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Research Article

A STUDY TO DERIVE BARRIERS OF PHYSICAL ACTIVITY AMONG ADULTS OF TERTIARY CARE TEACHING HOSPITAL OF CENTRAL INDIA

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ABSTRACT

Objectives: The aim of the study was to derive the barriers of physical activity among the adults of tertiary care teaching hospital.

Methods: It was descriptive and cross-sectional study carried out in the tertiary care teaching institute of Central India. The study was conducted during the period from January 2020 to October 2021. Study subjects were Participants belonging to 18–65 years age group studying or working at tertiary care teaching institute.

Results: The proportion of insufficient physical among the participants was 8.62% while majority of the them, that is, 82.18% had moderate physical activity, whereas 9.2% of the respondents had vigorous physical activity. One hundred and sixteen (33.33%) had shown any of the perceived barriers to physical activity. Twenty (66.67%) in insufficiently active and 96 (33.57%) in moderately active group have shown any of the perceived barrier.

Conclusion: As the long-term consequences of physical inactivity can lead to health problems among people, understanding the factors that influence participation in physical activity and barriers that leads to inactivity is important to help design successful interventions and strategies that increase their level of engagement in activity.

Keywords: Physical inactivity, Perceived barriers, Non communicable disease, Physician, Medical.

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INTRODUCTION

The eminent Greek physician Galen observed that, "the physician will hardly be thought very careful of the health of his patients if he neglects his own" [1]. To some extent by design and some by default, this population is in fierce competition right from kindergarten days and throughout their life course, leaving lesser scope for self-care. Recent research shows that the prevalence of cardiovascular risk factors is higher among young Indian doctors engaged in clinical practice when compared to general population [2]. A study done in India on 2499 doctors from urban and semi-urban areas and found that these physicians had a higher prevalence of cardiovascular risk factors (obesity, metabolic syndrome, hypertension, and impaired glucose tolerance) compared to age matched individuals from the general population [3]. Young physician's had a higher prevalence of alcohol use (16.7%) and one in ten physicians were current smokers.

There is an upsurge of NCDs in the young age group in our country in recent times. a recent study revealed a higher (27.5%) global age-standardized prevalence of suboptimal physical activity in 2016, with the lowest levels seen in East and South-east Asia (17.6%) [4]. Many NCDs, such as coronary artery disease, hypertension, DM, breast, and colon cancer, can be prevented and treated by regular physical activity. Today's young generation, as a group, are less active than their counterparts from earlier generations, and recent evidence shows that large percentages of young people do not meet current physical activity guidelines [5,6].

Several barriers, particularly those of time, motivation, and lacunae in the built environment, such as lack of inexpensive facilities for physical activity (parks, walking paths, and free recreational facilities) have also been cited by some researchers [6-8]. Review of literature suggests that there is insufficient data on Indian populations about the barriers to physical activity faced by Indians.

The medical professionals have higher prevalence of risk factors for NCDs than general population. Furthermore, physicians practicing physical activity are more likely to prescribe it to their patients and help mitigate the problem of insufficient physical activity in population. With this view, the present study was undertaken to derive the barriers of physical activity among the adults of tertiary care teaching hospital.

MATERIALS AND METHODS

It was descriptive and cross-sectional study carried out in the tertiary care teaching institute of Central India. The study was conducted during the period from January 2020 to October 2021. Study subjects were adult Participants belonging to 18–65 years age group studying or working at tertiary care teaching institute. The sample size was calculated by the formula $S = Z^2 \times P \times (1\text{-}p)/d^2$. The prevalence (P) of physical inactivity was 27·5% in the previous study [4,9]. Here, d, which is absolute error, was assumed to be 5%. After adding 10% non-respondent rate, the sample size calculated was 338. Stratified random sampling method was used to draw suitable representative sample based on their proportion from total eligible population. Undergraduate students were 162, interns 30, postgraduate 52, faculty 52, and nursing staff 52. A total of 348 participants were included in the study. Each participant from their strata was randomly selected from the list using random number table. Those respondents, who are pregnant, had previous cardiac events, having loco motor disability, suffering from neck deformities, thyroid disorders, and Cushing's disease were exclude from the study. Ethical clearance for study was taken from the Institutional Ethics Committee. Anonymity and confidentiality of data was assured to the participants. Informed consent from the participants was taken. Two types of standard validated questionnaire were used for interview of the participants, first was an assessment of physical activity levels based on WHO GPAQ and second was the perceived barrier of physical inactivity Centers for Disease Control and Prevention (CDC) [10,11].

