

Perceived Benefits and Barriers to Exercise of Physically Active and Non-active School Teachers in an Education Society from Pune: An Analysis using EBBS

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ABSTRACT

Background: School teachers face a lot of stress and are at a risk of various musculoskeletal conditions and diseases because of sedentary lifestyle and clerical activities in addition to teaching. It is observed that they do not engage in regular physical activity and this may affect their health. The aim of the study was to understand the level of physical fitness and their perceptions to benefits and barriers to exercise. This can help the policy makers to determine strategies to enhance physical activity and thus, overall health of teachers.

Methods: A survey was conducted on 158 school teachers of 8 schools from teaching institute in Pune. The Global Physical Activity assessment Questionnaire (GPAQ) was used to categorize subjects into physically active and non-active. The Exercise Benefits and Barriers scale (EBBS) was used to assess benefits and barriers to exercise. Scores of benefits, Barriers and Motivators subscales were compared from groups of physically active and underactive teachers.

Results: Significant difference was found in scores of perceived benefits and barriers and scores of motivators in both groups ($p < 0.0001$, $p < 0.0001$ and < 0.0001 respectively), Strongest benefit Perceived by the physically active participants was “increases level of fitness, increases muscle strength and decreases tension” (60%, 54% and 54% respectively). Both groups perceived barriers similarly but physically non- active participants perceived barriers such as “exercise tires me” and “no convenient schedules” strongly.

Conclusion: Physically active participants perceive benefits strongly. Barriers perceived by both groups were same. However, physically active teachers adhere to exercise as they perceive benefits strongly.

Key words: Physical activity, Benefits, Barriers, School Teachers

INTRODUCTION

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure-including activities undertaken while working, playing, carrying out household chores, travelling and engaging in recreational pursuits. ^[1] Benefits of physical activity are widely known whereas low

physical activity has lot of negative side effects on health work efficiency and lead to reduced quality of life. Engaging in regular physical activity can provide numerous physiological, cognitive, and psychological health benefits and also reduce co-morbidities like diabetes, hypertension, cardiac conditions, stroke etc. ^[2] A strong correlation between physical and cognitive

benefits of exercise and frequency of exercise is well known. [3] Physical activity levels are a major determinant of the health and quality of life.

Benefits of physical activity are defined as a person's "perceptions of positive and enjoyable outcomes of this behavior. [4] Barriers are described as "those factors that were perceived as problems, challenges, or difficulties within their own gender, physical, and sociocultural realities. [4] Physical benefits are improvement in muscle strength, flexibility, endurance and overall improvement in body functioning. Psychological benefits include improved tolerance to stress, stress prevention, improved self-esteem and confidence.

An individual's adherence largely depends on their perception of benefits of being physically active as well as perceived barriers against being physically active. The more the benefits are given importance; adherence to regular exercise is high.

In India, according to WHO survey 2016, population above 18 years of age have low physical activity levels. [5] It is a known fact that, low physical activity levels are associated with a higher risk of stroke, heart disease, cancer, hypertension, diabetes and obesity.

Most of the school teachers have adopted a sedentary lifestyle, owing to the job requirements. At present, the duties of teachers are not limited to only teaching in classes. They are required to prepare for lessons as well as prepare for extra-curricular activities, perform non-teaching clerical duties, participate in continuing professional development, satisfy requests from management, etc. Due to these additional stresses, teachers may suffer mental and physical health problems. [6] There is a high prevalence of musculoskeletal disorders in school teachers, including disorders of neck, back and shoulders. These problems can lead to compromised job efficiency, affection of quality of life, added financial burden on teachers. Such disorders can be effectively

reduced or treated with regular physical activity. [7]

In spite of a general awareness regarding the benefits of physical activity, there is a low adherence to physical activity in community. A greater understanding of perceived benefits and barriers to exercise may assist health care providers and educators to establish methods for promoting physical activity in teachers. So far only a small amount of information is available on the perceived barriers or motivators to exercise among representative groups of school teachers with or without physical activity. The presented data in this study is from apart of such project of FIT TEACHERS where physical activity level of teachers was measured; their barriers and facilitators for physical activity were taken into account to develop a plan to enhance their physical activity levels in order to avoid future negative effect on their health. Main purpose of this paper is to report data on whether these groups differ in their motives for and barriers for participation in physical activity.

