

ORIGINAL ARTICLE

Prevalence of physical inactivity in Aligarh: scope for primary prevention

Ahamed R¹, Ansari A², Siddiqui AR³, Amir A⁴

¹Assistant Professor, Department of Community Medicine, Malabar Medical College and Research Centre, Calicut, ²Professor, ³Associate Professor, ⁴Associate Professor, Department of Community Medicine, Jawaharlal Nehru Medical College (JNMC), Aligarh Muslim University (AMU), Aligarh, U.P, India.

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Article Cycle

Address for Correspondence: Riyaz Ahamed S, Assistant Professor, Department of Community Medicine, Malabar Medical College, Calicut, (Kerala), India, 673315.
E Mail ID: drriyazahamed@gmail.com

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Abstract

Background: Physical Inactivity is an important risk factor for non-communicable diseases accounting for 2 million deaths per year worldwide. Knowledge of prevalence of physical inactivity in different populations is limited. **Methods:** The present community based study was conducted in the field practice areas of the Urban Health Training Centre (UHTC) and Rural Health Training Centre (RHTC), Department of Community Medicine, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh, Uttar Pradesh, India. Systemic random sampling to include subjects was used. Six hundred and forty subjects were chosen for the study. The study was carried out for one year. Data were analyzed with SPSS version 13. Percentages and Chi Square Test used. **Objective** was to study the prevalence of physical inactivity and its sociodemographic correlates in rural and urban areas of Aligarh, UP. **Results:** The overall prevalence of work related physical inactivity and leisure time physical inactivity was 32% and 80.6% respectively. The prevalence of physical inactivity showed a significantly increasing trend with increasing age in both males and females. The physical inactivity related to work and leisure time was more in rural than urban areas and directly proportional to income and social class of the subjects. **Conclusion:** Physical inactivity has emerged as a fairly important risk factor and associated with all the age groups. Major 'at risk' groups are higher age groups and those belonging to higher socio economic strata.

Key Words

Physical Inactivity; Prevalence; Socio-Demographic Factors; Prevention; Leisure

Introduction

Physical inactivity is an established risk factor for cardiovascular disease, cancer and diabetes, which along with chronic respiratory disease account for more than 60% of all deaths (1). Physical inactivity was estimated to cause 1.9 million deaths worldwide annually, according to World Health Report 2002. Globally, it is estimated to cause about 10-16% of cases each of breast cancer, colon cancers,

and diabetes, and about 22% of ischemic heart disease. More than 80% of chronic disease deaths occur in developing countries (2). The most recent estimates suggest that almost 2 million deaths per year worldwide are attributable to inactivity (1), leading to physical activity being described as the best buy in public health (3). Despite global concerns about non-communicable disease (4), increasing obesity and rapid changes in

patterns of work, transport and recreation, physical activity surveillance and monitoring is only carried out in a few countries (5).

There is a significant gap in international physical activity surveillance, compared to surveillance of other chronic disease risk factors (6). This gap makes it difficult to estimate the impact of physical inactivity on health outcomes. The lack of comparable data, along with the recent Global Strategy for Diet, Physical Activity and Health [DPAS] (7), have created a compelling need for internationally comparable measures of physical activity that can be used to quantify population levels of exposure and monitor trends over time within and among countries. Non-communicable diseases are showing the upward trend in recent times in India. Hence there is a felt need to study the prevalence of physical inactivity in the community. The present study therefore attempts to study the prevalence of physical inactivity and its socio-demographic correlates in rural and urban areas of Aligarh.

Aims and Objectives

To study the prevalence of physical inactivity and its socio-demographic correlates in rural and urban areas of Aligarh, UP.

Methods

This community based cross sectional study was conducted (during the period of August 2007 to June 2008) in the field practice areas of the Department of Community Medicine, J N Medical College, Aligarh. The urban health training center (U.H.T.C) has four registered peri-urban localities with 1670 households and a registered population of 10,250. The rural health training center (R.H.T.C.) has seven registered villages having 2400 households with a registered population of 14,600.

The estimated sample size was calculated according to the formula: $N=4pq/d^2$ where p

is the prevalence of (physical inactivity), $q=1-p$ and d is absolute error. Taking the prevalence of physical inactivity 15 as 58% and 5% nonresponsive rate, the sample size was calculated to be 640. The sample included all individuals aged between 18 to 65 years. Systematic random sampling was done in the respective areas and sample was drawn from each area. We drew 60% and 40 % of the sample size from the rural population and urban population respectively. Proportionate to population size we had a sample of 340 subjects from the RHTC and 256 subjects from the UHTC.

