

# Physical Activity Status of School Teachers of Pune City in an Education Society: Analysis Using GPAQ and EBBS

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## ABSTRACT

**Objectives-** To collect information related to level of physical activity in school teachers in Deccan Education Society school teachers in Pune city.

**Methodology-** 189 teachers with minimum of 1 yr of teaching experience from various schools were asked about their level of physical activity using GPAQ (Global Physical Activity Questionnaire) and EBBS (Perceived Benefits and Barriers to Exercise scale). Data was analysed using descriptive statistics.

**Results-** 50% participants were Inactive, 48% were Low physically active and 2% were moderately physically active. 35-44 age group is the most active age group (69% Active). They were most active in travel domain. Although active and inactive teachers perceived similar barriers, active teacher perceived more facilitators as compared to inactive teachers. Common barriers were, exercise places are too far away and timings being inconvenient (62%, 56%) and common facilitators were, I enjoy exercise, -I will live longer if I exercise, Exercise improves the way my body looks (90%, 88%, 88%).

**Conclusion-** According to WHO criteria many school teachers fell into inactive or low active group. Most common were distance, inconvenient timings and facilitators were, exercise being enjoyable, a way to enhance longevity and physique.

**Key words:** Physical activity status, school teacher, GPAQ, EBBS

## INTRODUCTION

Prevention of NCDs is a growing issue: the burden of NCDs falls mainly on developing countries, where 82% of premature deaths from these diseases occur. Tackling the risk factors will therefore not only save lives; but also will provide a huge boost for the economic development of countries. <sup>(1)</sup> Physical activity is defined as any bodily movement produced by skeletal muscles that require energy expenditure - including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in

recreational pursuits. <sup>(2)</sup> Regular and adequate Physical Activity has immense mental and physical health benefits. It has been identified as the fourth leading risk factor for global mortality (6% of deaths globally). <sup>(3)</sup> It burdens society through the hidden and growing cost of medical care and loss of productivity. <sup>(4)</sup> It has been reported to be a major “modifiable” risk factor for NCDs. Considering the importance of Physical activity WHO has started monitoring Physical activity considering it as a public health priority. <sup>(5)</sup>

Pune is the educational and IT hub of Maharashtra. Here, demand for teaching job has increased tremendously over past few year. Teachers are essential for the effective functioning of the education system and for improving the quality of learning process. (6,7) They are involved in teaching, preparing lessons; assessing students' work and being involved in the extracurricular activities such as sports etc .They also participate in different school committees. All this may cause teachers to suffer adverse mental and physical health issues. (7) School teachers report a high prevalence of musculoskeletal disorders varying from 40% and 95%. (8,9) Regular physical exercise is found to be a protective factor for neck pain, lower back pain, neck and upper extremity issues. (10-12)

Deccan education society is one of the renowned institutes in Pune region with almost 285 school teachers in Pune city and thousands of teachers and staff in other parts of Maharashtra. They address and teach students of all age groups right from pre-primary post graduate studies. These teachers come from all around Pune and address people from multiple age groups, strata. They can create a positive impact on students and parents, advocate physical activity which can create awareness enhancing the quality of life in society. Thus, they being fit is important for the well-being of the society.

To achieve this goal it is important to find out Physical activity of these teachers first. If it is found to be low, appropriate measures can be taken to correct it, which may make it possible to reduce the musculoskeletal disorder and other NCD's. This in turn will help to increase their productivity, reduce the financial burden for treatment and increase the quality of life of the teachers and indirectly society. Current study was conducted with the aim to assess the level of physical activity and reasons for being physically active or inactive in school teachers in DES, Pune region using GPAQ and EBBS as a first step to achieve the goal of fit teachers of DES. GPAQ is a reliable

