

Agreement/Disagreement between Reporting by Parent-Child-Dyad on Dietary and Behavioral Patterns among Adolescents

Elizabeth K E*, Ashwin David Ashok**

*Sree Mookambika Institute of Medical Science, Kulasekharam, Kanyakumari, Tamil Nadu, India-629161

**Jothydev's Diabetes and Research Centre, Mudavanmugal, Thiruvananthapuram, Kerala, India-695032

Corresponding Author: Elizabeth K E

ABSTRACT

Introduction: Dietary and behavioral patterns vary among adolescents and there may be agreement/discrepancy between parent-child reporting. However, objective data on this is scanty.

Objectives: To determine the agreement/discrepancy among parent-child-dyad reporting of dietary and behavioral patterns among adolescents.

Materials & Methods: Adolescent school children from five districts of Kerala, India were enrolled. Dietary habits and behavioral patterns as reported by the adolescent child and parent were collected using two sets of pretested questionnaires. Data was computed and analyzed.

Results: Among 2292 adolescent children, mean age: Male 14.51 ± 0.93 , Female 14.42 ± 1.04 years, M:F ratio 0.82:1. Practices like missing breakfast, not taking weekly Iron Folic Acid supplementation and not taking exercise >2 hours/week were more in female. Increased consumption of junk food, screen time >2 hours/week and not sharing life events with parents were more in male. Parental perception showed agreement in most items except sharing of all life events. Issues reported by parents included heavy school bag, unclean toilets, anxiety about the safety of the child, not appreciating the child for achievements other than scholastic, having no dreams about the child's future and comparing the child with other children. Patient listening to child's problems, good vaccination coverage and low proportion with alcohol/tobacco/drug addictions were reported by majority of parents.

Conclusion: Dietary and behavioral patterns showed variability with respect to gender among adolescents. There was general agreement between parent-child reporting in most items except sharing of all life events, which was three-fold more as per parental perception. There were several issues that warrant behavioral change communication as per parent-child reporting.

Key Words: Dietary Factors, Behavioral Pattern, Adolescents, Parent-Child-Dyad reporting, Sharing of Life Events

INTRODUCTION & BACKGROUND

There is a changing trend across the globe, especially among adolescents, with respect to dietary habits, behavioral patterns, and nutritional status⁽¹⁾. This is part of the 'nutrition transition' happening in the world. Adolescents and young adults (AYA) are more vulnerable to such changes. This is more marked in areas with urbanization and globalization. The State of Kerala in India is often quoted as an

example of this rapid transition⁽²⁾. Nutritional status as well as dietary and behavioral patterns of adolescents have a link to affluence and socio-economic status, and this has a definite impact on future health⁽³⁾. However, there is a concern about how much the society, especially how much the parents are aware of these transitions among adolescent children. Even though, this is an area of great public health importance, objective data on the dietary

and behavioral pattern of adolescent children is scanty. Understanding the challenges with respect to knowledge and knowledge-practice gaps can result in planning nutrition counselling and undertaking behavioral change communication. Moreover, the influence of nutrition transition may be higher in high-income group (HIG) compared to low-income group (LIG). Hence, this study was undertaken among adolescent school children and their parents, belonging to middle-income group (MIG) from Kerala, India.

Objectives

To determine the agreement or discrepancy between reporting by parent-child-dyad on dietary and behavioral patterns among adolescents.

MATERIALS & METHODS

Adolescent school children belonging to MIG from five districts of the state of Kerala (Kasaragod, Kannur, Wayanad, Kozhikode and Thiruvananthapuram), India were enrolled during the period September 2017 to August 2018. Assuming a prevalence of skipping meals among adolescents to be 23%, sample size was calculated as 787⁽⁴⁾. Participants were enrolled from schools, based on feasibility and willingness of trained pediatricians to participate in the study. Who could participate in taking awareness class on dietary and behavioral aspects to parents and adolescents, undertake medical checkup and give guidance whenever necessary. Consecutive cases were enrolled as participants based on inclusion and exclusion criteria. Inclusion criteria included age between 14-16 years of age. Exclusion criteria included presence of any known medical conditions and refusal of consent/assent. Relevant dietary and behavioral habits were recorded using two separate pretested questionnaires from children and parents. Six items in the child questionnaire were also there in the parent questionnaire and the latter had nine

questions more. Institutional Ethics Committee approval, informed consent from parents and assent from the participants and permission from school authorities were obtained prior to study. Confidentiality was maintained throughout the study. Data was computed and analyzed using SPSS Version 17.

