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Journal of Nursing Science & Practice
Volume 1, Issue 1, July, 2011, Pages 1-9.

Awareness about Lifestyle Diseases Associated Risk Factors in School Going Children in Delhi

Tanu Anand[*]*, Phalguna K., Jugal Kishore & G. K. Ingle*

Department of Community Medicine, Maulana Azad Medical College, New Delhi

Abstract

Lifestyle means a pattern of individual practices and personal behavioral choices that are related to elevated or reduced health risk. The diseases which primarily arise from the abnormal lifestyle of a person are grouped under the term "Lifestyle Diseases". For younger population, the risk of lifestyle disease looms larger. Therefore, this paper aimed to find the prevalence and awareness of lifestyle disease related risk factors in school going children aged 8- 12 years of Delhi. A cross-sectional study was carried out in a government and private school of Delhi. A questionnaire was made to elicit the awareness levels amongst the school children about the risk factors associated with lifestyle. The specific scores were given to responses of various questions, and data was analyzed using WHO software package Epi Info. A total of 293 participants from both the schools aged 8-12 years were included. 10% students were classified as obese whereas 11% were labeled as overweight. Nearly 39% students were underweight. Around 50% of the participants were consuming soft drinks, chocolates and chips at least 3 times per week. Awareness regarding healthy and harmful eating was quite high amongst the school children. 60% said that parents and family were the most influential source of information about their health. The recommended level of physical activity was being practiced by 55% of the students though more than 90% knew that physical activity is good for health. Almost 90% of the school children were also aware about the addictive nature of smoking and alcohol and that they are harmful to health. Though the awareness level is high, it does not reflect in their eating habits. Opinion of the children with respect to physical activity is not in line with their present practice. Thus, it can be concluded that just imparting knowledge and increasing awareness is not sufficient to prevent the onset of lifestyle diseases amongst school children.

Keywords: Lifestyle diseases, school children, eating habits, Physical activity

Author for Correspondence E-mail: drtanu.anand@gmail.com

INTRODUCTION

"Lifestyle" originally coined by Austrian psychologist Alfred Adler in 1929, means the way a person lives. It is a pattern of individual practices and personal behavioral choices that are related to elevated or reduced health risk. Lifestyles are born of a multitude of causes, from childhood determinants to personality makeup to influences in the cultural, physical, economic, and political environments.[1] In recent times, these lifestyle patterns have modified significantly which has lead to increase in both physical and mental diseases in the world population. Such

diseases have been grouped under the term "Lifestyle Diseases." An alarming number of diseases fall under this category- Obesity, Cardiovascular diseases, Depression, Diabetes Mellitus, Metabolic Syndrome to name just a few. More disturbing is the fact that a majority of these diseases are inter-related in the sense that one of them can perpetuate the other leading to a viscous cycle.

The astonishing rate at which the lifestyle diseases are rising in the population has made them diseases of public health concern. In 2001, lifestyle diseases accounted for 46% of morbidity and 60% of mortality.[2] More than 17 million people die prematurely each year as a result of the global epidemic of chronic diseases, which is the leading cause of death in the world today. The World Development Report 2004, showed that 77% and 50% of the years of life lost (YLLs) due to premature mortality were contributed by Non-communicable diseases in high and middle-income countries. Globally, non-communicable diseases contributed highest burden of YLLs i.e., 612 per lakh population as compare to 275 per lakh population that is due to communicable diseases.[3] The vast majority of cases are caused by a small number of known and preventable risk factors. Three of the most important risk factors are unhealthy diet, physical inactivity and tobacco use.

Most of the world, particularly developing countries like India, is undergoing nutrition transition. Adopting lifestyle from the west has been implicated for rapid rise in the prevalence of lifestyle diseases. It is of growing concern as it is affecting the pediatric population as well.