METHODS

A sample of 159 school teachers from 8 schools of Pune city from Deccan Education Society (DES) were included. Institutional Ethics committee clearance and informed consent of teachers was obtained. Teachers with more than one year of experience in DES were included. Teachers with acute pain, maternity leave and pregnancy were excluded. The participants were administered the Global Physical Activity Questionnaire which is an instrument used to assess physical activity. It consists of 16 questions which assess physical activity level by measuring Metabolic Equivalent (METs) in 3 domains (work, transport and leisure time). The GPAQ is a reliable and valid tool for assessment of physical activity (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). [8] According to GPAQ, the

subjects were assigned to 2 groups, >600 MET as physically active and < 600 MET as physically non-active (10). After dividing individuals as per their physical activity, both groups were administered the Exercise Benefits and Barriers Scale (EBBS). Both the groups were administered Exercise Benefits and Barriers Scale. EBBS is a reliable and valid tool. The standardized Cronbach's alpha reliability coefficients for EBBS are 0.952 for the total scale, 0.953 for the benefits scale, and 0.86 for the barriers scale. [9] The scores were obtained as Benefits, barriers and Motivators subscale.

Data Analysis

The Subscale scores were compared with the Statistical Package for the Social Sciences (SPSS) version 22.00. Mann-

Whitney U test was used to compare the means of Benefits, barriers and motivators subscales for the physically active and non-active groups. The perceived benefits, barriers and motivators were expressed in the form of percentages

RESULTS

After analyzing the GPAQ scores, 79 participants were included in physically active group and 78 participants were included in the Physically Non- active group.

Table 1: Demographic data.

	Physically active	Physically non-active
Age (years) (mean)	36.75	37.81
Gender	No. of males	7
	No. of females	71

Table 2: Perceived Benefits in Physically active and non- active school teachers

Perceived Benefits	Physically active				Physically non-active			
	Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree
Decreases tension	54%	45%	1%	0%	5%	78%	17%	0%
Increases muscle strength	54%	46%	0%	0%	28%	67%	5%	0%
Increases level of physical fitness	60%	40%	0%	0%	51%	49%	0%	0%
Decreases fatigue	5%	83%	12%	0%	5%	66%	29%	0%
Physical endurance is increased by exercise	26%	71%	2%	0%	10%	87%	3%	0%

Table 3: Perceived Barriers in Physically active and non- active school teachers

Perceived Barriers	Physically active				Physically non-active			
	Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree
Time consuming	1%	24%	74%	1%	3%	62%	33%	2%
Exercise tires me	1%	1%	81%	7%	3%	68%	27%	2%
Places far away	2%	14%	80%	4%	21%	56%	23%	0%
No convenient schedules	1%	16%	73%	9%	2%	70%	28%	0%
Exercise is hardwork for me	1%	15%	75%	9%	7%	30%	63%	0%

Table 4: Perceived Motivators in Physically active and non- active school teachers

Perceived Motivators	Physically active				Physically non-active			
	Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree
I enjoy exercise	54%	45%	0%	1%	13%	71%	17%	0%
Prevents heart attack	48%	43%	8%	1%	9%	82%	8%	1%
Sense of accomplishment	15%	81%	4%	0%	8%	87%	4%	1%
Improves appearance	48%	51%	1%	0%	4%	96%	0%	0%

Table 5: Comparison of subscales of EBBS in physically active and non- active school teachers using Mann-Whitney U test

Subset Scores	Physically Active		Physically Non active		P value	Inference
	Mean	SD	Mean	SD		
Benefits	92.5	5.83	87.4	3.88	<0.001	Extremely Significant difference
Barriers	27.93	3.62	31.82	3.03	<0.001	Extremely Significant difference
Motivators	25.27	1.88	23.65	1.66	<0.001	Extremely Significant difference

DISCUSSION

The study aimed to understand the perceived benefits and barriers to physical activity in school teachers. Age can be an important confounding factor in case of choice of being physically active as our ideas, responsibilities, priorities and requirements change with age. Hence both groups were compared first on basis of age to find if they are similar on baseline for this factor. Unpaired t test was used which showed that the difference between the groups was not quite significant i.e. both groups were comparable on the basis of age. Another confounding factor can be gender of the participants. Females have different perception, Preferences responsibilities at home and different psychological needs. Hence, their preferences may vary than their male counter parts. As seen in Table1, the proportion of male and female teachers was also similar. Thus showing that mostly the will have similar traits on basis of age and gender.

