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Physical inactivity among college students is associated with living in hostels: a study from Delhi, India

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ABSTRACT

Physical inactivity figures as an important modifiable factor for non-communicable diseases. A standardized questionnaire was used to assess physical activity among college students in East Delhi region of Delhi, India. Of a total 297 students, 58.2% had high physical activity, 27.9% had moderate while 13.8% had low activity level. Low physical activity was significantly more among the students aged <20 years (p=0.002) and among those residing in hostel (p<0.001). There was no significant difference by gender (p=0.40). Residing in hostel emerged as significant factor in multivariate analysis. Hostellers had significantly lesser physical activity compared to the day scholars in the transport domain (p=0.048) and recreational domain (p<0.001). Hostel residents emerged as a specific at-risk group for physical inactivity.

Key words: Physical activity, sedentary, college, students, hostel

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Introduction: Non-communicable diseases such as cardiovascular diseases, cancers and diabetes have been progressively rising in magnitude across the globe during the last three decades (WHO, 2011). The problem has reached significant levels to be an issue of public health concern even in the developing nations (WHO, 2011). Lack of physical activity has been associated with the risk of coronary heart disease and stroke, diabetes, hypertension, role in mental health such as depression as also with cancers such as colon cancer and breast cancer (WHO, 2010; Janssen & Leblanc, 2010; Boyle et al, 2011) Physical inactivity has been labeled as one of the biggest public health problems of the 21st century (Blair, 2009).

Hostellers can be expected to have lesser physical activity in transport, and it needs to be seen if they compensate this by an increase in voluntary recreational physical activity. Else, residing in a hostel would figure as a risk group for physical inactivity and specific strategies for this group of college students would need to be designed. Past studies of physical activity among college students have not explored the role of hostel dwelling (Rao et al, 2001; Banerjee & Khatri, 2010).

Objective: The present study was conducted with an objective to study the prevalence of sedentary lifestyle amongst college students in East Delhi and its epidemiological correlates, in particular with the association with hostel residence.

Materials And Methods : The study was a cross-sectional analysis of subject college students studying in selected colleges in East Delhi region of Delhi, the capital city of India. To have a representation of various academic disciplines, we purposively selected a medical, nursing, engineering and general college student/subject that was situated within East

Delhi. Students were approached at random in the selected colleges, informed about the purpose of the study. All students of the college present in the premises were eligible to participate, allowing for anonymous and voluntary participation. Informed consent was obtained prior to conducting the interviews. To get an adequate representative sample, we targeted a minimum sample size of 50 students from each of the colleges.

A standardized questionnaire – the Global Physical Activity Questionnaire (GPAQ) developed by the Department of Chronic Diseases and Health Promotion, the World Health Organization was used to assess physical activity (WHO, 2006). The GPAQ collects information on physical activity participation in three domains including activity at work, travel to and from places and recreational activities. The data thus collected was entered into a computer based spreadsheet. The statistical analysis comprised of calculating means, proportions and applying non-parametric tests (Chi-square test, Kruskal-Wallis test) for significance. Binary logistic regression analysis was performed for determining significant correlates of low physical activity.

Results & Discussion: The study was conducted among four colleges located in east Delhi, India. The sample consisted of a total of 297 students, including 178 (59.9%) males and 119 (40.1%) female students and their age ranged from 17-24 years (mean 20 years). Of the students, 123 (41.4%) were aged 20 years or less, and 174 (58.6%) were above 20 years of age. The students interviewed included 72 Medical, 80 Nursing, 69 Arts college and 76 Engineering college students. Most of the students (171; 57.6%) were living in a hostel while the remaining (126; 42.4%) were day scholars.