The WHO GPAQ questionnaire had 16 questions arranged in three main domains-occupation, travel and leisure activities. The WHO GPAQ has been previously validated in 9 populations including Asian Indians and found to be reliable. CDC's Barriers Questionnaire contains 21 questions answerable on Likert scale of four from "Very likely" to "Very unlikely", corresponding to scores from 3 to 0. Barriers to physical activity fall into one or more of seven categories: Lack of time, social influences, lack of energy, lack of willpower, fear of injury, lack of skill, and lack of resources. A score of 5 or above in any category shows that this is an important barrier to overcome.

The data of 348 respondents were collected and entered into Microsoft Excel 2016. Software Epi info version 7.26 was used to analyze the data. Appropriate descriptive statistics were used to present the data.

RESULTS

A total of 348 participants were included in the study and interviewed regarding their physical activity. About 71.55% of the participants were from 18 to 30 years of age group. About 55.46% of the participants were undergraduate students while 28.45% of them had postgraduation. UG students constitute maximum proportion while maximum participants belong to Hindu religion. About 68.39% of the participants were unmarried as shown in Table 1.

Table 2 depicts the anthropometric parameters and personal history of the participants. About 41.95% of the participants were pre obese while 11.95% of the participants belong to obese Class I. About 15.52% of the participant was high risk as per their waist circumference. About 54.89% of the participants were high risk according to their waist hip ratio. About 40.23 % of the participants were high risk as per their neck circumference. Interestingly, 42.24% of the participants had pre-hypertension while family history of NCD were present among 53.74% of participants. Non communicable disease was present among 14.37%.

The proportion of insufficient physical among the participants was 8.62% while majority of the them, that is, 82.18% had moderate physical activity, whereas 9.2% of the respondents had vigorous physical activity as shown in Fig. 1. Perceived barriers to physical activity were evaluated using CDC proforma. Lack of time was the most (15.52%) common perceived barrier to the physical activity, followed by lack of will power (15.23%), lack of skill (7.18%), and lack of resources and fear of injury (4.31%). Lack of energy and social influence were the least common (3.455 and 3.74%, respectively).

Out of all 348 respondents, 116 (33.33%) had shown any of the perceived barriers to physical activity. Similarly, 20 (66.67 %) in insufficiently active and 96 (33.57 %) in moderately active group have shown any of the perceived barrier as show in Table 3. The proportion of those who showed any perceived barrier to physical activity was 66.67 % in insufficient activity group while same was 33.57% in moderate activity group. While most common perceived barrier to physical activity among those with insufficient physical activity were lack of time, lack of will power, and lack of skill, most common perceived barrier to physical activity in those with moderate activity were lack of will power, lack of time, and lack of skill as shown in Fig.2. Respondents from the high activity group did not shown any perceived barriers to physical activity (p=0.4986).

