



PHYSICAL ACTIVITY LEVEL AMONG SCHOOL TEACHERS OF SCHOOL AROUND LONI MAHARASHTRA

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Abstract : Regular and adequate physical activity has immense mental and physical health benefits . It has been identified as the fourth leading risk factor for development of non -communicable diseases. Teachers are essential for the effective functioning of the education system and for improving the quality of learning process .They are involved in teaching preparing lessons . 100 teachers from Loni Maharashtra were selected on the basis of inclusion and exclusion criteria the subjects eligible and the purpose of the study along with complete information was shared with the subjects participating in the study .The data was collected for each participants and the procedure of study was explained to all the participants. The response were collected using Global Physical Activity questionnaire which is consist of 16 questions under 4 domains . More than half of the total group (76 %) and both males and females were meeting physical activity recommendations of 600 MET (min/week). The results also show that 80 % of teachers engaged in low-intensity physical activities. Although active and inactive teachers perceived similar barriers.

I. INTRODUCTION

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. It includes activities performed during work, transportation, household chores, and recreational or leisure-time activities. Regular physical activity is one of the most important factors for maintaining good health and preventing disease. It contributes to improved physical fitness, mental well-being, functional capacity, and overall quality of life. According to the World Health Organization (WHO), physical inactivity is one of the leading risk factors for global mortality and is responsible for millions of deaths each year. Insufficient physical activity increases the risk of developing several non-communicable diseases such as cardiovascular diseases, hypertension, type 2 diabetes mellitus, obesity, osteoporosis, and certain types of cancer. Therefore, promoting regular physical activity has become an important public health priority worldwide.

Teachers play a significant role in society as they are responsible for educating future generations and promoting healthy lifestyles among students. The teaching profession demands not only intellectual effort but also physical and emotional involvement. School teachers perform multiple responsibilities, including classroom teaching, lesson planning, preparing teaching materials, evaluating students' performance, conducting examinations, maintaining academic records, attending meetings, and participating in extracurricular and administrative activities. These responsibilities often result in heavy workloads, prolonged standing, repetitive movements, awkward postures, and increased occupational stress. Such occupational demands may adversely affect teachers' physical and mental health, leading to fatigue, musculoskeletal disorders, reduced work efficiency, absenteeism, and early retirement.

Several studies have reported a high prevalence of musculoskeletal disorders among school teachers, particularly affecting the neck, shoulders, upper back, lower back, and upper limbs. Long hours of standing, prolonged sitting while preparing lessons or grading papers, repetitive writing on blackboards or whiteboards, and poor ergonomic working conditions contribute to these problems. Female teachers and teachers with longer years of service have been found to be at greater risk of developing work-related musculoskeletal disorders. Occupational stress, combined with inadequate physical activity, further increases the likelihood of chronic pain, poor mental health, and reduced quality of life.

Regular participation in physical activity offers numerous health benefits for teachers. It improves cardiovascular fitness, muscular strength, flexibility, endurance, body composition, and bone health. It also helps reduce stress, anxiety, and depression while improving mood, sleep quality, concentration, and overall psychological well-being. Engaging in regular physical activity lowers the risk of developing lifestyle-related diseases and improves work performance by reducing fatigue and enhancing energy levels. Healthy teachers are more likely to maintain regular attendance, perform their professional duties effectively, and positively influence students by serving as role models for healthy behaviour.

The World Health Organization recommends that adults aged 18–64 years should perform at least 150–300 minutes of moderate-intensity aerobic physical activity or 75–150 minutes of vigorous-intensity aerobic physical activity per week, along with muscle-strengthening activities on two or more days each week. Moderate-intensity activities include brisk walking, cycling at a comfortable pace, gardening, and household work, whereas vigorous-intensity activities include running, aerobic exercise, competitive sports, and fast cycling. Achieving these recommendations significantly reduces the risk of premature mortality and chronic diseases while promoting physical and mental well-being.

Despite the well-established benefits of physical activity, modern lifestyles have become increasingly sedentary due to technological advancements, increased screen time, motorized transportation, and changing work patterns. Teachers often spend long hours sitting while preparing lesson plans, grading assignments, attending meetings, or completing administrative tasks. These sedentary behaviours, combined with inadequate leisure-time physical activity, contribute to physical inactivity and increase the risk of obesity, cardiovascular diseases, diabetes, hypertension, and musculoskeletal disorders. Therefore, assessing physical activity levels among teachers is important to identify those at risk and to develop strategies that encourage active lifestyles.

