 38% consumed vegetables. About 94 % considered fruits as healthy whereas 30% actually ate. About 76% opined that green leafy vegetables (GLV) should be taken daily, but only 25% actually ate.

3.1.3 Barriers for healthy food intake

It was discussed in the FGD that even though

fruits were healthy, those were very expensive for which they were not able to buy. Few others thought that cost should not be an impediment in making one healthy; rather they suggested the consumption of 'low cost fruits' (banana, sapota, and sweet lime etc.). It was believed that taking an apple a day was 'good for health' and facilitated digestion but only the rich could afford to eat apples every day. As told by a participant, 'We can eat goose berry instead of apples. One goose berry is equivalent to 10 apples!' Banana was considered as cheaply available throughout the year and was also tasty and better than apple or goose berry.

3.1.4 Food preferences (likes and dislikes)

The commonly 'liked food' was varieties of preparations of rice (32%) followed by ice cream (30%), noodles/pizza etc. (20%), non vegetarian foods (9.2%), fried snacks/chips (8%), chocolates/sweets (4.8%), milk/vegetable/green leafy vegetable/fruits (4.8%) etc. If the food was 'liked', the tendency to eat 'more than adequate' was noted (60.8%). Even if the food was liked, 34% ate 'only adequate'. Ice cream, noodles, chips, kurkure, soft drinks, panipoori, palkova (a sweet preparation) were some of the popular items in their locality. 'Preferences' also took over the 'knowledge of ill effects' of eating snacks. Snacks were consumed only for taste. As told 'I know that snacks are bad, but at the moment, I cannot control'. They emphasised on 'eating adequate' amount even if the food was liked. As said, 'I always feel that I should eat less'. But every time I eat more without control'. The most commonly disliked food was vegetables (63%), non vegetarian (43%), green leafy vegetables (39%), milk (14%) and fruits (8%).

The important reason for their dislike was 'taste' of food items. They would 'not even touch' the food if it was not tasty. The extent of dislike was noted as 'hate at first sight' or 'useless' things. As told by a respondent, 'If somebody asks me to remove one thing from the world, it would be vegetables'. As noted from the FGD, the

vegetable was disliked when it 'looked bad' (bitter gourd, pine apple) or 'smelt bad' (ladies finger, bitter gourd, brinjal), 'were bad to touch' (ladies finger, bitter gourd) or 'caused allergy' (abdominal pain, headache, gas in abdomen). Certain vegetables were avoided because they 'contained insects' (brinjal, cauliflower) and developed 'worms in abdomen'. Eating 'fatty food' (non vegetarian, snacks) caused pimples and altered body shape according to them. The 'mode of eating' was also the determinant of their eating (vegetables like carrots should be taken raw because cooking altered their taste).

3.1.5 Health values attached to specific foods

Wheat products were considered healthier to rice. Ragi (millets) prevented anaemia and carrot and drum stick leaves improved eye power. Bitter gourd was regarded effective for 'killing germs'. Small fish or milk consumption was good for making bones strong. Onion and beet root were thought to 'purify blood'. Eating green salads, green leaves and carrots everyday was known to be 'good for eyes'. Protein diets (eggs and pulses) were thought to be better than carbohydrate rich diets (rice). Fish was considered to cure asthma. Intake of spicy food was believed to cause stomach ulcer.

3.1.6 Misconceptions (hot and cold foods)

Foods (papaya, mango, custard apple, pine apple, roots and non vegetarian) and vegetables (ladies finger, potato, brinjal) were believed to produce heat in body and were avoided in summer (caused boils). Eating mangoes produced eye lesions. Vegetables (cucumber), green leaves, butter milk, fruits (water melon, banana, orange, tender coconut) were considered as cold foods and caused cold and wheeze. Items like beet root, papaya, sweets, ground nut, watermelon, dates, sugarcane etc. were usually avoided during menses because these increased flow. Non vegetarian foods were thought to cause 'foul smelled' flow. Tamarind, raw mango was thought to 'clot blood'. Bottle gourd, pumpkin, chicken or oily foods were avoided in 'dog bite' as were

believed to 'spread poison' in body (one might 'bark like dogs' even). Potato was believed to cause muscle cramps.