Child Questionnaire

1. How often do you take breakfast?
Daily/Frequently- 4-6 days/week/
Occasionally-1-3 days/week/Never
2. How often do you take Fast Junk food & Colas?
Daily/Frequently- 4-6 days/week/
Occasionally-1-3 days/week/Never
3. Do you take iron folic acid tablet every week?
Yes/ No
4. Do you take exercise at least 2 Hrs./week?
Yes/ No
5. Do you continuously use TV/mobile/I-pad for > 2 Hrs./day?
Yes/No
6. Do you share all events in your life with your mother/father?
Yes/No

Parent Questionnaire

1. Does your child take breakfast every day?
Yes/ No/ Not sure
2. How often does your child take Fast Junk food & Colas?
Daily/Frequently- 4-6 days/week/
Occasionally-1-3 days/week/Never
3. Does your child take iron folic acid tablet every week?
Yes/ No/ Not sure
4. Does your child take exercise at least 2 Hrs./week?
Yes/ No/ Not sure
5. Do you think your child's school bag is too heavy?
Yes/ No/ Not sure
6. Are there enough clean toilets in your child's school?
Yes/ No/ Not sure

7. Has your child been vaccinated?
Yes/ No/ Not sure
8. Does your child share all events in his/her life with you?
Yes/ No/ Not sure
9. Does your child continuously use TV/Mobile/I-Pad for > 2 Hrs./week?
Yes/ No/ Not sure
10. Are you aware of any habits in your child related to alcoholism, smoking, drugs etc.?
Yes/ No/ Not sure
11. Do you have any doubt about the safety of your child?
Yes/ No/ Not sure
12. Have you appreciated/congratulated your child for achievements other than scoring high marks?
Yes/ No
13. Do you have any dreams about your child's future?
Yes/No
14. Do you often compare your child with another child?
Yes/No
15. Do you listen patiently to your child's problems/issues?
Yes/No

RESULTS

A total of 2292 adolescent children were included in the study: Male-1108 and Female-1184. Male: Female ratio was 0.82:1. Mean age was: Male 14.85± 0.83 and Female 14.22 ± 0.94 years. Among the parents, majority were mothers, except in a few cases (<1%), where mother figure or father were the respondents.

Table 1. Comparison of Dietary and Behavioral Patterns as per Self Reporting by Adolescent Children and Parental Perception (n= 2292)

Item	Child Male (%)	Child Female (%)	Parent Male (%)	Parent Female (%)	Child Pooled (%)	Parent Pooled (%)
Breakfast						
Daily	87.9	84.0	91.5	90.4	85.7	90.9
Frequently (4-6 days/week)	8.1	12.2	3.2	2.4	10.4*	2.8
Occasionally (1-3 days/week)	2.2	1.8	4.4*	6.2*	2.0	5.3*
Never	1.9	1.9	0.9	0.9	1.9*	0.9
Junk Food						
Daily	8.2*	4.0	2.5	1.3	5.8*	1.9
Frequently (4-6 days/week)	68.2	70.5	68.2	67.3	69.5	67.7
Occasionally (1-3 days/week)	5.1	4.1	1.5	1.6	5.4*	1.6
Never	18.6	21.4	27.8	29.8	20.2	28.8
Weekly IFA Supplementation						
Yes	24.1	21.6	16.2	17.5	22.7	16.9
No	75.9	78.4	83.0	82.1	77.3	82.6
Not Sure	NA	NA	0.7	0.4	NA	0.6
Exercise >2 hrs./week						
Yes	56.9	37.0	65.4	41.5	45.9	53.0
No	43.1	63.0	34.0	57.7	54.1	46.2
Not Sure	NA	NA	0.6	0.9	NA	0.7
Screen time >2 Hrs/day						
Yes	48.4	36.7	40.8	33.1	41.9	36.8
No	51.6	63.3	56.8	64.7	58.1	60.9
Not Sure	NA	NA	2.4	2.2	NA	2.3
Sharing all Life events with parents						
Yes	62.4	79.1	84.2	91.9	71.6	88.2
No	37.6	20.9	13.2	6.0	28.4*	9.5
Not Sure	NA	NA	2.6	2.1	NA	2.3