The assessment of physical activity requires standardized and reliable measurement tools. The Global Physical Activity Questionnaire (GPAQ), developed by the World Health Organization, is one of the most widely used instruments for measuring physical activity in adults. It evaluates physical activity across three domains: occupational activity, transport-related activity, and leisure-time or recreational activity. The questionnaire records the frequency and duration of moderate- and vigorous-intensity activities performed during a typical week. Physical activity is expressed as metabolic equivalent minutes per week (MET-min/week), where one MET represents the energy expenditure at rest. Based on total MET scores, individuals are classified into low, moderate, or high levels of physical activity according to WHO guidelines.

In addition to physical activity, the GPAQ also assesses sedentary behaviour by measuring the amount of time individuals spend sitting or reclining during a typical day, excluding sleeping time. Sedentary activities include sitting while working, travelling, reading, watching television, using computers, or socializing. Increasing evidence suggests that prolonged sedentary behaviour independently contributes to adverse health outcomes, even among individuals who meet the recommended levels of physical activity. Therefore, evaluating both physical activity and sedentary behaviour provides a comprehensive understanding of an individual's lifestyle and health risks.

School teachers occupy a unique position in society because they not only influence students academically but also shape their attitudes and behaviours related to health and lifestyle. Teachers who maintain healthy habits are better equipped to encourage physical activity and healthy living among children and adolescents. Promoting physical activity among teachers may therefore have long-term benefits extending beyond their own health, positively influencing students, families, and the wider community.

Considering the increasing prevalence of physical inactivity, occupational stress, and musculoskeletal disorders among teachers, it is essential to assess their physical activity levels. Such information can help identify the proportion of teachers who meet the recommended physical activity guidelines and those who may benefit from targeted health promotion interventions. The findings can assist policymakers, educational institutions, and healthcare professionals in developing workplace wellness programs, promoting active lifestyles, reducing sedentary behaviour, and improving teachers' overall health, productivity, and quality of life.

II. MATERIAL AND METHODOLOGY

2.1 Population and Sample

A descriptive cross-sectional study was conducted among school teachers working in schools around Loni, Ahmednagar, Maharashtra, over a period of six months. A total of 100 school teachers were recruited using a simple random sampling technique. Teachers who were willing to participate and provided written informed consent were included in the study. Data were collected using the World Health Organization's Global Physical Activity Questionnaire (GPAQ), which assesses physical activity across three domains: occupational activity, transport-related activity, and leisure-time physical activity, along with sedentary behaviour. The questionnaire was administered through face-to-face interviews after obtaining permission from the respective school authorities. The required materials included informed consent forms, the GPAQ questionnaire, data collection sheets, and basic stationery. Physical activity levels were calculated in metabolic equivalent minutes per week (MET-min/week) according to the WHO GPAQ Analysis Guide and categorized as low, moderate, or high based on standard WHO criteria. The primary outcome measure was the GPAQ score expressed in MET-min/week. The collected data were entered into Microsoft Excel and analyzed using descriptive statistics. Results were presented as frequencies, percentages, means, and standard deviations.

2.2 Theoretical framework

The present study is based on the World Health Organization (WHO) framework for physical activity and health, which emphasizes that regular physical activity is essential for maintaining physical, mental, and social well-being. According to the WHO, adults should engage in at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical activity per week to reduce the risk of non-communicable diseases and improve overall health. Physical activity includes activities performed during work, transportation, household tasks, and leisure time.

School teachers are exposed to various occupational demands, including prolonged standing, repetitive movements, administrative responsibilities, and psychological stress, which may influence their level of physical activity and overall health. Inadequate physical activity and increased sedentary behaviour can contribute to musculoskeletal disorders, obesity, cardiovascular diseases, diabetes, and reduced quality of life. Conversely, regular physical activity improves physical fitness, mental well-being, work performance, and quality of life while reducing the risk of chronic diseases.

The Global Physical Activity Questionnaire (GPAQ), developed by the World Health Organization, provides a standardized method for assessing physical activity across three domains: occupational activity, transport-related activity, and leisure-time physical activity. Physical activity is quantified using metabolic equivalent minutes per week (MET-min/week), allowing participants to be classified into low, moderate, or high levels of physical activity according to WHO recommendations.

