Assessment of level of physical activities among Dental Postgraduates in Davangere - A cross sectional survey

Sapna B, Akhil Pallepati*, Prachi Nisha, Nivedita Jaipuriar, Mansi Tyagi

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Abstract

Objectives: To assess the level of physical activities among dental postgraduates of Davangere. Methods and Materials: A study was conducted in the dental colleges in Davangere. A pre-validated questionnaire was distributed to 222 postgraduates belonging to different dental specialties. The questionnaire included International Physical Activity Questionnaire (IPAQ-SF), with previously defined options for measuring the level of physical activity. The categorical data was assessed using the Chi-square test. Results: Among the study subjects, 27.9% (62) were categorized under low level of physical activity, 27.8% (55) under moderate level, and a high percentage of 47.3% (105) were shown to have vigorous physical activities. No significant difference was observed among the participants with various levels of physical activity to their BMI category. Conclusion: The present study reports that maximum of the postgraduates were physically active. Both male and female postgraduates were found to be equally physically active.

Key words: Body Mass Index, Dental postgraduates, IPAQ, Physical activity

Introduction

As per the World Health Organisation (WHO), being physically fit is a state of health and wellbeing\(^1\), where a great amount of physical fitness can be achieved by regular exercise or physical activity. Physical fitness influences professional success by improving work performance with fewer health issues.

Of late dentistry has become a demanding profession with an increased number of patients.\(^8\) This may be because of an increased awareness among the population regarding oral disease, which has increased the demand for the utilization of services. Due to this, dentists are forced to work stressfully for a longer period of time that will lead to a lot of work-related disorders, specially neck, back, and shoulder pain. Thus, a dentist requires excellent endurance and strength throughout their working day to minimize the fatigue and to increase productivity. Hence, physical fitness is important to dental professionals to avoid work related hazards, especially musculoskeletal disorders.

In a study by Sharma and Golchha, 75% of dental clinicians were at a risk of developing occupation related musculoskeletal disorders, and the prevalence and severity of these disorders decreased by 20% and 80%, respectively, by performing regular specific exercises.\(^3\) Thus, daily physical activity is suggested for all dental professionals.

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health-care professionals as it is one of the keys to counteract work-related disorders. It is thus understood that physical activity among dental health professionals is necessary. For this, the dental health care professionals have to be trained to boost their fitness, to increase their knowledge regarding the same and also to educate the patients. Hence, the aim of the present study was to assess the level of physical activity among the dental postgraduate students in Davangere city.

**Materials and Methods**

A Cross-sectional survey was conducted among postgraduates of two dental colleges in Davangere city, Karnataka, to assess the level of physical activity. Ethics committee approval was obtained from the institutional review board of the college, and permission to conduct the survey was obtained from the heads of both the colleges. A pre-validated questionnaire was distributed to 222 postgraduates belonging to different dental specialties. Informed consent was signed by the participants. The questionnaire included an International Physical Activity Questionnaire (IPAQ-SF) consisting of seven questions with pre-defined options to measure the level of physical activity.

IPAQ-SF is used widely for analysing physical activity levels. A minimum time of 10 minutes of physical activity was required to include it in the analysis. The short version of the questionnaire relates to the physical activities at high or moderate level, walking, and time spent sitting. The level of physical activity used in the questionnaire is presented in the corresponding Metabolic Equivalent of Task units (MET) (1 MET = a resting energy expenditure assuming oxygen consumption of 3.5 mL-min/kg weight). As per the requirements of the questionnaire, the following scores of the intensity of physical activity were used in the analysis of the IPAQ data (walking = 3.3 METs, moderate physical activity = 4 METs, and vigorous physical activity = 8.0 METs). Total physical activity level was defined in MET-minutes/week. Physical activity level (low, moderate, and high) was assessed using the following formula: MET level x minutes of activity/day x days per week. The questionnaire is applicable for a wide range of respondents (15-65 years).

**Analysis of physical activity level:** The MET level is the product of minutes of physical activity and events per week, and the result is expressed as MET-min/week. As per IPAQ scoring protocol, students were assigned to one out of three categories representing low, moderate, and high levels of physical activity. Subjects with a high level of physical activity had to meet one of the following criteria:

a) Participate in a vigorous-intensity activity for a minimum of three days per week, accumulating not less than 1,500 MET-min/week, or
b) Seven or more days of any combination of walking, moderate-intensity activity, or vigorous-intensity activity, achieving a minimum of 3,000 MET-min/week.

