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Assessment of Lifestyle Factors and Its Potential Health Consequences Among Adolescent School Children

[1]Bhavana R. Hiremath, [2]S. Ashwini, [3]Vandana Hiregoudar, [4]Deepthi and [5]Pushpa S. Patil

[1,2]Department of Community Medicine, SDM College of Medical Sciences, Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India

[3-5]Department of Community Medicine, SDM College of Medical Sciences and Hospital Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India

ABSTRACT

Adolescent children are in a vulnerable period of life where they are influenced by a variety of factors like friends, relatives, media which mold their personality and lifestyle choices. It is essential educate and create awareness regarding healthy lifestyle habits at a young age. This study was formulated to assess the lifestyle factors of adolescent school children and its impact on their health. A cross-sectional study was conducted among adolescent school children belonging to two schools in an urban area. Data collection was done using a semi-structured questionnaire. Anthropometric measurements were also taken using appropriate instruments. Demographic data, lifestyle habits and anthropometry were assessed. A total of 312 students participated in the study. Sleep pattern was erratic for most student with 30% students after 11pm every night. 39.5% students own a mobile phone at home and 82.4% students play games on mobile phones. 41.6% students watch television along with their families while dinner. Only 20.8% students play a sport. 82% students consume soft drinks and 74.4% consume chocolates regularly. BMI showed that 19.2% girls were overweight and obese. Promoting healthy lifestyle habits should be started at a young age. Proper motivation and reinforcement should be done at school and home. Parents and teachers should inculcate healthy lifestyle practices and encourage students to follow.

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Key Words
Adolescent health, lifestyle, screen addiction, childhood obesity, dietary pattern

Corresponding Author
Bhavana R. Hiremath,
Department of Community Medicine, SDM College of Medical Sciences, Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India

Author Designation
[1-4]Associate Professor
[5]Professor and Head

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INTRODUCTION

Adolescents as defined by the WHO are individuals in the age group of 10-19 years. This period represents a phase of transition wherein there are physical, social and psychological changes happening in their lives[1]. India has the largest adolescent population in the world, 253 million and every fifth person is between 10 -19 years[2]. The term lifestyle refers to a set of behaviors that an individual engages in over a period, which may include both health-promoting and health-damaging practices[3]. It refers to the characteristics of inhabitants of a region. It includes day to day behaviors and functions of individuals in job, activities and diet[4]. These behaviors which are set in childhood, often persist in adulthood accentuating the need to promote healthy practices early on. Increase unhealthy lifestyle behaviors such as poor diet, physical inactivity and smoking, lead to an increase in lifestyle-related health problems such as obesity, heart disease and diabetes[5]. Children, who are still developing physically, mentally, and emotionally, are particularly vulnerable to these effects, which further emphasizes the importance of instilling healthy lifestyle habits at a young age to ensure proper growth and development[6]. The escalating chronic diseases of adulthood are now the principal health burdens in world. They already dominate health services and will markedly increase over the years to come. Childhood obesity is one of the most serious public health challenges of the 21st century. Globally, in 2015 the number of overweight children under the age of five, was estimated to be over 42 million[7]. 10.8% of school children in India are overweight[8]. Obesity is either due to excess calorie intake or insufficient physical activity or both. Also, various genetic, behavioral and environmental factors play a role in its pathogenesis. Childhood obesity is a forerunner of metabolic syndrome, poor physical health, mental disorders, respiratory problems and glucose intolerance, all of which can trail into adulthood. Developing countries like India have a unique problem of 'double burden' wherein at one end of the spectrum we have obesity in children and adolescents while at the other end we have under-nutrition and underweight. Sudden changes in lifestyle factors have a tremendous effect on increasing trend of childhood obesity. Overweight and obese children are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age. Television viewing also contributes to sedentary lifestyle. Watching television requires no energy in excess of resting metabolic rates and it may reduce the time spent in more energy-expensive activities. The foods most heavily advertised on television, are more likely to be consumed by children watching increased amounts of television, which are clerically dense foods such as sugared breakfast cereals, candy bars, cakes, cookies and carbonated beverages. Non nutritious food references occur even more frequently in programs than in advertisements. These may contribute to eating frequently that occurs among adolescents watching television. An energy imbalance between calories consumed and calories expended is the vital cause of overweight and obesity[9]. Availability and introduction of "fatty", "empty calorie" and "energy-dense" foods, sedentary lifestyle, indoor physically inactive games are some of the direct lifestyle factors causing obesity especially among children[10]. Media plays an important role in popularizing these lifestyle changes. 23.2% school children spend >three hours a day watching television or playing video games[8]. Several cross- sectional studies in Western countries have shown that overweight and obese adolescents are less physically active than non-obese subjects. Physical inactivity, high socioeconomic background and dietary transition were found to be major factors for obesity[11]. It is now recognized that preventing the obesity epidemic in childhood is the best strategy to bring the problem under control. Maintaining an energy balance and inculcating this habit early in childhood is essential for preventing childhood obesity. Considering the effects of dietary habits, physical activity and gadget viewing, we undertook this study with the objective to understand these lifestyle factors and its impact on the health adolescent school children. We also aimed to educate the children on the importance of inculcating a healthy lifestyle in daily life.