The theoretical framework of this study assumes that the occupational characteristics of school teachers influence their physical activity levels, which in turn affect their overall health and well-being. By assessing physical activity using the GPAQ, the study aims to determine whether school teachers achieve the recommended level of physical activity and to identify the need for health promotion strategies that encourage active lifestyles and reduce sedentary behaviour.

III. RESEARCH METHODOLOGY

This study employed a descriptive cross-sectional research design to assess the physical activity levels among school teachers working in schools around Loni, Ahmednagar, Maharashtra. The study was conducted over a period of six months. A total of 100 school teachers were selected using a simple random sampling technique. Teachers who were willing to participate and provided written informed consent were included in the study.

IV. PROCEDURE

After obtaining ethical clearance from the Institutional Ethical Committee of Dr. A.P.J. Abdul Kalam College of Physiotherapy, Loni (Reference No: PIMS/DR.APJAKCOPT/IES/2020/34), the study was initiated. A total of 100 school teachers from Loni were selected based on predefined inclusion and exclusion criteria using a simple random sampling method.

The purpose and procedure of the study were explained in detail to all eligible participants. Written informed consent was obtained from each participant prior to data collection. Participants were assured about the confidentiality of their responses and their voluntary participation in the study.

Data were collected using the Global Physical Activity Questionnaire (GPAQ), which assesses physical activity across occupational, transport-related, and leisure-time domains, including both moderate- and vigorous-intensity activities. The questionnaire was administered to all participants through Google Forms. Participants were instructed to respond to all questions carefully based on their usual weekly physical activity patterns.

The completed responses were collected and reviewed for completeness. The data obtained were used to assess the level of physical activity among school teachers based on the GPAQ scoring system. The responses were later compiled and prepared for statistical analysis to determine the distribution of physical activity levels among participants.

V. RESULTS AND DISCUSSION

The present study was conducted to assess the level of physical activity among school teachers from schools around Loni, Maharashtra using the World Health Organization-administered Global Physical Activity Questionnaire (GPAQ). A total of 100 participants who fulfilled the inclusion and exclusion criteria and consented to participate were included in the study. The questionnaire was distributed through an online Google Forms survey.

Age and Gender Distribution

The study included participants aged between 26 and above 55 years. The majority of participants belonged to the 36–45 years age group (48%), followed by 46–55 years (35%), 26–35 years (16%), and only 1% were above 55 years of age.

Out of the total 100 participants, 53% were females and 47% were males, indicating a slightly higher participation of female teachers.

Physical Activity Levels According to GPAQ Domains

The Global Physical Activity Questionnaire assessed physical activity across four domains: work-related activity, travel-related activity, recreational activity, and sedentary behaviour.

In the **work/activity domain**, 3% of participants had a moderate level of physical activity, while 97% had a low level of physical activity. No participant reported a high level of physical activity in this domain.

In the **travel domain**, 47% of participants demonstrated a moderate level of physical activity, while 53% had a low level of physical activity. No participants reported high physical activity in this domain.

In the **recreational domain**, 3% of participants had a moderate level of physical activity, while 97% had a low level of physical activity. No participants reported high recreational physical activity.

In the **sedentary behaviour domain**, 17% of participants showed moderate sedentary levels, while 83% had low levels of sedentary behaviour. No participants were classified in the high category for sedentary behaviour.

Gender-wise Distribution of Activity Levels

Gender-wise analysis showed variation in physical activity levels across domains. In the work domain, 66% of males and 33% of females were active, while 45% of males and 54% of females were inactive. In the travel domain, 41% of males and 58% of females were active, while 47% of males and 52% of females were inactive. In the recreational domain, both males and females showed equal active participation (50% each), while inactivity remained high in both groups. In the sedentary domain, 52% of males and 48% of females were active, and no participants were classified as inactive.

Overall Physical Activity Level

Based on GPAQ scoring, the majority of participants demonstrated low levels of physical activity across most domains, particularly in occupational and recreational activities. Moderate physical activity was mainly observed in the travel domain, while high physical activity levels were not reported in any domain among the participants.

Overall, the findings indicate that a large proportion of school teachers had low physical activity levels, with limited engagement in structured recreational exercise.