and valid scale to assess physical activity was used as an assessment tool. It is developed by WHO to minimize the inter-country and within-country differences in physical activity assessment hence a preferred tool over the others. (13) It focuses on generic domains of activities such as work, transportation, and leisure, which enhance its applicability to multiple settings. (14) It covers several components of physical activity, such as intensity, duration, and frequency, and assesses three domains in which physical activity is performed (occupational physical activity, transport-related physical activity, and physical activity during discretionary or leisure time). WHO incorporated the GPAQ into the WHO STEP wise approach to surveillance (STEPS) of non-communicable disease risk factors. (15) Thus, was found to be the most appropriate tool for current study. EBBS is a commonly used outcome measure to assess perceived benefits and barriers to exercise. It has good psychometric properties and gives a detailed description of the persons perception hence a useful tool in current study which can help to give a valuable information for future interventions for promoting a positive aptitude related to physical activity in teachers. (16)

## METHODOLOGY

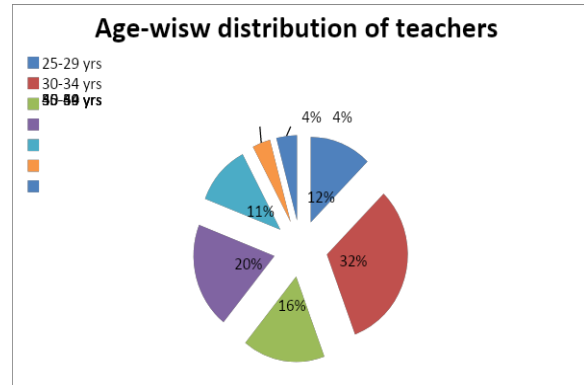
This was a cross-sectional analytical study performed in schools where purposive sampling technique was used to and data for collected for 189 school teachers with minimum 1 yr of teaching experience (Expected frequency-50%, Confidence level-97%, for total 316 approved teachers of DES, using online Epi Info software for sample size calculation for population survey). Teachers with any acute injury or recent surgery or hospitalization, pregnant females or recent delivery (6 months) were excluded from study.

After obtaining Ethics clearance from college, consent was taken from the school teachers. Global Physical Activity Questionnaire (GPAQ)(Reliability: Kappa 0.67 to 0.73;Spearman's rho 0.67 to 0.81

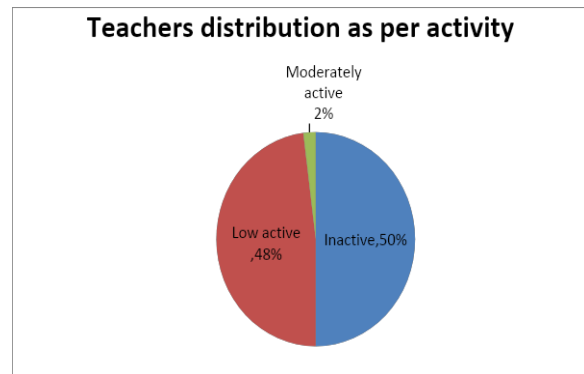
and concurrent validity between IPAQ and GPAQ range 0.45 to 0.65). (14,15)

One on One interview was taken of each teacher based on the 3 domains of GPAQ i.e. occupational physical activity, transport-related physical activity, and physical activity during discretionary or leisure time. Show cards were used for each of the activity during the interview .These show cards helped the respondents to know what activities were meant by each question. According to the data obtained results were interpreted through MET-minute calculation. Whether teachers fit into the criteria set by WHO to call them Physically Active/Inactive was decided as per levels given in GPAQ questionnaire. (<600 MET.min/week-inactive, 600-3999MET.min/week – low active,4000-7999 MET.min/week-moderately active, >8000MET.min/week-highly active) Data was analysed using descriptive statistics using MS Excel.