MATERIALS AND METHODS

Type of Study and Study Design: A cross-sectional study was conducted among school children to assess their lifestyle habits and practices.

Study Population: High school children belonging to urban area of Dharwad city.

Selection Criteria: A list of all schools in the city was collected from Block Education Officer. Two schools were chosen randomly from the list. Lifestyle factors included in our study were dietary habits, physical activity, television and gadget usage. High school students are capable of giving reasonably accurate answers to the questions. Hence, we enrolled them as our study subjects. Informed consent was obtained from school authorities and parents of the school children. Those children whose parents gave consent were included in the study.

Data Collection Procedure: A structured questionnaire was prepared and students were asked to fill this. Details regarding education and occupation of parents, activity in school and after school, study hours, duration of television viewing and playing videogames,

foods consumed and food frequency questions were obtained from students. Anthropometric measurements of the students were taken.

Instruments: Structured questionnaire, measuring tape for height, weighing machine for weight.

Quality Control: All students were administered the questionnaire at the same time such that there was no scope for discussion among them.

Ethical Consideration: Necessary permission was taken from the concerned Block Education Officer. Institutional ethical clearance was obtained. Informed consent was taken from schools and parents of school children before we commenced the study.

Confidentiality: Identity of school children and their responses was kept confidential.

Sample Size: Physical inactivity among 11-17 years age children in South-east Asia is reported at 73.4%[12]. Using this as prevalence with 95% confidence interval, 10% error and design effect 2, sample size was worked out to be 290. Accounting for 10% non-response/ incomplete response or dropouts sample size was 319, which was further rounded off to 320 children.

Data Analysis: Data collected was entered in Microsoft Excel and was later analyzed using SPSS v.21. Data is presented in form of tables and graphs. Percentages, proportions, mean and standard deviation is used. Other appropriate statistical tests are applied as per the information collected.