Discussion

The main goal of this study was to determine the level of physical activity among school teachers. We also looked for differences in the following areas. Professional teaching assignments, commute times, free time, age, gender, and employment history. A study done by Atiya A Shaikh to determine the physical activity status of school teachers revealed that physical active lifestyle which can help to combat Non communicable diseases and musculoskeletal problems. 189 high school & teachers were included in the sample, ranging in age from 25 to 55, with an average age of 45.8 12.04 years. When the participants were divided into age groups, the highest percentage of participation (32%) was discovered were in the 30-34 age group, but the minimum participants (4% each) were in the 50-54 and 55+ age groups. Given that the majority of the population is young, it is imperative to assess the state of physical activity and raise awareness among young people. According to the study, 50% of teachers were inactive and 50% were active, which complied with the World Health Organization's guidelines for physical exercise.

Teachers who reported being physically active were further categorised according to their level of activity, which showed that only 2% of teachers reported being moderately active while the majority of teachers (48%) reported being physically inactive. This proportion appears to be comparable to that of their competitors. Greatest exercise among Colombo government teachers was done as part of the labour, and to a lesser extent as part of the transportation, like utilising the bus and personal vehicles, v ery little of the overall amount of time spent engaging in physical activity was spent doing it at leisure. Another observation was that the majority of the teachers who were physically active were young. The literature argues that physical exercise and ageing go hand in hand. Low physical activity is linked to NCDs, decreased performance, and a lower quality of life, which in turn leads to further inactivity and creates a vicious cycle [1]

There are so many assessment tools available to asses physical activity status but Global Physical Activity Questionnaire [GPAQ] .To asses physical activity level of school teachers ,we used WHO administered questionnaire .This questionnaire consists of 4 domain which are activity at work , travel to and from places , recreational activity , sedentary .

The current study investigated the prevalence of physical activity level among school teachers of school around Loni ,Maharashtra .It is found that majority of the participants in the study were females which was found to be similar with reported study from Croatia and Pune [8,9]

Study showed that, 53% teachers were female and 47% male , In current study participants were divided into age groups, it was discovered that the majority of participants are female. were from 30-34 age group whereas minimum participants were from 45- 50 years and 55 above . Given that the majority of the population is young, it is imperative to assess the state of physical activity and raise awareness among young people.

From the outcomes of this study ,active / inactive teachers .In first domain males are 66 % active & females are 33 % active . 45 % inactive males and 54 % females are inactive. In second domain travel males are 41 % active & females are 58 % active. 47% Inactive males and 52 % females are inactive . In third domain recreational males are 50 % active & females are 50 % active. 48 % inactive males and 51 % females are inactive . In fourth domain sedentary males are 52 % active & females are 48 % active. 0% Inactive males and 0 % females are inactive .

In our study none had high level of physical activity .3% specified that they had moderate level of physical activity , 97% documented that they had low level of physical activity . in travel domain 0% had high level of physical activity .47% specified that they had moderate level of physical activity .53 % documented that they had low level of physical activity . sedentary domain 0% had low level of physical activity .17 %specified that they had moderate level of physical activity ,83% documented that they had low level of physical activity. This percentage seems to be similar to that of their counterparts of other countries. In a study conducted at Silesia [1]. Contrary to the findings of this study, (Brito et al., 2012) discovered that teachers generally have low levels of physical activity [9]. A study conducted on about 1,700 teachers in Sao Paulo Female teachers are equally active in all three categories, in contrast to male teachers, however they are least active during their free time. The study's findings raise questions about why female

teachers are less active than their male counterparts, whether this is due to time constraints or personal preferences for sports and recreation, whether there are enough workout programmes that appeal to female teachers, and whether the demands of today's workplace and leisure activities are compatible with those of female teachers[10]. This shows that active teachers are more aware about the benefits of physical activity and have a positive outlook towards the effects of physical activity whereas people who are inactive tend to concentrate more on the barriers that they face due to which they do not get the motivation to overcome the barriers and exercise.

It is important to consider that low level of physical is major risk factor for development of non - communicable diseases , which can have a determinant effect on the health . study offers an invaluable snapshot of PA trends in all three domains (job, commute, and recreation) the educational society's teachers at the schools. As was said above, the majority of them are inactive, primarily due to a lack of time and accessible exercise facilities. Thus there appears to be a need to raise awareness about making time for one's own health and providing opportunities for doing so in order to ensure that people lead physically active lives that can aid in the fight against non-communicable.

VI. CONCLUSION

Out of 100 participants assessed in the present study using the questionnaire, 30% were found to have a moderate level of physical activity, while 70% were categorized as having low physical activity. The findings also indicate that younger teachers were comparatively more physically active than older teachers. Both active and inactive participants reported similar perceived barriers to engaging in regular physical activity.

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-Dr. Anushka Patole

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