Childhood obesity and overweight has become a global epidemic.[4] In one of the most extreme examples from 1976-1980 to 1999-2000, the prevalence of overweight among children ages 6-11 years doubled, from approximately 6.5 percent to 15.3 percent in the United States. During the same time period, the prevalence among adolescents aged 12-19 years also increased more than three-fold from approximately 5 percent to 15.5 percent.[5,6] Overweight children often become overweight adolescents and adults and overweight in adulthood is a serious health risk.[7,8] However the global problem of childhood overweight increasingly extends into the developing world.[9]

Several case studies have elucidated the relatedness of obesity to other lifestyle diseases. There is extensive documentation of consumption of high energy and fatty foods by the adult population and above average level of obesity among them.[9] But there is insufficient data available for the children and adolescents particularly for the developing countries like India. Also, because of the increased prevalence of overweight among children and the risk of subsequent chronic disease in adulthood, it is important to study the correlates of overweight in young children. Therefore, this study was undertaken to assess the lifestyles of school going children, their awareness pertaining to the disease and its risk factors and their preferences in light of this knowledge.

MATERIAL AND METHODS

It was a school based cross-sectional study. The study participants aged 8-12 years and belonged to standard 6^{th}-8^{th} of a

government and a private school which were randomly selected from the list of schools in Central Delhi. The sample was calculated taking 15% prevalence of lifestyle diseases (e.g. obesity) accepting the worst prevalence of 10% with 95% confidence level which is a maximum of 198 but a sample of 293 children (whoever present at that time in class) was enrolled in the study.

Study tool: A questionnaire was designed to elicit the height, weight; eating habits, the child's awareness about healthy and nutritious diet; the food preferred by the child, and the diet provided by the parents; understanding of the various triggers that influence the child's eating habits (Advertisements, Peer influence, Family Background, Family's Indulgence); physical activity, interest in sports, and how often the child indulges in any particular sport or physical activity; various factors that wean away the children from sports and physical activity (TV viewing habits, browsing habits etc); views on smoking habits and drinking habits, their awareness regarding these habits.

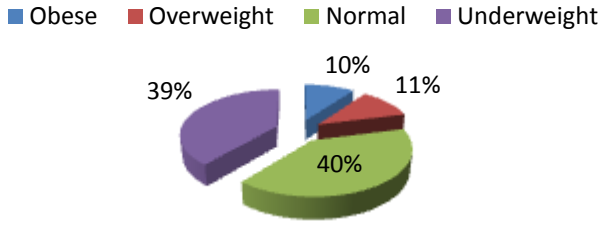
Statistical Analysis: Underweight and overweight children were compared taking consideration of various factors and chi square and Fischer's exact tests was calculated to assess any statistical significance. Data was analyzed using WHO software package Epi Info.

Ethical considerations: As the subjects of the study were under 18, the head of the institution or the student's counselor was requested to give their informed consent to get the information. They were explained the purpose of study and their right to quit the study at any time without giving the reasons for doing so. The children's information is dealt with confidentiality. After getting the information students were told about the benefits of healthy lifestyles.

RESULTS

The study had a total of 293 participants with an equal distribution from a private and a government school in New Delhi. All participants were between 8 to 12 years of age. The height and weight of the students were used to calculate Body Mass Index[11], based on which the 10% students (n=28) were classified as obese (BMI $\geq$ 30 Kg/m^2), 11% (n=31) as overweight (BMI 25-29.9 Kg/m^2) and 39% (n=114) as Underweight (BMI <18.5 Kg/m^2) (Figure 1).

Fig 1:Classification of students according to BMI



Overweight and underweight students were compared with respect to socio-demographic profile. Overweight and obesity was found to be significantly associated with owning of a car. The fact is that such children were studying in a private school. However, no significant association was found with respect to physical exercise, gender of the child, consumption of cold drinks and worrying (Table 1).