NA- Not Applicable, * P < 0.05 - Statistically significant

The item wise data from the common parent-child questionnaire is summarized in table 1. Majority (85-90%), reported taking breakfast daily, which was slightly more among boys. Missing breakfast on a regular daily basis was around 2% as per child and was double than parent report. Daily

consumption of junk food was reported by 4-8% of children, more among male, which was more than parent reporting. Around 20-30% denied consumption of junk food and there was agreement between parent-child reporting. Majority (75-80%), reported non-compliance to weekly iron folic acid

supplementation (WIFS) program, which was comparable to parent reporting. Variable proportion (40-60%), reported taking exercise >2 hours/day, slightly more among male and was comparable in parent-child reporting. Many (33-50%), reported screen time >2 hours/week, which was more among male. 2% parents were not sure about this. Majority (60-80%) reported sharing of all life events with parents, more among females. Around 30% children denied this, which was three-fold more than parent reporting.

Table 2. Gender-wise Status and Behavioral Pattern among Adolescents as per Parental Perception (n= 2292)

Item	Male (%)	Female (%)	Pooled (%)
Alcohol/Tobacco/Drug Usage			
Yes	1.1	0.7	0.9
No	98.0	99.2	98.6
Not Sure	0.9	0.1	0.5
Overweight of School Bag			
Yes	66.5	79.8	73.4
No	26.6	17.2	21.7
Not Sure	6.9	3.1	4.9
Cleanliness of Toilets			
Yes	64.6	70.3	67.5
No	19.7	17.8	18.7
Not Sure	15.7	12	13.8
Adolescent Vaccination			
Yes	88.9	93.3	91.2
No	6.6	5.1	5.8
Not Sure	4.8	1.6	3.0
Anxiety on Safety of Adolescent Child			
Yes	8.4	6.1	7.2
No	89.4	92.3	90.9
Not Sure	2.1	1.6	1.9
Appreciation for Achievements other than Scholastic			
Yes	83.9	85.6	84.8
No	16.1	14.4	15.2
Dreams about Adolescent Child's Future			
Yes	43.2	40.9	42.0
No	56.8	59.1	58.0
Comparison with other Adolescent Children			
Yes	91.2	93.9	92.6
No	8.8	6.1	7.4
Listening patiently to Adolescent Child's Problems			
Yes	95.1	95.4	95.3
No	4.9	4.6	4.7

Gender wise responses to the nine items included in the parent questionnaire are given in table 2. As per parental perception, usage of alcohol/tobacco/drug was extremely low (1%). Nearly 3/4th reported that the school bags were heavy. One fifth reported the toilets in the school were not clean. Majority (90%) reported that adolescent vaccinations were given. Anxiety about the safety of the child was

reported by <10%. Not appreciating the child for achievements other than scholastic was reported by 15%. As high as 60% reported no dreams about the child's future. Comparing child with other children was the rule (90%). Majority reported patient listening to child's problems (95%).

DISCUSSION

Discrepancy and agreement between parent-child reporting of behavioral pattern and life events is an area of great concern⁽⁵⁾. Poor eating habits have been reported to be more marked among adolescents⁽⁶⁾. Eating habits vary with respect to geographic, socio-economic and gender-wise differences. Knowledge-practice gap is yet another area of concern (Kumar). Parenting styles are important predictors of behavior among adolescents⁽⁷⁾.

In the present study, among the six items that were common in parent-child questionnaires, there was no significant difference between most items, except sharing of all life events. As per present study, practices like missing breakfast, consumption of junk food, non-compliance to WIFS program to reduce anemia were prevalent among adolescent children. Missing breakfast and lack of exercise were slightly more among female, whereas consumption of junk food and screen time >2 hrs./day were more among male. In an Indian study on 1652 participants, skipping breakfast was reported to be as high as 55%, much more than in the present study, but more among female comparable to the present study⁽⁸⁾. Skipping meal has been reported be 23% as per a current review from India⁽⁴⁾. Breakfast is considered as brain's food and missing breakfast has significant health hazards like lesser energy intake and more snacking on added sugars⁽⁹⁾.