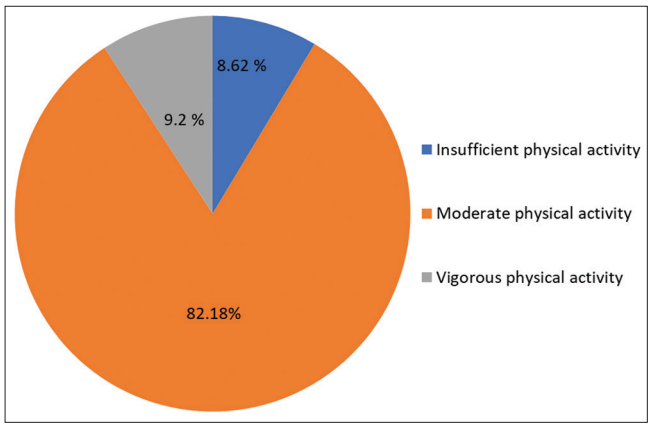

Fig. 1. Distribution of respondents according to level of physical activity

Table 1: Sociodemographic details of the participants

Variables	Frequency (%)
Age group (years)	
18–30	249 (71.55)
31–45	70 (20.12)
46–65	29 (8.33)
Gender	
Male	173 (49.71)
Female	175 (50.29)
Education (completed)	
UG	193 (55.46)
Graduate	99 (28.45)
Postgraduate	56 (16.09)
Occupational group	
UG student	162 (46.55)
Intern	30 (8.62)
PG student	52 (14.94)
Faculty	52 (14.94)
Nursing staff	52 (14.94)
Religion	
Hindu	311 (89.37)
Muslim	12 (3.45)
Christian	13 (3.74)
Jain	9 (2.59)
Sikh	2 (0.57)
Others	1 (0.29)
Marital status	
Married	110 (31.61)
Unmarried	238 (68.39)
Total	348 (100)

Table 2: Anthropometric parameters and personal history of the participants

Variables	Frequency (%)
BMI	
Underweight	1 (0.29)
Normal	155 (44.54)
Preobese	146 (41.95)
Obese class I	40 (11.49)
Obese class II	6 (1.72)
Waist circumference	
Normal (<102 cm males and <88 cm females)	293 (84.2)
High risk(≥102 cm males and ≥88 cm females)	54 (15.52)
Waist hip ratio	
Normal (<1.0 males and <0.85 females)	157 (45.11)
High risk (>1.0 males and >0.85 females)	191 (54.89)
Neck circumference	
Normal (<37 cm males and <34 cm in females)	208 (59.77)
High risk (≥37 cm males and ≥34 cm females)	140 (40.23)
Blood pressure	
Normal	147 (42.24)
Prehypertension	180 (51.72)
Hypertension stage I	21 (6.03)
Family history	
Yes	187 (53.74)
No	161 (46.26)
Non-communicable disease	
Present	50 (14.37)
absent	298 (85.63)
Total	348 (100)

BMI: Body mass index

Table 3: Distribution between perceived barriers to activity on CDC scoring system and level of physical activity

Barriers to inactivity	Level of activity		
	Insufficiently active (n=20), n (%)	Moderate active (n=286), n (%)	Total (n=348), n (%)
Lack of time	18 (90)	36 (37.5)	54 (46.55)
Social influence	4 (20)	9 (9.38)	13 (11.21)
Lack of energy	5 (25)	7 (7.29)	12 (10.34)
Lack of willpower	9 (45)	44 (45.83)	53 (45.69)
Fear of injury	4 (20)	11 (11.46)	15 (12.93)
Lack of skill	8 (40)	17 (17.71)	25 (21.55)
Lack of resources	4 (20)	11 (11.46)	15 (12.93)

χ^2=6, df=5.359, p=0.4986 (not significant). Frequency of perceived barriers is not mutually exclusive. CDC: Centers for Disease Control and Prevention

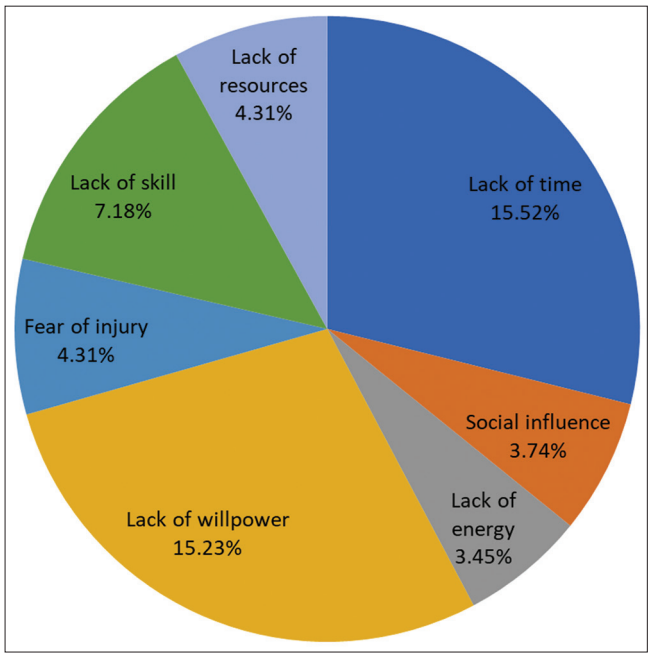

Fig. 2. Perceived barriers of physical activity in respondents as per centers for disease control and prevention scoring system