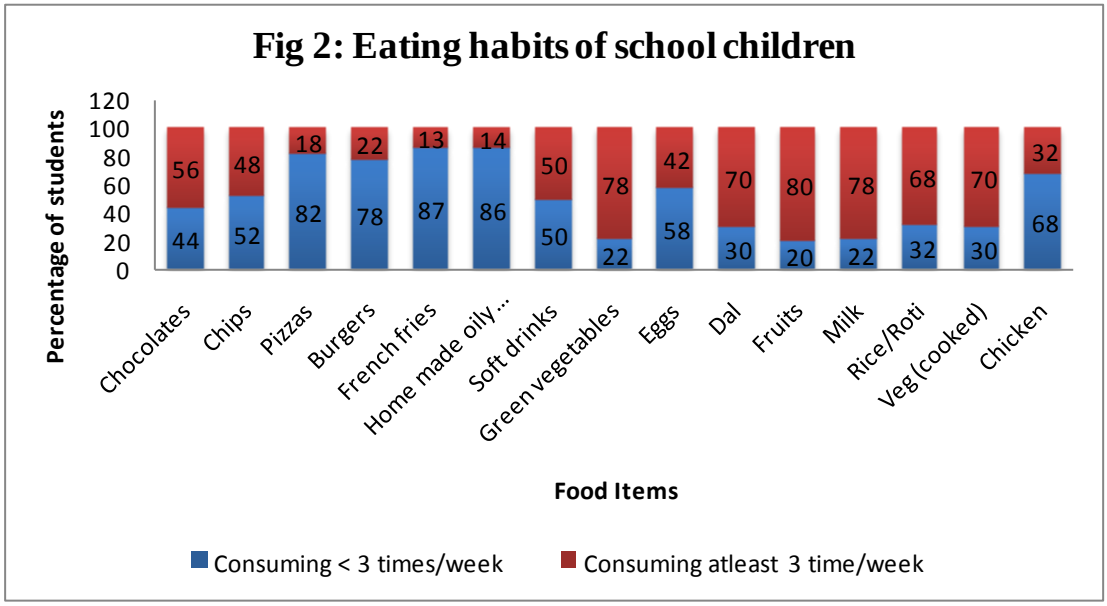
Table 1: Comparison of underweight and overweight students with socio-demographic variables and eating habits

FACTORS		UNDERWEIGHT (BMI <18.5) %	OVERWEIGHT (BMI 24.5-50)	*P*- VALUE
SCHOOL	Public	47	41	0.002
	Government	59	17	
SEX	Male	63	30	0.758
	Female	41	23	
SES	Owning a Car	39	32	0.034
	Not owning a car	65	25	
SOFT DRINKS	(>3 times/week)	53	21	0.134
	Not Drinking	52	36	
EXERCISE	<2 times/week	56	19	0.056
	≥3-4 times/week	46	32	
WORRY	Very often	32	20	0.827
	Worry sometimes	52	24	
	Do not worry	10	4	

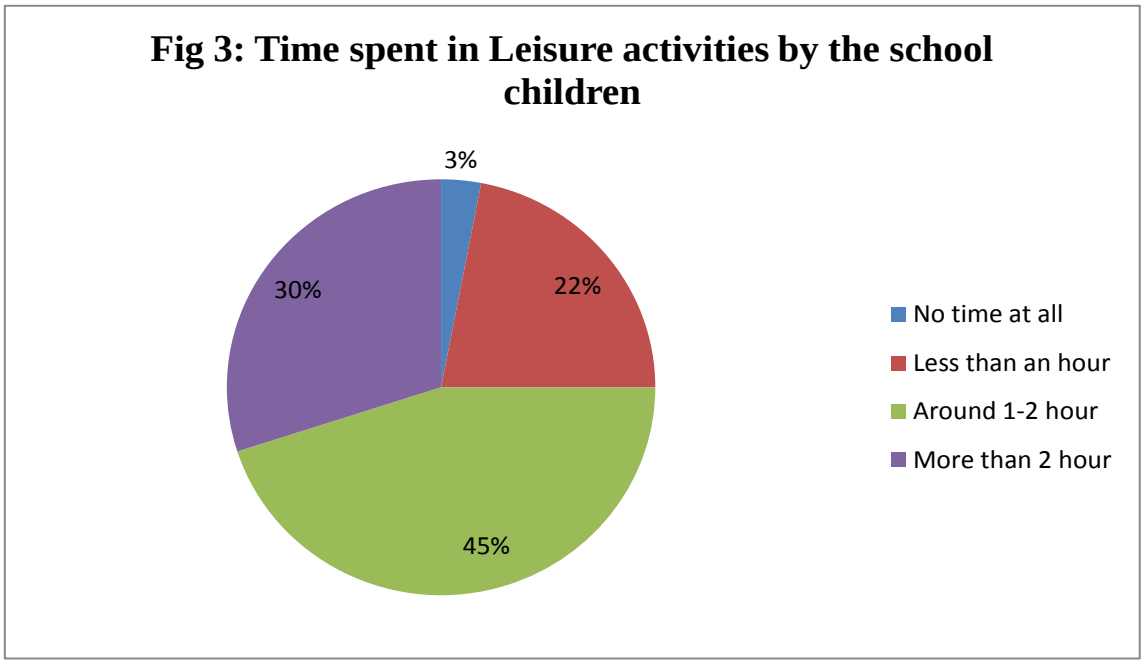
The present eating habits of the school children was assessed by asking them to tick the foods which they consume at least 3 times per week. As is evident from the Figure 2 with respect to deleterious foods, 50% (n=147) of the population consumes soft drinks at least 3 times a week. Chocolates and Chips are also being consumed by almost the same amount of the population. On the other hand, as far as nutritious eating is concerned, around 70 to 80% of the respondents consumed foods like Green Vegetables, *Dal*, Fruits, Vegetables and Milk at least 3 times a week.