3.2 Non-self factors

To them, it was difficult to perceive one's own body weight unless somebody else pointed out. As told, 'If you are thin, they say that you look bad; would fly off in wind. If you are fat, you are regarded as a round fat tomato'. The need to meet a standard body image was also based on values shared by peer groups, parents and media personalities. Their friends were the first ones to give feedback about 'body image'.

3.2.1 Influences of peer and parents

About 90.8% girls had at least some influence either or both from friends or parents about their body weight. About 79.3% had influence from 'both' (friends and parents), 9.7% had influence 'only from parents' and 11% had influence 'only from friends'. Those who had influence from 'both', the perception of healthy body shape was being 'normal' (60.6%) (majority), thin (32.2%) or fat (7.2%). Those with influence only from parents, the perceptions were normal (59.1%) (majority), thin (36.4%) and fat (4.5%). Those with influence only from friends, the perception of 'healthy body shape' was thin (52%) (majority) or normal (48%). However, none (with influence only from friends) said that 'being fat' was healthy. The difference was not significant (Table 1).

Comparing the influence either from friends, parents or both on actual body weight (BMI), it was found that among those with influence from 'both', about 69.4% were underweight (majority), 21.7% normal and 8.9% overweight or obese. Among those with influence only from parents, about 45.5% were normal (majority), 36.4% underweight and 18.2% overweight or obese. But those with influence 'only from friends', about 60% were underweight (majority), 24% normal and 16% overweight or obese. The difference of

influences across the BMI was significant ($p=0.03$) (Table 1). As discussed in the FGD, friends influenced eating pattern. They developed snacking habits in friend circle. If they were fat, friends suggested dieting or exercise and if thin, advised to take healthy foods. 'Being thin' was also perceived as ideal body shape in the consensus and they executed habits like 'missing meal' to fulfil it.

3.2.2 Health awareness of mothers

Maintenance of the daughter's body weight was important to 90.8% of mothers. As perceived by them, only 50% of their daughters took healthy food. The actual body weight (BMI) of the girls was in agreement with the mothers' assessment of their food intake. There were more underweight (72%) among the girls whose mothers perceived that they were not taking healthy foods. Similarly, there were more normal (29.6%) and overweight or obese (16%) among those who were believed to consume healthy foods. The difference was significant ($p = 0.023$) (Table 2). In the FGD, girls

stressed the positive role of their parents. The mothers inculcated healthy habits (eating vegetables) and even exerted strict discipline to shape their irregular habits (missing meal, snacking etc). As stated, 'If I skip meal by chance, my mother even comes to my school to punish me'. They believed that good habits were learnt at home and elders advised to eat vegetables, not to miss meal and to avoid eating excess of junk foods. As told by a respondent, 'I have to eat in my mother's presence. I throw if she is not around'

3.2.3 Influences of media personalities

About 52.8% agreed and 33.6% disagreed to be 'slim and beautiful' like media personalities. Comparison of the media influence with BMI was not statistically significant. It was noted from the group discussions that the girls appreciated the 'media personalities' and some even dreamt to be slim and beautiful like them. However, others said that the media personalities should not be followed as it was against their culture.

Table 1: Influence of 'peer groups and parents'

Perception of healthy body shape								
Category	Fat		Thin		Normal		Total	
	n	%	n	%	n	%	n	%
Friends and Parents	13	7.2	58	32.2	109	60.6	180	100.0
Parents	1	4.5	8	36.4	13	59.1	22	100.0
Friends	0	0.0	13	52.0	12	48.0	25	100.0
Total	14	6.2	79	34.8	134	59.0	*227	100.0
Comparison of peer-parent influence with actual body weight (BMI)								
Category	Underweight		Normal		Overweight, Obese		Total	
	n	%	n	%	n	%	n	%
Friends and Parents	125	69.4	39	21.7	16	8.9	180	100.0
Parents	8	36.4	10	45.5	4	18.2	22	100.0
Friends	15	60.0	6	24.0	4	16.0	25	100.0
Total	148	65.2	55	25.2	24	10.6	*227	100.0

* Only 227 (91%) girls had some influence either from friends or parents or both

** BMI Underweight (<18.5), Normal (18.5 - 23), Overweight (23 - 25), Obese (>25)

Table 2: Comparison of mother's perception of daughter's food intake - Actual body weight (BMI) of adolescent girls