RESULTS AND DISCUSSIONS

A total of 312 students of class 8 and class 9 belonging to two urban schools participated in the study. Of the total students, 57.1% were boys and 49.5% were aged 14 years. Regarding education of parents, more than 79% of fathers and 53.6% mothers were graduates and above. 13.8% students were a single child while 63% students had one sibling. (Table 1). Majority of the students wake up after 6 a.m (47.6%) and sleep between 10-11p.m (49.6%). It was also seen that majority of the students 59.2% used school transportation while 30.7% walk to school and 3.1% use bicycle to reach the school. (Table 2). Regarding availability of a screen at home, 286 (89.7%) students have television at home, 222 (69.6%) students have computer at home, 95 (29.8%) students have video-games at home while 126 (39.5%) students have their own mobile at home. 217 (68%) students have access to internet at home. During school days, 61.5% students watch television for more than an hour. On Sundays, the number increases to 78.2% students watching television for >two hours. 39% students consume snacks and junk food while watching the television while 41.6% have dinner along with family members while watching television. Most common programs watched on the television include sport matches by 82.7% students and entertainment shows by 89.4% students. Only 17.6% students do not play games on mobile phones. (Table 3). Only 20.8% students have enrolled into any form of regular sport activity like basketball, cricket and badminton. 25% cycle on regular basis and 16.6% students go for regular walks most oftem accompanying their parents. Regarding the food pattern of students, it was seen that 52.2% students were vegetarians. Majority students consumed fruits and vegetables at least 2-3 times a week (91.4% and 93.6% respectively). Food items like chocolates, ice cream, chips are consumed very often by majority of students. Bakery items are consumed by almost 32% students twice or thrice a week. It was disheartening to know that almost 82% students regularly consume soft drinks. (Table 4). Anthropometric measurements were done for all students. Majority of students weighed between 41-60 kg (64.1%), almost 26% students weighed below 40kg while 4.1% students weighed above 71 kg. in regards to height, 75.3% students were between 1.6-1.8m. (Table 5). BMI was calculated for all students to assess whether they were overweight or thin. The WHO BMI chart for age was used as reference for this purpose. It was noted that overall, 25 (19.2%) girls and 18 (9.8%) boys were overweight and obese while, 17 (13%) girls and 56 (30.7%) boys belonged to thin and severe thin category. In the recent years there has been a rapid change in lifestyle patterns for people especially adolescents. This could be attributed to a variety of factors like urbanization, availability and afford ability to junk food, physical inactivity due to availability of gadgets (screen time). Such unhealthy lifestyle practices can have repercussion on health of adolescents and also impact their academic performance in the long run. In our study 61.5% students watched television for more than one hour on school days. Similar results were seen in study conducted in Hyderabad where 91% students watched television for >one hour on school days[13]. In other studies, the situation was relatively better where only 18% and 8.1% watch television on school days[14,15]. During the weekend, 78.2% of students watch television >two hours in our study. Similar results were seen in various studies showing 51.7% and 26% students having similar television viewing pattern[14,15]. A cohort study conducted revealed that 18.4% reported more than eight hours television viewing per week[15]. In our study, 41% students watch the television while having dinner with family members. Dinner time should focus on the food consumed and having conversations among family members rather than watching television. Parents should act as role models for their children. They should promote healthy habits and should reduce their screen time. Parents need to be made aware of negative effects

Table 1: Table Showing Sociodemographic Profile of Student's Families

Characteristics		Frequency	Percentage
Gender	Female	130	40.8
	Male	182	57.1
Class	8th	158	49.5
	9th	154	48.3
Age	14 years	158	49.5
	15 years	154	48.3
Father's Education	SSLC	17	5.3
	PUC	42	13.2
	Graduation	156	48.9
	Post-graduation	97	30.4
Father's Occupation	Government Job	57	17.9
	Private company	98	30.7
	Self-employed	147	46.1
	Agriculture	9	2.8
	Others	1	0.3
Mother's Education	SSLC	46	14.4
	PUC	95	29.8
	Graduation	128	40.1
	Post-graduation	43	13.5
Mother's Occupation	Housewife	231	72.4
	Government Job	48	15.0
	Private company	26	8.2
	Self-employed	4	1.3
	Others	3	0.9
No. of Siblings	Zero	44	13.8
	One	201	63.0
	Two	58	18.2
	Three	9	2.8

Table 2: Table Showing Practices of Students on School Days

Characteristics		Frequency	Percentage
Wake Up Time	Before 6a.m.	71	22.3
	At 6 a.m.	89	27.9
	After 6 a.m.	152	47.6
Sleep Time	9-10p.m.	58	18.2
	10-11p.m.	158	49.6
	After 11p.m.	96	30
Transportation used to Reach School	School transportation	189	59.2
	Parents drop	15	4.7
	Bicycle	10	3.1
	Walk	98	30.7
Activity Done after School	Lunch	160	50.2
	Snacks	120	37.6
	Sleep	6	1.9
	Games	26	8.2