Subjects with a moderate level of physical activity had to meet one of the following criteria:

a) Three or more days of vigorous activity for at least 20 minutes per day.
b) Five or more days of moderate-intensity activity or walking for at least a minimum of 30 minutes/day

(or)
c) Five or more days of any combination of walking, moderate intensity activity, or vigorous intensity activity, reaching a minimum of at least 600 MET-min/week.

Individuals who did not meet the above criteria were considered low/inactive. The data was analyzed using SPSS software (version 20). The categorical data was assessed using the Chi-square test. A p value of 0.05 was considered as statistically significant.

**Results**

There were 38.3% (85) males and 61.7% (137) females who participated in the study (Graph 1). A total of 27.9% (62) were categorized under low level of physical activity, 27.8% (55) under moderate, and a high percentage of 47.3% (105) were shown to have vigorous physical activities.
Low physical activity was reported among 24.7% males and 29.9% females. Moderate physical activity was reported by 22.3% males and 26.2% females, and 52.9% males and 43.7% females reported practising vigorous physical activity though no significant difference was observed (Table 1).

Table 1: Study participants distribution based on sex and its association with level of physical activities

<table>
<thead>
<tr>
<th>Gender</th>
<th>Physical activity level</th>
<th>Low (%)</th>
<th>Moderate (%)</th>
<th>Vigorous (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Low</td>
<td>21(24.7)</td>
<td>19(22.3)</td>
<td>45(52.9)</td>
<td>85(100)</td>
</tr>
<tr>
<td>Female</td>
<td>Low</td>
<td>41(29.9)</td>
<td>36(26.2)</td>
<td>60(43.7)</td>
<td>137(100)</td>
</tr>
</tbody>
</table>

Under mild level of physical activity, 30% were underweight, 29.3% were normal, 21% were overweight, and 28.5% were obese. In the moderate level of physical activity, 10%, 28.7%, and 15.7% were categorized as underweight, normal, and overweight, respectively. In the vigorous level of physical activity, 60%, 41.1%, 63.1%, and 71.4% were underweight, normal, overweight, and obese, respectively. No statistically significant difference was observed among the participants with various levels of physical activity with their BMI category (Table 2).

Table 2: Distribution of study participants based on BMI category and association with level of physical activities

<table>
<thead>
<tr>
<th>Body Mass Index category</th>
<th>Level of physical activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (%)</td>
</tr>
<tr>
<td>Low weight</td>
<td>3(30)</td>
</tr>
<tr>
<td>Normal</td>
<td>49(29.3)</td>
</tr>
<tr>
<td>Overweight</td>
<td>8(21)</td>
</tr>
<tr>
<td>Obese</td>
<td>2(28.5)</td>
</tr>
</tbody>
</table>

When subjects were asked whether they were linked to any academic sports association, a statistical significant difference (p=0.01) was observed, in which 78 subjects belonging to the high physical activity were in association with a sports academy, and 27 subjects under the same category were not linked to sports academy. A high frequency of 76 subjects belonging to the high physical activity category had a provision to utilize sports facilities in the college during their leisure time and 29 subjects belonging to the same category reported of no such facilities, and the difference was statistically significant (p=0.01). For the rest of the questions, no significant differences were observed (Table 3).

Discussion

Regular and daily exercise is an essential part of a healthy lifestyle. Therefore, it is recommended to all health professionals to maintain optimal physical activity levels in order to remain healthy and look credible to their patients. The physical activity levels
Pallepati A, et al: Level of physical activities among dental postgraduates

The present study showed a maximum (72%) of the postgraduates were physically active (both high and moderate), which is a positive vibe in the field of medical profession, and the results were encouraging. This is in line with the study conducted by Sri Latha et al., where 61% reported as physically active. On the other hand, Singh A et al., reported a lack of physical activity in 68% of dental health-care professionals. This higher prevalence of physical activity in the study group may be due to the respondents being all health professionals and their education might lead them to engage in healthier behaviours. Since the personal habits of professionals influence their patients, a healthy lifestyle should be encouraged, and further efforts should be made to promote physical activity among those who are inactive.

