Physical fitness, activity and health status among primary school children

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ABSTRACT

The study was conducted to provide data on physical activity level, fitness and health among the primary school children at Amravati primary schools run by Amravati Municipal Corporation. 106 children were randomly selected from 5 primary schools. A self-administered questionnaire (demographic and socio-economic) was used. Fitness test and physical activity record were used for the collecting data. Anthropometric measurement, height, weight, waist and hip circumference were conducted to determine Body Mass Index (BMI) and Waist Help Ratio (WHR) of each subject. All the data were analyzed using SPSS and presented as mean of ±SEM. The study sample comprised of 40 SC, 32 OBC and 21 other caste and 13 other religion students. The mean age of all the subjects were 10.8 ± 0.04 years, ranging from 10-11 years old. Majority of subjects were having the family income of Rs. 5000-10,000 and most of all subject's parents academic qualification was above secondary level (96.3%). The mean height and weight of all subjects were 1.44 ± 0.007 kg and 39.19 ± 10.11 kg, respectively. The mean BMI and WHR values of the subjects were 18.38 ± 0.66 kg/m^2 0.81 ± 0.005 cm, respectively. Physical fitness tests were assessed in the study as sit and reach test, situp test and endurance shuttle run for all the subjects. The health status of the subject was at the satisfactory level based on the fitness level. However, the subjects in the present study were towards the negative trends on physical fitness and physical activity. Thus, the health education programme emphasizes on importance of physical activity and fitness should recommend to tackle this phenomena. Further research in children's physical status and health status should be conducted for better understanding on effect of physical activity among the children.
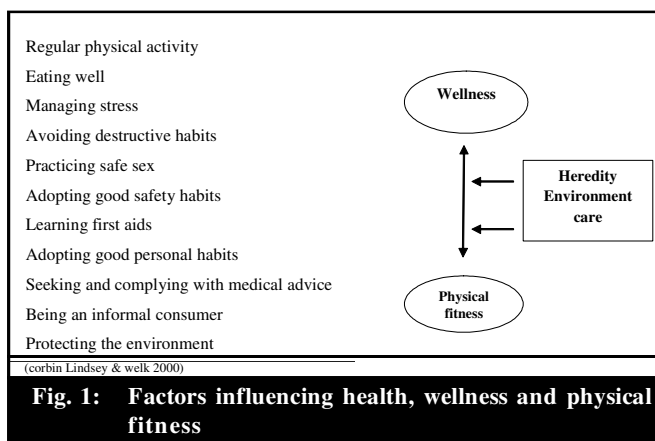
Key words : Physical fitness, Health status, School children

Regular physical activity helps to maintain functional independence of children and enhances the quality of life for people physical functions of all ages. Pate *et al.* (1995) described that regular physical activity is especially important for people who have joint or bone problems and have shown to improve muscle functions, cardiovascular function and physical performance. For people who are active, even small increases in physical activity are associated with measurable health benefits. As research continues to illustrate to link between physical activity pattern optionally to individual preferences with health risk and physiologic benefits (Pate *et al.,* 1995).

In order to develop a lifelong habit of exercise for children, education must be given from an early age, about the importance of physical activity in maintaining good health. Physical education class provided at school is one of the ideal ways to encourage activity and develop fitness among children and for many children it will be one of their preparations for an active lifestyle.

There are several factors influencing health, wellness and physical fitness as shown in the Fig. 1 below:

Regular physical activity
Eating well
Managing stress
Avoiding destructive habits
Practicing safe sex
Adopting good safety habits
Learning first aids
Adopting good personal habits
Seeking and complying with medical advice
Being an informal consumer
Protecting the environment

Wellness

Heredity
Environment
care

Physical
fitness

(corbin Lindsey & welk 2000)

Fig. 1: Factors influencing health, wellness and physical fitness

Benefits of regular physical activity are generally considered on the basis of cardio-respiratory improvement benefits in other health related components of physical fitness including muscular strength and endurance

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flexibility and body composition status. Physical activity contributes to weight gain and relative risk for coronary heart disease. This has been associated with subsequent mobility and mortality later in life evidence suggests that exercise pattern of adults are related to their physical activity as children (Kerner *et al.,* 2001). According to Harro (1997) the assessment of physical activity becomes important in epidemiological research because of the association between activity levels and health, as well as relation between activity and weight. Many studies have been concluded that the risk factors of cardio-vascular disease in adults, which includes a family history of heart disease, elevated bold lurid, obesity, hypertension, smoking, diabetes mellitus and independent physical activity can be indentified in children (Mahon and Vaccaro, 1989).

METHODOLOGY

This is a cross sectional study to get an over view of physical activity and nutritional status among urban children. In long run, the data could help other researchers to conduct a long term/cohort studies in order to get a full picture about the physical activity and physical fitness in urban and as well as the rural too.

Subjects :

A total of 106 upper primary school children were voluntarily recruited for this study. 45 male and 61 female subjects were recruited from standard 4 and 5 for the study.

Data collection :

A special designed questionnaire was used to collect data from the subject. The questionnaire consists of demographic and socioeconomic data such as name, age and also family income. The height and weight of subjects were measured in order to determine their health status. The waist hip ration (WHR) was measured to determine the distribution of fat in the body. The subjects also have been given the physical activity and dietary record form. This record allows the subject to self report daily act on the standard form which was modified from Mouchard *et al.* (1983). The diet record required the subjects to record all food and beverage consumed during a designation period 1-day period. The also required doing physical fitness test using AAHPRD sit and reach tact (1986) to measure abdominal muscular endurance and Endurance Shuttle Run (1998) to measure cardiovascular endurance. The scores collected were statistically analyzed using SPSS software. (Statistical package for social sciences) version II, by using means of ±SEM for socio-economic and anthropometric measurement.