As seen in Table 2, benefits experienced and perceived strongly by the physically active participants were “increases level of fitness, increases muscle strength and decreases tension”. The physically active also perceived the benefits of exercise as something that “decreases fatigue” and “improves endurance”. A similar study was conducted by Mallya et al (2019). The authors have used EBBS and the results are consistent with our study. [10] It concluded that, larger percentage of the population reported enhancement of physical endurance and improvement of overall body functioning were the most commonly reported benefits in women of ages 18-49 years.

Physical activity is an important factor in the prevention of a lot of non-communicable disease. Physical inactivity causes increase risk of various diseases like hypertension, stroke, diabetes, etc. Exercises increases muscle strength, flexibility and fitness which reduce pain, stress in the body. Exercise causes release of endorphins which are neurotransmitters in the brain.

Endorphins are associated with decreased levels of pain and stress. They are also known to reduce the discomfort of exercise. These are also the benefits reported by the physically active population. Thus, the physically active perceived these benefits and adhered to a physically active healthy lifestyle. [11]

As seen in Table 3, barriers perceived strongly by the physically non active participants and not so strongly by the physically active individuals were “there are no convenient schedules” and “exercise tires me”. Physical activity levels in an individual are also dependent on factors such as societal influences, economic problems, etc. The need for managing job as well as a household may lead to the perception of this barrier. Also, there is a majority of female participants in the study, thus they perceive barriers such as: there are no convenient schedules, exercise is time consuming or the places are far away. These results are consistent with the study Mallya et al, 2019. They report that women also perceive “exercise tires me “and “no convenient schedules to exercise” as barriers. [10]

As observed in Table 3, that physically active participants also perceived these barriers. In spite of having perceived the barriers, the physically active individuals adhere to exercise because they experience the benefits of exercise. The physically active school teachers perceived benefits of exercise strongly than barriers and hence adhered to a physically active lifestyle. As the physically non- active were less aware about benefits of exercise, they agreed to them, but perceived barriers such as “no convenient schedules” and “exercise is tiring” more strongly.

In Table 4, it is seen that the motivator “I enjoy exercise” was perceived strongest by the physically active (54 %) while the physically non-active have not agreed strongly to it. “Exercise prevents heart attacks “and “helps improve physical appearance” are perceived strongly as a motivator among the physically active

(48%) and physically non-active (13%) persons. Serotonins increase awareness and cause excitation, which may be one of the reasons for the strong feeling of exercise as a benefitting factor and thus perceived as a motivator [11]

As seen in Table 5, the p value for the benefits subscale was extremely significant and the p value for comparison between Barriers subscale for physically active and non-active population is extremely significant. The p value for motivators subscale was <0.0001 which was considered extremely significant. The physically active gave strong opinions about the benefits and the motivators as they have perceived the same, while the physically non-active only "agreed" or "disagreed". The reason for this can be attributed to the various benefits that the active school teachers experience due to their exercise schedules. Physically active people were motivated to continue exercises. Hence, spreading awareness about these benefits might encourage increase in the physical activity status. After continually perceiving benefits, their adherence to exercise for longer periods of time will increase. This will inturn enhance their Quality of Life and prevent risk of various disabling conditions like heart disease, stroke, etc. Measures can also be taken to reduce barriers like travel inconvenience and lack of appropriate places to exercise.

Although the study included only a representative population of school teachers in the city, they were from all parts of the city and were both, from a government granted and private section. Hence, they represented a similar working environment to all teachers in city. Other factors like social and domestic responsibilities, socioeconomic status, travelling time and other social responsibilities, etc. were not considered which may influence the perception. Future studies maybe undertaken considering the mentioned factors.

CONCLUSION

This study showed that, physically active teachers perceived more benefits of a physically active lifestyle than the physically non-active school teachers. It can be said that the physically non-active teachers were aware of these benefits but lacked motivation or time to get into regular activity. Awareness about the benefits of physical activity among physically non-active teachers should be increased. Awareness regarding the importance of regular physical activity in school teachers is required. Initiatives should be taken to promote physically active lifestyle in teachers by themselves and policy makers.

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