DISCUSSION

The study was carried out in the budding medical professionals of 18–65 years age group of a tertiary care hospital. By analyzing the descriptive result findings, we came to know that there were more than 50% of the participants who were pre-obese, obese I, and obese II. About 40–50% of participants were in high risk group of waist hip ratio and neck circumference which is a matter of concern for our fraternity. According to the 2007 Physicians Health Study, 40% of the 19000 doctors were overweight and 23% were obese [12]. While a study from Kolkata done by Das *et al.* reported 81.9% of the medical professionals were overweight or obese (73.5% obese**)** [13]. Burden of obesity in medical professional was around 50–70% in the previous studies in India [2,14].

Findings from the previous studies suggest that a physician's body mass index strongly associated with how they counsel patients about obesity [15]. While normal-weight doctors and obese physicians are equally effective in diagnosing obesity in their patients, normal-weight doctors are significantly more likely to counsel their obese patients about weight loss [16]. Overweight and obese physicians report significantly less confidence than their normal-weight colleagues in giving their patients diet or exercise counseling.

Healthy lifestyle practices are expected from physicians since they are the first in line in the health-care system. In the present study, most of the physician was moderately active, but the physical activity decreases in the upper age group. Doctors with no or low physical activity are less likely to inspire patients to participate in physical activity in geographic areas with less active adult population. Physically active physicians are communicating counseling on physical activity more often than physically inactive ones. Confidence among inactive doctors is important to enhance their physical activity, which will have a positive impression on the patients in particular and on the community in general [17]. Physicians believed that physical activity is important to their patients and to themselves.

In the present study, the most common barriers of physical activity were lack of time and lack of will power. Physician is well aware of the consequences of the physical inactivity and weight gain but to their buys life they are unable to do so. Arzu *et al.* had reported similar results in a study conducted among undergraduate university students (n=303). The total score of the external barriers was significantly higher than the score of the internal barriers. Lack of time was the most important external barrier. Lack of energy was the most important internal barrier [18]. Lack of time and lack of energy is constant feature in medicine academia which is high demand curriculum and profession. The previous studies reported that there are many structural aspects in the neighborhoods, such as lack of proper lighting, crowded sidewalks, lack of green spaces, and dense traffic that were mentioned by the study participants. Which equally highlighted the negative effect of poor infrastructure, such as irregular roads and pavements, neighborhood insecurity, or the lack of recreational facilities on physical activity of patients with Type 2 diabetes [19-21].

The another perceived barrier to physical activity in our study was health-related problems, which are individual barriers to physical activity. Study participants reported that the main health-related reasons for not exercising were physical discomfort, pain, and stress as well as lack of energy, and other worries related to mental health problems. Our results confirm findings. from an earlier study that identified pain, poor health, depression, and tiredness as common internal barriers to exercise among persons with Type 2 diabetes or persons at high risk for diabetes [22]. Fatigue is also considered as a barrier for diabetes self-management [23].

Recently time management and sport time has been introduced in undergraduate curriculum. Khateeb *et al.* performed a cross-sectional study involving all physicians practicing in King Abdulaziz Hospital in Jeddah, Saudi Arabia [24]. They found a significant relationship between the level of physical activity and perceived total exercise benefits/barriers, exercise benefits, and exercise barriers. Most of the physicians were physically active. However, there is still a need to encourage physicians to improve their physical activity, which would improve their perception of exercise and set them as better role models for physical activity among their patients and the community.

CONCLUSION

As the long-term consequences of physical inactivity can lead to health problems among people, understanding the factors that influence participation in physical activity and barriers that leads to inactivity is

important to help design successful interventions and strategies that increase their level of engagement in activity.

The insufficient physical activity as well as sedentary lifestyle is a major threat to the health of this population at present as well as in future. The present already active aware medical fraternity needs better time management and will to be active.

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AUTHORS' CONTRIBUTION

All authors have contributed significantly in study concept, design, data collection, analysis, drafting, and final approval of the study.

CONFLICTS OF INTEREST

Nil.

AUTHORS' FUNDING

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