A preformed proforma on physical activity drawn from WHO STEPwise questionnaire (9) was used for the study. The social class of the subject was determined using the Modified Prasad Scale. A precise history of physical activity during work and leisure time on a typical day was elicited based on which the subject was graded as sedentary, moderate and vigorous at work and leisure time. Social classes I and II were categorized into upper class, class III as middle class and class IV and V of Modified Prasad's classification (10) were categorized into lower class. A person was graded inactive if a person did not do even 10 minutes of physical activity on a usual day of his routine life and therefore was it recorded in any of the activity domains. The subjects were graded as sedentary, moderate and vigorous in different domains based on definitions given by WHO (9).

Analysis was performed using SPSS version 13.0 (SPSS, Chicago, IL). Chi-square test was applied wherever applicable.

Result

The total number of respondents for the study was 640 individuals, 300 males and 340 females. In rural areas, 27.1% respondents were from younger age group (18-25 years),

whereas in urban areas 27.3% of respondents (were) of 26-35 years age group. Also, the study group comprised of higher percentage of females (53%) compared to males (47%). Majority of the subjects (65%) were having joint families in rural areas and belonged to Hindu religion, compared to 53.9% of the subjects in urban areas having joint families and belonged to Muslim religion. With regard to social classification, 85.9% and 52.4% of the subjects belonged to lower class in rural and urban areas respectively. Very few, 2.3% in rural areas and 23.7% in urban areas belonged to upper class.

The prevalence of work related physical inactivity and leisure time physical inactivity was 32% and 80.6% respectively. The prevalence of physical inactivity (sedentary) showed a significantly increasing trend with increasing age in males after the age of 36-45 years. In females, such a trend was observed above the age of 45 years ([Table 1](#) and [Table 2](#)) which was significant. The physical inactivity during work was more in males (30.7%) compared to females (15.5%), whereas physical inactivity during leisure time was noted to be more in females (90.5%) compared to males (66.0%). (p value <0.05).

Discussion

Various literature consulted report the prevalence of physical inactivity ranging from 25%-82% (11,12,13,14). High prevalence of sedentary life style, 72% in males and 71% in females, in an urban population equal or above 20 years of age in Rajasthan¹¹. A study by Singh¹⁵ also reported the prevalence of 57.3% in urban women aged 25-64 years. It was observed in our study that prevalence of inactivity predominantly increased with age in both men and women. In a study by Gupta¹², it was found to increase with age between 20-59 years and decline thereafter. In our study significant association of physical inactivity

during work with higher social classes is noticed which is in compliance with study reported by Singh (13). The results in our study reflect findings from other studies reporting the prevalence of physical activity by different age groups (16). Prevalence of physical inactivity at work and leisure time was found to be more in rural areas (26.4% and 82.2%) than urban areas (16% and 78.1%) respectively, owing to fact that it was not agricultural season at the time of survey and because of the over dependence on particular occupation. This is in contrast to studies which reported more physical inactivity in urban areas and in migratory population (16, 17). These findings show that physical activity behavior is different in different population subgroups and settings, and programmes and interventions should aim at increasing overall activity.

Conclusion

Physical inactivity has emerged as a fairly important risk factor in the etiology of major non-communicable diseases. The successful promotion of physical activity has showed reduction in the rates of non-communicable diseases. Major 'at risk' groups are higher age groups and those belonging to higher socio economic strata. These groups require targeted interventions aimed at primordial and primary prevention, particularly through health education and promotion of healthy lifestyles. Also, (measures aimed at primary prevention of physical inactivity related morbidities will be equally effective in sedentary subjects) periodic screening. The issue deserves its due share of concern as the same would in turn address the vast array of emerging non-communicable diseases.

