Prevalence and Predictors of Physical Inactivity among Adults – A Cross-Sectional Study

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Abstract

Background: Physical inactivity is detrimental to health. It is a risk factor for noncommunicable diseases. **Aim and Objective**: The aim of this study was to find the prevalence and predictors of physical inactivity among adults. **Methodology:** A cross-sectional community-based study was conducted among 374 adults aged 20–50 years. Trained field investigators administered the Global Physical Activity Questionnaire. Data were analyzed using Epi Info software for Windows. Logistic regression model was used to study the factors associated with physical inactivity. **Results:** The prevalence of physical inactivity among the study participants was 52.1%. Females (OR=1.9[1.2-3.1]), literate individuals (OR = 1.8 [1.04–3.2]), and current tobacco users (OR = 2.2 [1.8–4.1]) were significantly more physically inactive; as compared to their counterparts. **Conclusions:** Nearly half of the study participants were physically inactive, according to the World Health Organization guidelines. This highlights the need for strengthening the existing interventions for promoting physical activity among adults.

Keywords: Adults, current tobacco user, knowledge, physical inactivity

INTRODUCTION

Physical inactivity is a leading public health problem worldwide. It accounts for nearly 13 million disability-adjusted life years and is responsible for premature mortality. Globally, around one-third of the adults are insufficiently physically active.[1] Epidemiological research has documented the role of physical inactivity in increasing the probability of suffering from noncommunicable diseases such as hypertension, diabetes, and heart disease. Regular physical activity is protective by improving bone mineral density and muscular strength and maintaining cardiorespiratory fitness.[2]

In a bid to tackle the issue of inadequate physical activity, the World Health Organization (WHO) recommends a global action plan for reducing its prevalence by the year 2030. The strategic objectives of this plan are creating active societies, active environments, active people, and active systems.[3] The Government of India in the year 2019 launched "Fit India Movement" for making fitness an integral part of people's daily lives. As a part of this campaign, community-based activities are being held for increasing the awareness of people regarding the benefits of physical activity and motivating them for uptake of this healthy behavior.[4]

In the present study, we studied the prevalence and predictors of physical inactivity among adults. It is expected that the results of this study will help policymakers in strengthening the existing interventions for promoting physical activity.

METHODOLOGY

This community-based cross-sectional study was conducted from November 2020 to March 2021 among adults aged 20–50 years. The study area was the rural field practice area, sector 56 of the Department of Community Medicine, Government Medical College and Hospital, Chandigarh.

A sample size of 376 was calculated, assuming the prevalence of physical inactivity to be 66.8%,[5] an absolute precision of ± 5%, and a nonresponse rate of 10%. Simple random sampling technique was used to select the households. Within the identified households, one individual was selected

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randomly. Trained field investigators administered the Global Physical Activity Questionnaire (GPAQ) after obtaining written informed consent of the study participants. GPAQ is a validated tool for recording physical activity in three domains, namely work, transport, and leisure time. WHO recommends doing at least 150 min of moderate-intensity physical activity throughout the week, or 75 min of vigorous-intensity physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity accumulating at least 600 MET (metabolic equivalents) min per week. Based on these criteria, in our study, those who achieved <600 MET-min per week were considered physically inactive adults.[6]

The participant's knowledge regarding the benefits of physical activity was assessed by asking questions related to improving muscular fitness, mood, sleep quality, stronger bones, weight loss, decreased risk of diabetes, hypertension, heart attack, reducing stress, preventing depressive symptoms, helping digestion, and promoting regular bowel movements. One mark was given for each correct response and the total score was calculated. A current tobacco user was defined as one who had smoked or chewed smokeless tobacco at least once in the last 30 days preceding the interview.

Statistical analyses were performed using the Epi Info version for Windows (CDC Atlanta, USA). Median and interquartile range (IQR) were reported for METs. Logistic regression analysis was performed to identify the predictors of physical inactivity. Approval was obtained from the institutional ethics committee before the commencement of the study. After conducting the interview, the study participants were imparted knowledge about the benefits of physical activity.

RESULTS

A total of 374 adults participated in the study (response rate: 99.4%). The mean age of study participants was 33.9 years (SD = 9.8). There were 205 males (54.8%), and around one-fifth of the study participants were illiterates (19.5%). Most of them were married (71.4%) and living in a nuclear family (68.4%). There were 16.6% current tobacco users and 17.6% current alcoholics [Table 1]. A total of 195 (52.1%) study participants were classified as physically inactive. The overall median self-reported physical activity METs was 1290 (IQR 800–2550). The highest METs was in the work domain (median = 3720, IQR = 840–5760) followed by leisure (median = 2520, IQR = 420–1440) and travel activity domain (median = 1260, IQR = 600–1680). Significantly, females had lower METs in the leisure activity domain.