Table 3: Table Showing Screen Viewing and Physical Activity Habits of Students

Characteristics		Frequency	Percentage
Television Viewing During School Days	<30mins	67	21.5
	<1 hour	53	16.9
	>1 hour	192	61.5
Television Viewing on Sundays	<2 hours	68	21.7
	>2 hours	244	78.2
Maximum TV viewing during Weekday	Just after school	57	18.2
	Evening	81	25.9
	During dinner	130	41.6
	After dinner	44	14.1
Time Spent on Playing Games on Mobile	30 mins	153	49.0
	1 hour	75	24.0
	>1hour	29	9.3
	Don't play	55	17.6
Physical Activity	Walking	52	16.6
	Jogging	17	5.4
	Running	40	12.8
	Cycling	78	25.0
	Sports	65	20.8
	No exercise	60	19.2
Duration of Physical Activity	< 30mins	177	56.7
	≥30mins	75	24.0
	No exercise	60	19.3

Table 4: Table Showing Diet Pattern (Food Frequency) of Students

Food Categories	2-3 Times a Week		2-3 Times a Month		Occassionaly	
	Frequency	%	Frequency	%	Frequency	%
Fast Food	41	13.1	195	62.5	76	24.4
Chips	137	43.9	145	46.5	30	9.6
Soft Drinks	66	21.2	190	60.9	56	17.9
Bakery Items	100	32.1	175	56.1	37	11.9
Chocolates	232	74.4	69	22.1	11	3.5
Ice-creams	147	47.1	159	51	6	1.9
Meat	59	18.9	81	26	172	51.1
Rice	129	41.4	152	48.7	31	9.9
Hotel Food	38	12.2	254	81.4	20	6.4
Fruit Juices	168	53.8	138	44.2	6	2.0
Fruits	285	91.4	26	8.3	1	0.3
Vegetables	292	93.6	17	5.4	3	1.0

Table 5: Anthropometric Measurements

Anthropometric Measure		Frequency (Percentage)
Weight (Kg)	30-40	81 (26)
	41-50	127 (40.7)
	51-60	73 (23.4)
	61-70	18 (5.8)
	≥71 kg	13 (4.1)
Height (m)	1.3-1.5	77 (24.7)
	1.6-1.8	235 (75.3)

Author Contributions

Author name	Contribution
Bhavana R. Hiremath	Conceptualization, Methodology, Formal Analysis, Investigation, Provision of study materials, Data Curation, Writing-Original Draft, Data presentation, Project Administration.
Ashwini S.	Conceptualization, Methodology, Investigation, Provision of study materials, Writing-Review and Editing.
Vandana Hiregoudar	Conceptualization, Methodology, Validation, Formal Analysis, Investigation, Provision of study materials, Data Curation, Writing-Review and Editing.
Deepthi	Methodology, Validation, Investigation, Provision of study materials, Writing-Review and Editing.
Pushpa S. Patil	Conceptualization, Methodology, Validation, Investigation, Provision of study materials, Writing-Review and Editing, Supervision, Project Administration.

of screen time, sedentary behaviour. 30% students played on their mobile phones for >an hour every day in our study. Similar results were seen in a meta-analysis conducted for the same which revealed that 39-44% adolescents are addicted to their mobile phones[16]. Another study found a higher percentage (69.5%) youngsters addicted to their mobile phones[17]. It is disheartening to find in our study that 39% students at this age own a mobile phone. This can be attributed due to the online academic activity during COVID. Parents should restrict mobile and television viewing for their children. These gadgets hamper the mental health and academic performance of children. Parents should be made aware about the safety measures to be taken to safeguard and monitor their child's online activity. Dietary habits among adolescents have shifted from healthy home-cooked meal to junk foods which are energy-dense and nutrient-poor. In a country like India, both ends of the nutrition spectrum seen among adolescents. Overweight and obesity has set in among adolescents especially in urban areas while under nutrition (thinness) is still prevalent especially among the rural population or lower socio-economic class. In our study, 74.4% students consume chocolates 2-3 times a week whereas in a similar study conducted at Jaipur 20.5% students who consume >1 chocolate per week and 20.5% students who consume chocolate less than once a week (14.2%) are obese[18]. In our study 12.2% consume hotel food 2-3 times a week 81.4% consume hotel food 2-3 times a month. A similar study found 17.1% consume restaurant food 2-3 times a week[18]. In our study only 62.8% students had normal weight for age. Lack of attention given to food during mealtime, lack of awareness regarding hazards of junk food, lack of physical activity, poor nutritive value foods consumed and addiction to screen are probably the main causes for this.