The respondents were asked to differentiate between nutritious and deleterious foods. Around 80 to 90% children knew that Green Vegetables, Dal, Milk, Fruits and Vegetables are good for health. Almost 95% knew that Pizzas, Burgers and French Fries are bad for their health.

On being asked how they come to know what is good for their health and what is bad, at least 60% said that parents and family were the most influential source of information. School education was also an important source of information as agreed by 52 % of children. Only 20 % and 10% of children said media and friends were the source of information respectively. Nearly 65% agreed that they bought or often buy food items on seeing the advertisements.



The respondents were asked about the amount of leisure time they spent everyday. More than 70% said that they get around 2 hours everyday for leisure (Figure 3). On enquiry about most preferred pass time in the leisure hours, video and computer games came out to be the most preferred pass time for almost 42% (n=123) respondents. 29 % (n=85) preferred watching TV and 2% (n=6) surfed internet for passing time. Only 27% (n=79) of the total population opted for a Non-Sedentary pass time.



The participants were asked on how often they indulged in some kind of outdoor games or physical activity. 45% (n=132) of the respondents play rarely or less than 2 times a week though more than 90% of the respondents gave their opinion as physical activity is good for one's health. The reason given for non indulgence in any kind of physical activity was either no time apart for studies (40%; n=117) or most children prefer TV/Computer (38%; n=111) than outdoor games. 16% (n=47) showed lack of interest whereas 6 % (n=18) laid the blame on bad school facilities.

In addition to above, the awareness about smoking and alcohol was also assessed. More than 90% of the respondents were of the opinion that smoking and drinking alcohol are harmful to health or addictive, so one must not indulge in them. On being asked whether they have smoked or would smoke if offered more than 90% answered in the negative. Also on being asked whether they have ever drunk alcohol or would drink if they were offered more than 90% answered in the negative.

At least 8% of the study subjects revealed that they experience difficulty in sleeping very often, while around 45% experience sleeping difficulties sometimes. Also, more than 35% of the respondents said that they worried often thinking about examinations or Parent Teacher Meetings.

DISCUSSION

India is a country in transition and now faces the double burden of coexistent under-nutrition and over-nutrition. The questionnaire based cross-sectional study conducted amongst school children revealed that malnutrition was present amongst 60% of the study population where 21% students were found to be overweight and obese and 39% of the children were underweight. The findings of this study are corroborated with a study done by Chhatwal et al (2004)[12] on school adolescents aged 9-15 years in Ludhiana. A literature review has further elaborated the fact that obesity is rapidly gaining epidemic proportions as it reported the prevalence of obesity to be in the range of 1.5-7.4% and overweight to be 8.5-29%.[13]

In our study, a significant majority of the obese and overweight children were from the higher socio-economic strata (families which at least own a Car) (p-value=0.016) and belonged to private school. This finding also supports the observations made in other studies such as school surveys done by Mudur [14] in Indian cities which have shown that 30% of the adolescents from India's higher economic groups were overweight, and 14 percent of them were from urban schools.