With regard to knowledge, around three-fourth of study participants were aware that physical activity helps in losing weight (75.1%), improving muscular fitness (73.8%), and having stronger bones (70.3%). Around two-third opined that physical activity helps improving mood (66.6%), promotes regular bowel movements (66.6%), improves sleep quality (64.4%), reduces stress (60.2%) and depressive symptoms (57.5%). Nearly half of them were aware that it can prevent noncommunicable

diseases such as hypertension (56.4%), diabetes (56.4%), and heart attack (52.9%). The knowledge score was significantly higher among males and literates as compared to their counterparts.

The logistic regression model revealed that female study participants were more physically inactive (odds ratio (OR=1.9[1.2-3.1], as compared to males. Similarly, literate individuals (OR = 1.8 [1.04–3.2]) and current tobacco users (OR=2.2 [1.8–4.1]) had higher odds of physical inactivity; as compared to their counterparts [Table 2].

DISCUSSION

The present study explored the prevalence and predictors of physical inactivity among adults. Our study inferred that 52.1% of the study participants were physically inactive. Nearly similar finding has been reported in studies conducted both in India and abroad. A study from Punjab, India, reported that 56.8% of participants were insufficiently active according to the WHO recommendations.[7] An Indian Council of Medical Research study reported the prevalence of physical inactivity in Chandigarh to be 66.8%.[5] A study from southern India reported that 49.7% of adults were physically inactive.[8] Studies from Bangladesh and South America have reported the physical inactivity levels among adults to be 50.3% and 44.5%, respectively.[9,10]

In the present study, it was found that women were significantly more physically inactive as compared to males. A similar finding has been reported in studies conducted by Tripathy *et al.* and Devamani *et al.*[11,12] In our study, it was found that literate individuals were comparatively more physically inactive as compared to illiterates. A similar result has been reported in a study conducted by Devamani.[12] In our study, tobacco users had higher odds of physical inactivity. A similar finding has been reported in a study conducted by Pedisic.[13]

Further in our study, it was found that there was no association of physical inactivity with marital status. Contrary to this finding, a study conducted by Aslesh reported that unmarried individuals were more physically active.[14] In our study, it was found that females spent lesser METs in leisure-time physical activity as compared to males. A similar finding has been reported in a study done by Azevedo, wherein it was reported that males were more active than women with regard to leisure-time physical activity.[15]

The strength of our study is its community-based approach and using a standardized validated tool for assessing physical inactivity. There are a few possible limitations of our study. First is the cross-sectional study design which does not indicate causality of association. Second is self-reporting of physical activity which could be affected by reporting bias. Finally, during the study duration, there was social disruption due to the current COVID pandemic. Those work organizations wherein work from home was possible asked their employees to do so. People's movement was allowed following

Table 1: Association between sociodemographic factors and physical inactivity

	Physically inactive (*n*=195), *n* (%)	Physically active (*n*=179), *n* (%)	χ^2 (*P*)
Age group (years)			
20-35	122 (55.5)	98 (44.5)	2.4 (0.13)
36-50	73 (47.4)	81 (52.6)	
Gender			
Male	100 (48.8)	105 (51.2)	2.1 (0.15)
Female	95 (56.2)	74 (43.8)	
Education			
Illiterate	31 (42.5)	42 (57.5)	3.4 (0.07)
Literate	164 (54.5)	137 (45.5)	
Marital status			
Unmarried	51 (49.0)	53 (51.0)	0.56 (0.46)
Married	144 (53.3)	126 (46.7)	
Current tobacco user			
Yes	37 (59.7)	25 (40.3)	1.7 (0.19)
No	158 (50.6)	154 (49.4)	
Current alcoholic			
Yes	34 (52.3)	31 (47.7)	0.00 (0.98)
No	161 (52.1)	148 (47.9)	

Table 2: Logistic regression model of predictors of physical inactivity

Variable	OR (95%CI)
Age group (years)	
20-35	R
36-50	0.7 (0.5-1.1)
Gender	
Male	R
Female	1.9 (1.2-3.1)*
Education	
Illiterate	R
Literate	1.8 (1.04-3.2)*
Current tobacco use	
Yes	2.2 (1.8-4.1)
No	R*

*Significant *P*<0.05. OR: Odds ratio, CI: Confidence interval, R: Reference

COVID-appropriate behavior. Various sports, entertainment, and social congregations were functioning with a ceiling. This all could have influenced our study participants access to physical activity opportunities, and therefore, our study results may not be representative of a nonpandemic situation.

CONCLUSIONS

In summary, nearly half of our study participants were physically inactive. It was more among women, literates, and current tobacco users. It is recommended that strategies for increasing physical activity should be designed and targeted toward women, literates, and current tobacco users. Regular information, education, and communication activities should be held for increasing the knowledge and awareness of people.

Conflicts of interest

There are no conflicts of interest.

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