Limitations: Two schools were randomly chosen from a list of schools in the urban area. We could have probably applied a sampling method to decrease any bias in the study. For data collection, we asked students to fill the questionnaire. This results in many incomplete questionnaires. As we were dealing with students, we should have probably adopted face-to-face interview to explain the questions and help students understand it better.

CONCLUSION

Adolescence is an extremely vulnerable age group constituting >one-fifth of India's total population. These adolescent children are living in a new age which is influenced by multiple sources like family, friends, media and most importantly social media. The pressure of living up to societal demand is felt by the adolescent children and their parents. In our study, we found nutrition level of adolescents on either ends of the spectrum. Obesity and thinness is prevalent among our study group. Excess viewing of gadgets like mobiles and television I s extremely common. Lack of interest in playing any sport and exercising is common while many students prefer watching these sport matches on television. It is imperative for parents, teachers and schools to emphasize the importance of healthy lifestyle practices and inculcate physical activity into the life of children at the earliest.

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REFERENCES

1. W.H.O., 2004. World Health Discussion papers on adolescence 2004: Contraception Issues in Adolescent Health and Development: WHO.
2. Jarosz, E., 2018. Lifestyle behaviours or socioeconomic characteristics? Gender differences in covariates of BMI in Hungary. Obesity Sci. And Pract., 4: 591-599.
3. Farhud, D.D., 2015. Impact of Lifestyle on Health. Iran J Public Health., 44: 1442-1444.
4. Ng, R., R. Sutradhar, Z. Yao, W.P. Wodchis and L.C. Rosella, 2020. Smoking, drinking, diet and physical activity-modifiable lifestyle risk factors and their associations with age to first chronic disease. Int. J. Epidemiol., 49: 113-130.
5. Scaglioni, S., V.D. Cosmi, V. Ciappolino, F. Parazzini, P. Brambilla and C. Agostoni, 2018. Factors Influencing Children's Eating Behaviours. Nutrients, Vol. 10 .10.3390/nu10060706.
6. W.H.O., Global Strategy on Diet, Physical Activity and Health: What are the causes.
7. W.H.O., 2003. World Health Organisation. Ministerial round table on diet, physical activity and health, Regional Commitee for the Western Pacific Fifty-third Session. Japan Vol.
8. Eisenmann, J.C., R.T. Bartee and M.Q. Wang, 2002. Physical Activity, TV Viewing, and Weight in U.S. Youth: 1999 Youth Risk Behavior Survey. Obesity Res., 10: 379-385.
9. Laxmaiah, A., B. Nagalla, K. Vijayaraghavan and M. Nair, 2007. Factors Affecting Prevalence of Overweight Among 12-17-year-old Urban Adolescents in Hyderabad, India. Obesity, 15: 1384-1390.
10. Matheson, D.M., J.D. Killen, Y. Wang, A. Varady and T.N. Robinson, 2004. Children's food consumption during television viewing. The Am. J. Clin. Nutr., 79: 1088-1094.
11. Reilly, J.J., J. Armstrong, A.R. Dorosty, P.M. Emmett and A. Ness et al., 2005. Early life risk factors for obesity in childhood: Cohort study. BMJ, Vol. 330 .10.1136/bmj.38470.670903.e.
12. Davey, S. and A. Dave., 2014. Assessment of Smartphone Addiction in Indian Adolescents: A Mixed Method Study by Systematic review and Meta analysis Approach. Int. J Prev. Med., 5: 1500-1511.
13. Jain, K. and N. Kakkar., 2013. Mobile phone addiction among youngsters. Sch. Res J Interdiscip Stud., 8: 473-479.
14. Jain, A., A. Jain, J. Pankaj, B. Sharma and A. Paliwal, 2016. The study of obesity among children aged 5-18 years in Jaipur, Rajasthan. Muller J. Med. Sci. Res., 7: 125-130.