In the present study, male and female subjects were found to be equally physical active and no gender difference was observed. This is in contrast with the study findings of Thakar S et al., where female dental professionals were more active as compared to their male counterparts, and in a study conducted by Roshini R et al., showed male students were more physically active than females.

When physical activity levels of study subjects was compared with various predictors, study subjects who previously belonged to academic sports association and who had a provision to utilize sports facilities in their college during leisure time reported a high level of physical activity. This notion indicates the importance of integrating dental schools with sports association, and to also create measures to maximize the utilization of sports facilities.

The present study was conducted among dental postgraduates who are a part of health care professionals and play an important role in guiding patients to adopt a healthy lifestyle for the prevention of many diseases, particularly non-communicable diseases, which have a link with oral health problems. McKenna et al., concluded that health professionals who are active physically are three times more likely to promote physical activity among their patients. Although several studies assessed the prevalence of physical activity among general population, there is a dearth of literature among health-care professionals. Recognizing this importance, this study was conducted to determine the level of physical activity among dental health professionals and postgraduates in particular, as they are prone to more work related stress during

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>Low level of Physical activity (Yes/no)</th>
<th>Moderate level of physical activity (Yes/no)</th>
<th>High level of physical activity (Yes/no)</th>
<th>Total (Yes/no)</th>
<th>Chi square value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you physically active</td>
<td>47/15</td>
<td>41/14</td>
<td>79/26</td>
<td>167/55</td>
<td>0.025</td>
<td>0.98</td>
</tr>
<tr>
<td>Do you belong to any academic sports association?</td>
<td>7/55</td>
<td>5/50</td>
<td>27/78</td>
<td>39/183</td>
<td>9.22</td>
<td>0.01*</td>
</tr>
<tr>
<td>Do you have provision to use sports facilities at the college in your leisure time?</td>
<td>33/29</td>
<td>29/26</td>
<td>76/29</td>
<td>138/84</td>
<td>8.84</td>
<td>0.01*</td>
</tr>
<tr>
<td>Is physical activity an important part of daily life?</td>
<td>52/10</td>
<td>45/10</td>
<td>82/23</td>
<td>179/43</td>
<td>0.89</td>
<td>0.63</td>
</tr>
<tr>
<td>Do you feel the need for routine physical activity?</td>
<td>55/7</td>
<td>51/4</td>
<td>92/13</td>
<td>198/24</td>
<td>0.99</td>
<td>0.60</td>
</tr>
<tr>
<td>Are you involved in any sports activities before joining your post-graduation?</td>
<td>22/40</td>
<td>21/34</td>
<td>48/57</td>
<td>91/131</td>
<td>1.92</td>
<td>0.38</td>
</tr>
<tr>
<td>Would you like to change your physical activity?</td>
<td>52/10</td>
<td>44/11</td>
<td>77/28</td>
<td>173/49</td>
<td>2.69</td>
<td>0.25</td>
</tr>
</tbody>
</table>

*statistically significant at \( p < 0.05 \)
their academic tenure and tend to neglect physical activities in their daily life.

The limitation of this study is that it is of a cross-sectional nature and is thus unable to assess the effects of recommended physical activity levels on health related anthropometry of study subjects, which needs to be evaluated in further studies. The study was carried out in a dental college setup and among postgraduates only, so the findings are limited to dental postgraduates only and cannot be generalized to other student populations and other settings. Follow-up studies are required to observe the behaviour of the students throughout their academic life. Strategies such as promotion of a supportive environment and peer based interaction must be adopted to encourage students to adopt physical activity in their daily routine as this is the stage of life when healthy habits can be inculcated easily. There is a need to expose them to early preventive ergonomic programs to prevent work related health hazards in the future. The dental curriculum needs to be modified to stress more on the health promotion and a healthy lifestyle rather than merely concentrating on treatment of diseases.

The present study showed a maximum of the postgraduates were physically active. 27.9% were categorized as low physical activity, 27.8% under moderate physically active, and a high percentage of 47.3% were shown to have vigorous physical activities, which is a positive vibe in the field of medical profession. Both male and female postgraduates were found to be equally physical active.

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