## RESULTS

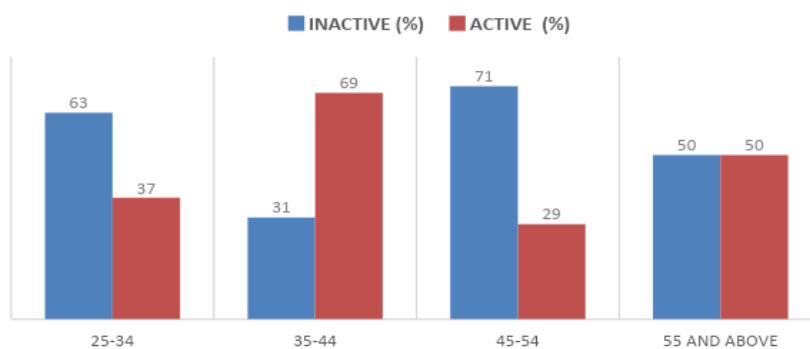


Graph 1-Age wise distribution of teachers



Graph 2- Level of Physical activity with reference to GPAQ in teachers

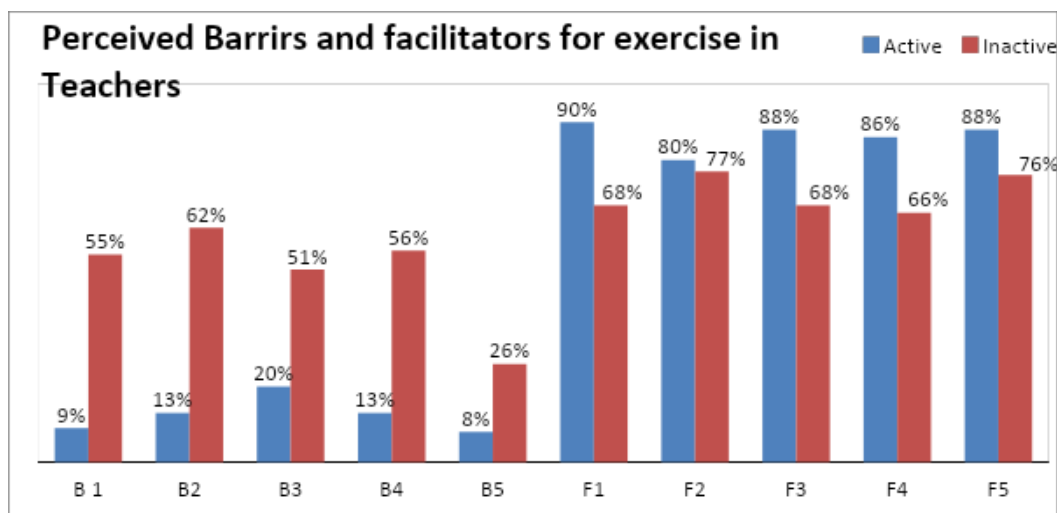
### AGE WISE INACTIVE VS ACTIVE DISTRIBUTION



Graph 3-Age wise division of active Vs inactive teachers

Table 1- division of activity as per 3 domains of GPAQ,age,type of activity

Moderate Physical Activity					
	WORK (%)		TRAVEL (%)	RECREATION (%)	
	VIGOROUS	MODERATE	MODERATE	VIGOROUS	MODERATE
25-34 yrs	0	0	0	0	0
35-44yrs	0	4	4	4	4
45-54yrs	0	0	0	0	0
>55yrs	0	0	0	0	0
Low Physical Activity					
25-34 yrs	8	35	70	8	57
35-44yrs	13	33	38	28	51
45-54yrs	7	31	38	17	28
>55yrs	0	6	6	0	12



Graph 5-Perceived barriers and facilitators to exercise inactive and inactive teachers

BARRIERS	FACILITATORS
B1-Exercise tires me	F1-I enjoy exercise
B2-Places for exercise are too far away from me	F2-I will prevent heart attacks by exercising
B3-Exercise takes too much of my time	F3-I will live longer if I exercise
B4-Exercise facilities do not have convenient schedules for me	F4-Exercise decreases the feeling of stress and tension for me
B5-Exercise takes too much time from my family responsibilities	F5-Exercise improves the way my body looks

## DISCUSSION

When, the participants were categorized into age groups and it was found that, maximum participants (32%) were from 30-34 age group whereas minimum participants were from 50-54 years and 55years and above (4%). Thus its seen that, maximum young population was involved in this occupation and hence it becomes crucial to find the status of Physical activity to spread awareness among the youth.