In the present study, daily consumption of junk food was low, <10% and 20-30% denied it. Consumption of street food as high as 90% has been reported from other parts of India. (8 Kumar). Geographical differences and prevailing

health education strategies may be the reason for this difference (4 Piyush). Consumption of the JUNCS- Junk food, Ultra-processed, Nutritionally inappropriate, Colored, carbonated and cola drinks and Sugar sweetened beverages has been reported to be increasing in India over last two decades (4, 10). Factors responsible for this are variable like easy availability, convenience, palatability, working parents, attractive presentation, catchy advertisements, low cost, and vigorous marketing strategies (11). A survey conducted by Centre for Science and Environment (CSE), India on 13200 9-14-year-old children, packaged food consumption was 93% and packaged sugar-sweetened beverages consumption was 68% more than once a week and 53% consumed these products at least once a day (4). Junk food consumption from fast food outlets, more than once a week has been reported to be 25% (12). School-based interventions may be an effective strategy in reducing the consumption of the JUNCS. In a systematic review of 48 studies on school cafeteria interventions, effective classroom nutritional and educational programs had been suggested (13). High Court of Delhi, India had set a ban on sale of junk food, high in fat salt and sugar (HFSS) including sugar sweetened carbonated non-carbonated beverages within the school or within 50 meters of its premises in 2015 (4).

Taking exercise >2 hours/day was reported more among male and was comparable to the earlier observation of moderate to vigorous exercise for >1 hour among male, compared to female (8 Kumar). Prolonged screen time >2 hours/week was reported more among male. In the latest recommendation, the American Academy of Pediatrics has restricted screen time to <2 hours/day among adolescent children and 9 out of 10 children are reported to exceed this time limit (14).

Noncompliance to WIFS program was reported in a sizeable number and is of great concern due to the high prevalence of nutritional anemia in the region (15). As per

NFHS 4 Indian data (2015-2016), nutritional anemia was as high as 29% among adolescent male and 54% among female (16). The targets for 2022 are to reduce it to 11% and 36%, respectively among male and female (17). This is an eye opener to strengthen the WIFS program and its compliance.

In the present study, parental perception about not sharing of all life events was three-fold less than child report. This is of concern and requires remedial measures. In a study on 613 child-parent dyads, 362 healthy, 130 with cancer and 121 with chronic ailments, maximum discrepancy in reporting life events was among healthy children. It was least among children with chronic ailments, but parental reporting of negative life events was more in the cancer subgroup. (5).

In the present study, usage of alcohol/tobacco/drug was reported to be extremely low. High prevalence of alcoholism, tobacco usage and substance abuse has been reported among young individuals from other parts (18). This difference is attributable to the prevailing health education strategies and there are now efforts to address this issue at various universities (19, 20).

Vaccination coverage reported in the present study was high. Coverage of TT/Td/Tdap has been reported to be high, compared to other vaccines like HPV as noted in the present study (21).

Parental perception that the school bag was heavy and that the toilets in the school were not clean are important issues to be addressed at school level. These issues have been included in the 'Child Friendly School Initiative' initiated in India in 2011 (22).

The other issues revealed were anxiety about the safety of the child, lack of appreciating the child for achievements other than scholastic, having no dreams about the child's future, comparing the child with other children. One positive observation was that patient listening to

child's problems was reported by majority of parents.

CONCLUSION

Dietary and behavioral patterns showed variability with respect to gender among adolescents. There was general agreement between parent-child reporting in most items except sharing of all life events, which was three-fold more as per parental perception. There were several issues that warrant behavioral change communication as per parent-child reporting.

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Contribution: EKE conceived and undertook the study, and drafted the paper, ADA contributed in data management and drafting.

What is known about this topic: Dietary habits and behavioral patterns vary among adolescents

What this study adds: Dietary habits, behavioral patterns and parental perceptions vary with gender and place of residence. There was agreement between parent-child reporting in most events except sharing of all life events.

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