Table 1: Association of low physical activity with various characteristics of the students (n=297)

Characteristic	Category	Level of physical activity		
		Low (n=41)	Moderate/ High (n=256)	p value for difference
		n (%)	n (%)	
Age (in years)	Less than 20 years 20 years or more	08 (6.5) 33 (19.0)	115 (93.5) 141 (81.0)	0.002*
Gender	Male Female	27 (15.2) 14 (11.8)	151 (84.8) 105 (88.2)	0.41
Residence status	Day scholar Hosteller	07 (5.6) 34 (19.9)	119 (94.4) 137 (80.1)	<0.001*
Course of study	Medical Nursing Engineering Arts	13 (18.1) 11 (13.8) 04 (05.3) 13 (18.8)	59 (81.9) 69 (86.3) 72 (94.7) 56 (81.2)	0.06

(* Statistically significant difference at $p<0.05$)

Using GPAQ scoring for calculating physical activity across the domains of work, transport and recreation, 173 (58.2%) students were found to have high physical activity, 83 (27.9%) had moderate while 41 (13.8%) had low activity level. Previous studies in countries other than India also have reported similar levels of low physical activity (Yahia et al, 2010; El-Gilany et al, 2011). However, low physical activity in the young age group acquires greater significance than the percentages suggest. Low physical activity during the most active period of a person's life can predict middle-aged behavior adapting into an even more sedentary lifestyle. This may lead to various diseases like coronary heart disease, hypertension, diabetes, cancer etc. in their future life as adults (WHO, 2010).

For significance analysis, the physical activity was dichotomized to 'low' vs. 'moderate/high'. Low levels of physical activity were found to be significantly more among the younger students aged 20 years or less (Table 1). The hostellers were significantly more likely to have low physical activity (19.9%) than the day scholars (5.6%), $p<0.001$. There was no significant difference by gender ($p=0.40$). Past experience has been that physical activity is significantly lower among females than males (Yahia et al, 2010; El-Gilany et al, 2011; Al-Isa, 2011). Our finding can be ascribed to the fact that all the nursing

students were female by gender and this particular category of students have high amounts of work related physical activity. Hence in the present study the expected gender difference was not observed.

On applying non-parametric tests for physical activity in individual domains (in units of MET-minutes per week), some interesting differences were found. The recreational physical activity was significantly lower among the medical and nursing students, compared to the arts and engineering students. A previous study, also found medical students to have significantly lower time for recreational activities, when compared to the non-medical students (Al-Dabal et al, 2010). It has been recommended that medical colleges should encourage students to maintain their outside interests and leisure activities (Kjeldstadli et al, 2006). The same recommendation can be extended across all types of colleges. It has been pointed out in a review that doctor's own physical activity practices influence their counseling practices and clinical attitudes towards physical activity (Lobelo et al, 2009).

Hostellers had significantly lesser physical activity compared to the day scholars in the transport domain ($p=0.048$) and recreational domain ($p<0.001$). On applying logistic regression analysis, hostel residence was found to be the significant risk factor for low physical activity (adjusted Odds Ratio 4.2; 95% CI: 1.8-9.9) adjusting for age, sex and college. This signifies the importance of making available adequate working recreational facilities for the hostellers, as the deficit of physical activity in the transport domain also needs to be compensated for. Studies mentioning hostel as a risk factor for low physical activity among college students were hard to come by, and we could not find an Indian study despite best efforts. An international review article published previously had discussed that students living off-campus are more active than those on-campus (Irwin, 2004).

As hostel residence emerged as the only significant variable in the regression analysis, this subset of the student population needs to be targeted for specific prevention measures including health promotion, advocacy and policy measures such as provision of recreation facilities. Increasing the public knowledge about adopting physical activity habits in daily routine has been suggested for planning effective preventive strategies (Kelishadi et al, 2010). Group health discussions, pamphlets, posters etc. can be used for the purpose. College activities should include compulsory extra-curricular activities to be undertaken by the students such as including sports, athletics, aerobics or yoga. All these health measures should be regarded not as an indulgence but an investment.

Conclusion: A significant proportion of the students were found to have low physical activity. This assumes importance considering the bearing of physical inactivity on future adult life. Hostel residents emerged as a specific at-risk group for physical inactivity. There is a need to offer health promotion for the prevention of future catastrophic burden of heart diseases and other non-communicable diseases among the young generation.

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