Study showed that, 50% teachers were Inactive and 50% teachers were active which met the World Health Organization recommendations regarding Physical activity. Physically active teachers were further classified as per their activity level, which revealed that only 2% teachers were moderately active whereas majority of Teachers (48%) exhibited low physically activity. This percentage seems to be similar to that of their counterparts of other countries. In a study conducted at Silesia, Poland 53% of teachers were active and that of Sao Paula where, percentage of low Physical activity was 46.3%, that of moderate was 42.7% and that of high was 11%.<sup>(17,18)</sup> The percentage was lower to that

found by Flanders where, 66% of secondary school teachers met the recommendations of Physical activity.<sup>(19)</sup>

Overall majority of teachers were most active in Travelling. This may be due to transport facilities in the city and distance they have to commute to come for work. Teachers contributed their Physical activity to a lesser extent in recreational activities and least during work related Physical activity. This is again similar to that of their Srilanka counterparts where, most physical activity in government teachers in Colombo district was undertaken as part of work, and to a lesser extent, as part of transport such as by using bus and own vehicles, Leisure-time physical activity contributed very little to the total time spent in physical activity.<sup>(20)</sup>

It was also noticed that, most of the physically active teachers were young. Literature supports positive association between aging and physical activity. Low physical activity is associated with NCDs, reduced performance and affected quality of life leading to further more inactivity thus, a vicious cycle.<sup>(21,22)</sup>

The authors asked reasons for teachers to be active or inactive. The Inactive Teachers reacted strongly to the

barrier as opposed to the facilitators. As per EBBS, the barriers included were, 'Exercise takes too much of my time', 'Exercise tires me', 'Places for me to exercise are too far, Exercise facilities do not have convenient schedule for me'. Such barriers should be worked upon for the betterment of the health of school teachers. The teachers can be encouraged to start exercising which will eventually improve their endurance and will in turn make them feel enthusiastic after the exercise session and not tiresome. Schools can arrange group sessions for the teachers in the school premises itself which will make it convenient for them to exercise on daily basis and will also provide motivation from their colleagues, it would also be of great benefit if we spread the importance of physical activity to this group and make them understand the facilitators which will act as a motivation for this group. The Physically Active teachers reacted strongly to the facilitators indicating that barriers were of lesser importance to them as compared to the facilitators due to the advantages they perceive. 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. For the Active group of teachers the most common facilitators were 'I enjoy exercise', 'Exercise decreases the feeling of stress and tension', 'It will prevent heart attacks', 'I will live longer if I exercise', 'Exercise improves the way my body looks'.

This study provides a valuable snapshot of domain specific (work, commute, and recreation) PA patterns in all the school teachers of this educational society. As seen above most of them are inactive and the main reason being lack of time and availability of places for exercise. Thus, there seems to be a need to increase awareness regarding taking out time for self-health and making such opportunities

available to them in order to ensure a physically active lifestyle which can help to combat Non communicable diseases and musculoskeletal problems.

## CONCLUSION

The study showed that, only 50% of teachers in DES, Pune region were physically active. Young teachers were more active than their old counterparts. Overall majority of School teachers were most active during travelling. Active and inactive teachers perceived similar barriers but the facilitators were more in active teachers mainly, enjoying exercise and its benefit of longevity and good physique.

## Clinical Implications

This information can be used to spread awareness regarding the importance of regular physical activity in school teachers and concerned policy makers. Initiatives should be taken to promote physically active lifestyle in teachers by themselves and policy makers.

## Limitations & Future Scope

The study included only one education society and only school teachers in a city, factors like gender, social and domestic responsibilities, socioeconomic status, awareness and distance of school from house, other comorbidities etc were not considered hence care should be taken while generalizing this data. A comprehensive study considering all the above points would give a detailed insight to handle the lack of physical activity in teachers.

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