It is well known fact that knowledge is an essential ingredient for healthy behavior.[15] In the present study the awareness level amongst the children with respect to good eating habits was very good. This is evident from the fact that as many as 85 to 90% of the respondents understood and voiced the fact that Green Leafy vegetables, pulses, fruits and milk are nutritious while around 90% of the participants said that Pizzas, Burgers and French fries consumed on a regular basis is bad for health. But though the awareness levels were high it did not reflect in their eating habits as more than 50% of the population indulged in consuming foods like chips and soft drinks for more than 3 times a week. These findings are more than that found in Health Behavior in School Aged Children

2001/2002[16], in which among 11 year age group on an average 25.8% children drank soft drinks daily. This glaring difference between the Western World and Indian scenario is an eye-opener and probably accounts for growing epidemic of obesity particularly among children of the developing countries. The study also highlights the fact that just having knowledge does not translate in to practices.

We also studied the factors that influence a child's eating habits. Advertisements play a major role in promoting the children's eating habits as more than 65% of the children admitted to buying and consuming food items after being influenced by an advertisement. This has an important implication in the form that children are particularly sensitive and responsive to media presentations and try to imitate the role models which they see on television or other forms of media. Also, children's consumption of media, results in saturation with those images and products which may not be so healthy to take thereby increasing the likelihood of children getting into unhealthy eating habits. This was probably one of the reasons for children in current study resorting to eat junk food despite having knowledge about them.

The fact that the family and parents are possibly the most important in context of development of a child, the context in which social behavior and attitudes are first adopted,[16] is reflected in the present study as most of the students agreed that the family and parents are the most important source of information for influencing their eating habits. School education is also an important instrument which seems to influence the dietary behavior of the school children in the current perspective. This interesting finding is in line with the theoretical frameworks such as the Social Cognitive Theory (Bandura, 1986) or Bronfenbrenner's Ecological Model (Bronfenbrenner, 1979), which have suggested schools as an important environmental influence for the dietary behaviors of children and young adolescents.[17] Schools can be an effective and efficient medium to influence the health of school children.

It was observed that most children (70%) did not get enough time to recreate apart from studies. More than 70% said that they get almost anywhere between 1 to 2 hours everyday. But the choice of recreation mode was largely sedentary. With videogames/Computer Games and TV viewing topping the list of most preferred options of passing time, it was observed that only 27% of the participants indulged in outdoor games as a mode of recreation while at least 73% opted for a sedentary mode of either viewing TV or playing Video Games or Browsing the Net. Also, it was seen that more than 45% of the children were playing rarely or less than 2 times a week, though more than 90% knew that physical activity is an important factor for good health. The findings of our study are in consistency with the study done in Europe where only 38.5% met physical activity guidelines.[15] Also, the GSHS 2007[18] revealed that out of 8130 students of classes 8th, 9th, and 10th, only 30.2±3.0% were physically active for a total of at least 60 minutes per day on all 7 days during the past 7 days. The declining level of physical activity among the children is alarming as physical inactivity has been correlated with increasing burden of Non-Communicable Diseases (NCDs).

In a study done by Juulia et al (2003)[19] on a representative sample of 1290 school children aged 8-12 years showed that persistent sleep disturbances were found in 12% of the students. In our study too as much as 8% had sleeping difficulties very often. Perceived stress was the most significant risk factor for sleep disturbance in the study.

Strengths and limitations of the study: One of the greatest strengths of the study was inclusion of various factors or correlates of the obesity that we tried to study. Secondly we included more sample than the calculated sample size. Thirdly, including children from both public and government school allowed more representative sample.

Our study had few limitations as well. Firstly we use only questionnaire for assessment which is too subjective to bring out the clear picture. Also the height and weight of the students was self reported which may be wrong. Secondly, this was a cross-sectional study asking about eating habits without including the actual intake in terms of energy and nutrients.

Limitations withstanding, the study concludes that the high prevalence of both Obesity and Underweight reminds of the predicament that developing country like India faces. With the huge lag between awareness levels and actual practice amongst the children, the onus is on the family, school education and the media to mould productive and healthy lifestyle patterns for the children. There is immense scope for research on this topic especially to bring into clear focus on the various factors that directly and profoundly influence the children's behavioral patterns, thus providing with a much needed insight into what seems to be an intricate web of co-influencing relationships. It also highlighted the need of life-skill behavior change intervention rather than just increasing their level of awareness.

Acknowledgement: The authors thank Indian Council of Medical Research for providing financial assistance in carrying this research work. Their support is greatly acknowledged.

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