OBSERVATIONS AND DISCUSSION

Socio-economic data of the subjects are shown in the Table 1. The incomes from Rs. 1,000-3,000, Rs. 3,000-5,000, Rs. 5,000 to 10,000 and Rs. 10,000 to 20,000 per month are having the percentages of 1.90, 9.40, 11.30 and 77.40, respectively.

The family income of the subjects were divided into five categories in Table 1 and it was found that majority of the subjects family income was above Rs. 10,000/- per month (77.40%). The Table 1 also indicates that most of the subject's parent academic qualification was above the Secondary level.

Table 2 indicates that the male students were 45 and 61 were the female students and the mean age of the subjects was 10.8±0.04 year with the range of 10 to 11 years. Table 2 also indicates the caste category of the subjects.

Out of 106 subjects, SC male and female students were 40, OBC 32, other castes 21 and of other religions were 13.

Table 1: Demographic and socio economic data		
Variables	Number	Percentage
Family income		
Rs. 5000-1000	0	0%
Rs. 1000-3000	2	1.90%
Rs. 3000-5000	10	9.40%
Rs. 5000-10000	12	11.30%
Rs. 10000-20000	82	77.40%
Education		
Primary level	4	3.80%
Secondary level	13	12.30%
Higher education level	89	84.00%

Source : From the questionnaire of demographic and socioeconomic data.

Actual mass index was used in this study to evaluate the nutrition status and health of the subjects (Table 3). The mean BMI value for male and female was 18.38 ± 0.46 kg/m^2. The mean BMI values for male and female were 19.75 ± 0.82 kg/m^2 and 17.37 ± 0.48 kg/m^2, respectively. Generally 60.4% of the subjects were categorized in underweight stage and 29.2% in normal weight category and 10.4% in the obesity stage.

BMI classification in the present study revealed that the majority of the subjects (60.40%) were categorized in the underweight stage and some also in obesity (10.4%). Nevertheless, only 29.20% of the subjects not faced any weight problem as they were classified in normal category. These differences directly or indirectly may be influenced by lifestyle factors.

Table 2: Caste category of students

Subjects	Number	SC		OBC		Other caste		Other religion	
		No.	%	No.	%	No.	%	No.	%
Male	45	20	44.44	12	26.66	10	22.22	3	6.6
Female	61	20	32.78	20	37.78	11	18.03	10	16.39
Over all	106	40		32		21		13	

Source : From the data collected by questionnaire

Table 3 : Anthropometric data of the subject

Variable	Mean (±SEM)		
	Males	Females	Over all
Age	10.84 ± 0.5	10.81 ± 0.049	10.48 ± 0.035
Height (m)	1.43 ± 0.010	1.44 ± 0.009	1.44 ± 0.007
Weight (kg)	40.78 ± 0.010	36.28 ± 1.28	38.19 ± 1.11
BM ± $(kg/(m^2)$	19.75 ± 0.82	17.37 ± 0.48	18.38 ± 0.46
WHR (cm)	0.84 ± .006	0.78 ± 0.005	0.81 ± 0.005

Table 4: Distribution of sit and reach test of male and female subjects

Category	Gender				Total	
	Male		Female			
	Number	%	Number	%	Number	%
Poor	36	33.98	50	47.17	86	81.13
Fair	8	7.55	12	11.32	20	18.88
Good	…	…	…	…	…	…
Excellent	…	…	…	…	…	…

Table 5: Distribution of sit up for male and female subjects

Category	Gender				Total	
	Male		Female			
	Number	%	Number	%	Number	%
Poor	27	25.47	50	47.17	77	72.64
Fair	18	16.98	11	10.38	29	27.36
Good	…	…	…	…	…	…
Excellent	…	…	…	…	…	…

Health related fitness is typified by a set of attributes that persons have not achieved that related ability to perform physical activity. In this study three fitness tests were conducted on all the subjects in order to identify their fitness level. The study revealed that the sit and reach and sit up test of the subjects were within poor (25th percentile) and fair (below 50th percentile) level only (Table 4 and 5). The present study showed that subject performed lesser in sit and reach test when they were compared with other studies. The distribution of subjects on endurance shutle run test has been given in Table 6 for comparision of male and female students.

Conclusion :

The present study was conducted mainly to determine the physical activity and fitness status among

Table 6 : Distribution of endurance shuttle run test

Shuttle run test predicted VO_2 max	Subject		Total
	Male	Female	
	Number	Number	Number
0	2	1	3
26.8	8	21	29
27.6	5	8	13
28.3	9	16	25
29.5	2	0	2
30.2	7	7	14
31.0	6	3	9
31.8	3	5	8
32.9	3	2	3
Total	43	63	106

school children. Less inactivity or having sedentary life style will only brings more health problems compared to active children. Therefore, as a conclusion, though there were some indications that the subjects were not fit and not practicing good healthy life style, nevertheless, it is better to promote health in school in a large scale to prevent chronic disease among the children. Young children are still at large stage of changing their life style so it is just a matter of improving their quality of life before they adopt unhealthy life style.

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