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Tables

TABLE 1: PHYSICAL ACTIVITY AMONG MALES IN DIFFERENT AGE GROUPS

Physical activity	Age groups						P
	18-25 (n=65)	26-35 (n=63)	36-45 (n=57)	46-55 (n=37)	56-65 (n=78)	Total (300)	
Work related							
Sedentary	2 (3.1)	11 (17.5)	12 (21.1)	9 (24.3)	58 (74.4)	92 (30.7)	$\chi^2=105.40$, df=8 p-value- <0.05
Moderate	39 (60.0)	39 (61.9)	31 (54.4)	20 (54.1)	16 (20.5)	145 (48.3)	
Vigorous	24 (36.9)	13 (20.6)	14 (24.6)	8 (21.6)	4 (5.1)	63 (21.0)	
Leisure related							
Sedentary	31 (47.7)	43 (68.3)	41 (71.9)	27 (73.0)	56 (71.8)	198 (66.0)	$\chi^2=77.91$, df=8, p-value- <0.05
Moderate	14 (21.5)	20 (31.7)	16 (28.1)	10 (27.0)	22 (28.2)	82 (27.3)	
Vigorous	20 (30.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	20 (6.7)	

TABLE 2: PHYSICAL ACTIVITY AMONG FEMALES IN DIFFERENT AGE GROUPS

Physical activity	Age groups						P
	18-25 (n=73)	26-35 (n=75)	36-45 (n=69)	46-55 (n=73)	56-65 (n=50)	Total (340)	
Work related							
Sedentary	3 (4.1)	5 (6.7)	4 (5.8)	15 (20.5)	26 (52.0)	53 (15.5)	$\chi^2=88.64$, df=8, p-value- <0.05
Moderate	60 (82.2)	63 (84.0)	63 (91.3)	56 (76.7)	22 (44.0)	264 (77.6)	
Vigorous	10 (13.6)	7 (9.3)	2 (2.9)	2 (2.7)	2 (4.0)	23 (6.7)	
Leisure related							
Sedentary	65 (89.0)	65 (86.6)	61 (88.4)	67 (91.8)	50 (100.0)	308 (90.5)	$\chi^2=28.54$, df=8, p-value- <0.05
Moderate	4 (5.5)	10 (13.3)	8 (11.6)	6 (8.2)	0 (0.0)	28 (8.2)	
Vigorous	4 (5.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (1.2)	

TABLE 3: PHYSICAL INACTIVITY WITH RESPECT TO SOCIO-DEMOGRAPHIC PROFILE

Criteria	Physical inactivity during					
	Work		χ^2 ($\chi^2 = 69.27$ df=5) p-value-<0.05	Leisure		χ^2 ($\chi^2 = 73.01$ df=5) p-value-<0.05
Occupation (N)	n	%		n	%	
Unemployed (61)	34	55.7	53	86.9	χ^2 ($\chi^2 = 28.80$ df=3) p-value-<0.05	
Unskilled (121)	15	12.4	86	71.0		
Semiskilled/Skilled (48)	10	20.8	38	79.1		
Clerical (69)	26	37.6	37	53.6		
Semiprofessional/Professional (56)	17	30.3	38	69.1		
Housewife (285)	40	14.0	264	92.6		
Education						
No formal education (252)	58	23.0	χ^2 ($\chi^2 = 10.129$ df=3) p-value-<0.05	228	90.5	χ^2 ($\chi^2 = 28.80$ df=3) p-value-<0.05
Primary/Middle (82)	10	12.2		66	80.4	
High / Intermediate (204)	42	20.5		146	71.5	
Graduate/Above graduate (102)	32	31.3		76	74.5	
Religion						
Hindu (240)	62	25.8	χ^2 ($\chi^2 = 3.89$ df=2) P value >0.05)	200	83.3	χ^2 ($\chi^2 = 2.94$ df=2) p-value>0.05)
Muslim (396)	80	20.2		312	78.8	
Christian (4)	0	0.0		4	100.0	
Family type						
Nuclear (252)	44	17.4	χ^2 ($\chi^2 = 5.38$ df=1) p-value-<0.05	202	80.2	χ^2 ($\chi^2 = 0.05$ df=1 p value > 0.05)
Joint (388)	98	25.3		314	80.9	
Locality						
Rural (384)	100	26.4	χ^2 ($\chi^2 = 8.26$ df=1) p-value-<0.05	316	82.2	χ^2 ($\chi^2 = 1.70$ df=1) p-value-<0.05
Urban (256)	42	16.0		200	78.1	
Social class						
Upper (78)	26	33.3	χ^2 ($\chi^2 = 6.74$ df=2) p-value-<0.05	54	69.2	χ^2 ($\chi^2 = 8.38$ df=2) p-value-<0.05