Mother's Perception of Daughter's Intake	Body mass index (Asian standards)							
	Underweight (<18.5), Normal (18.5 - 23), Overweight (23 - 25), Obese (>25)							
	(Intake of Healthy food)	Underweight		Normal		Overweight, Obese		Total
n		%	n	%	n	%	n	%
Eating*	68	54.4	37	29.6	20	16.0	125	100.0
Not eating	90	72.0	28	22.4	7	5.6	125	100.0
Total	158	63.2	65	26.0	27	10.8	250	100.0
Chi square = 11.307, df = 4, p = 0.023								

* Includes 'Almost always' and 'Occasional' healthy food intake (n = 125) categories

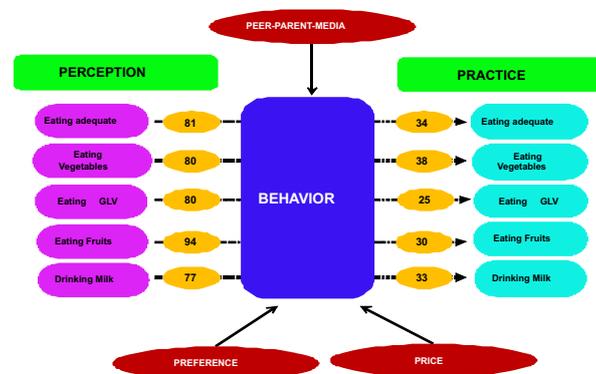


Fig. 1: Comparison between perception and practice of eating healthy

Fig. 1 portrays the gap between perception and practice as behaviour. In this context, we noted a significant difference between what the adolescent girls perceive as healthy food and what they eat in actual practice. Overall, this food behaviour is influenced by peer parent, preference and price of the food.

4. Discussion

Our study elaborated the role of various 'self' and 'non self' factors in governing the participants' food choice in daily lives. We noted a sense of indecisiveness in the adolescents between 'taste' and 'value' of a food while choosing it. It is said that food decisions are often based on emotion rather than rational thought.¹⁴ In the present study too, the girls said that they realized the logic behind the intake of healthy foods but they preferred the taste.

The gap between the perception and the practice in the present study was depicted as behaviour. Significant difference was observed between their perception and actual consumption but they still consumed healthy foods being imposed by their mothers. 'Cost' was a major barrier for healthy food intake which was also supported by the economic status of the slum population (majority in Kuppaswamy class IV with median per capita monthly income of Rs 500). Storey et al. also mentioned in her study that 'healthy food consumption was a big botheration' (costly, time consuming) for the adolescents.¹⁴ Other than

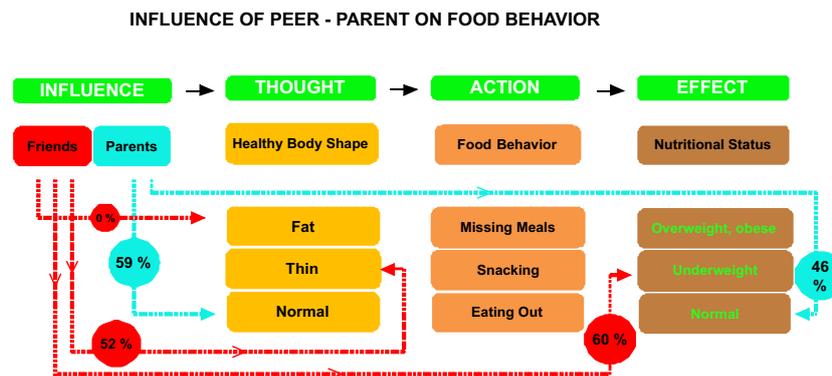


Fig. 2: Conceptual representation of peer - parent influence

Fig. 2 depicts that logically, before any “influence” translates into effect, affects the “thought” process and modifies the “action” (similar to the theory of planned behaviour of Azen and Fishbein). We observed that among those who were influenced by parents, a majority opined that being normal in body weight was healthy whereas those with influence only from friends, majority (52%) said that being thin was healthy. None with influence from friends said that being fat was healthy. On the contrary, when the adolescent girls' nutritional status compared with the influences they experienced from friends or parents, a consistent association was observed. Majority of those who were underweight (60%) were influenced only by friends whereas; majority of those with normal BMI (46%) had exclusive influence from parents. We believe that the above effect would have altered the food behaviour of adolescent girls (missing meal, snacking etc.) to have produced a substantial effect on the nutritional status (Table 1). (Only major responses are marked in the figure)

these, we also noted that instinct or impulse rather than reason determined what the adolescents chose to eat. If the food was 'liked' (tasty), the tendency to eat more than adequate was observed. As stated by a respondent, 'I once spent fifty rupees on chocolate'. Similarly, in a study at Minnesota, the adolescents reported that 'if someone from another planet asked the kind of foods teenagers ate'; the unanimous response was fast foods and sweets.¹⁴ It was said that 'people have problem of self control while choosing a food' because they prefer immediate gratification.¹³ In our study too, the girls mentioned that they 'felt bad' after eating snacks for having eaten just for taste. Study on Minnesota adolescents mentioned that the adolescents when asked about what they did not like, they said “fresh or cooked vegetables, spinach and “foods that took time to prepare” etc. Dodson et al. too commented that 'food

appearance' governed the decision to purchase in adolescents.¹⁵ The importance of 'choice' rather than the 'value' of food were equivalently noted in the present study. The adolescents of Baltimore¹⁵ mentioned vegetables as 'nasty food', 'making you want to throw up' which showed their feeling of disgust. In our study too it appeared that the 'aversion' for specific foods was very strong and they would not even feel like touching it unless and otherwise compelled. As said by a participant in our study, 'I shall not even look at the food if I do not like. It is not possible to eat without taste because it alters your own taste'. Thus it may be concluded that the adolescent mind attached so much importance to the extraneous details of the food items (colour, smell, appearance, taste etc.) that they summarily rejected the food.

Our study tried to depict the influence of the peer and parents in the following way; logically any

external 'influence' assumes the form of 'thought' before it is translated into 'action' and 'effect'. It was noted that peer groups and parents were influencing their thoughts. Even though, the faculties of the mental domain were difficult to comment, we could hypothesize this because of consistent findings as mentioned in the subsequent paragraphs. Those with influence only from friends, the majority (52%) professed 'being thin' as the ideal body shape and for none, 'being fat' was ideal. On the contrary, those with influence only from the parents, the perception of healthy body shape for the majority (59.1%) were normal (Table 1, Fig. 2). When the influence from peer-parent with their BMI was compared, majority (60%) were underweight who had influence only from friends and those with influence only from their parents, majority (45.5%) were normal (Table 1). With influence from 'both', majority (69.4%) were underweight which could be due to the overpowering influence of friends. Similar to our findings, Mooney et al commented that 'friends were very critical about passing rash comments about body shape and gave a feeling of low self-esteem.'¹⁶ It was assumed in our study that the influence of peer and parents' would have affected the food behaviour in order to affect their nutritional status. We also noted that mothers had a judicious way of assessing the quality of their daughters' food intake. Thus we triangulated that the influence of parents was positive compared to that of friends. As commented, the influence of parents was healthy on the food consumption of their children. However, parents' influence was stated as negative as per by few studies.^{15,17,18,19,20} In the present study, the adolescent girls had a peculiar proneness to follow the media personalities blindly but the media influence on their BMI was not significant. It could be so that the influence was not translated to action. However, according to other studies, views of a healthy weight were often skewed in teens and are heavily influenced by media.²¹ Media invited comparison and were the constant reminders of body image.²²

5. Conclusion

In the educational perspective our study offered an opportunity for 'healthy dietary practices' which can be acquired by planning systematic interventions in the multiple dimensions of food behaviour. As it is a descriptive one, further analytical studies are required to support the findings. It can be well affirmed that the behavioral changes in adolescence affect their food intake and they should be counselled and sustained motivation is required. It is appropriate to intervene at this age because the food habits once learnt persist into adulthood and the harmful effects are insurmountable.

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Corresponding author

Dr. Lopamudra
 Assistant Professor
 Department of Community Medicine
 Sri Manakula Vinayagar Medical College and Hospital
 Pondicherry, India
 Mobile: +91 9442338574
 E-mail: miss.lopmudra@gmail.com