Physical Activity, Sedentary Lifestyle, and Obesity Among Indian Dental Professionals

Abhinav Singh and Bharathi Purohit

Background: Regular physical activity is well recognized as an important lifestyle behavior for the development and maintenance of individual and population health and well-being. This study was conducted to evaluate physical activity, sedentary lifestyle, and obesity among Indian dental health professionals. Methods: Global Physical Activity Questionnaire was used to assess physical activity among 324 dental health care professionals. Metabolic equivalents (MET) were used to express the intensity of physical activities. Obesity was recorded corresponding to Body Mass Index. Individuals were considered in high risk group to develop obesity if energy expenditure was < 600 MET min/week. Results: Total physical activity measured in mean MET minutes per week was 625.6, 786.3, 296.5, and 296.5 for third year, final year, interns, and faculty, respectively (P ≤ .05). Obesity was observed in 22.4% of third-year students, 16.3% of final-year students, 20.4% of interns, and 40.8% of faculty members (P ≤ .001). Conclusion: The sedentary lifestyle of dental health care professionals is a major threat to the present and future health of the professionals by which the entire community could be prone to an epidemic of chronic disease.

Keywords: health professionals, body mass index, chronic disease

Health is a key determinant of development and a precursor of economic growth. A profound shift in the balance of the major causes of death and disease has already occurred in developed countries and is under way in many developing countries, with noncommunicable diseases being the major cause. The most important risks are closely related to physical activity and diet in addition to increase in blood pressure, lipid levels, and tobacco use.1

Physical activity is a fundamental means of development and maintenance of individual and population health and well-being.2,3 It is defined as “any force exerted by skeletal muscles that results in energy expenditure above resting level.”4 It can vary widely in intensity, which in turn varies according to the type of activity and the capacity of the individual. The goal for the general adult population should be to accumulate at least half an hour of activity each day.5 In the 21st century, everyday life offers fewer opportunities for physical activity, and the resultant sedentary lifestyles have serious consequences on public health. Physical inactivity is a state of relatively complete physical rest, which does not provide sufficient stimulus for human organs to maintain their normal structures, functions, and regulations. It also reflects poor self-esteem and a lower health-related quality of life. Epidemiological research has proven that 15 to 20% of the overall risk for coronary heart disease, type 2 diabetes, colon cancer, breast cancer, musculoskeletal diseases, and psychological disorders is attributable to physical inactivity.3

In India, it was reported in the mid-1970s that regular occupational physical activity levels were high as the population was traditionally involved in agriculture. This proportion declined to 70% in the early 1990s because of rapid socioeconomic transition leading to intermittent physical activity among the rural population. Data among urban Indian populations show that moderate- and high-grade physical activity is uncommon. In the early 1990s, only 14% of subjects were reportedly involved in regular nonoccupational physical activity. The proportions did not change significantly over the next 10 years, which was associated with increasing obesity. Data to support these observations are sparse and studies performed in this part of the world have not used internationally acceptable criteria to define physical activity.6

In the 2002 World Health Report, the proportion of deaths attributable to physical inactivity in the European Region was estimated to be 5 to 10%.7 Based on actual rates of disease and death of physically inactive and active people in the Danish population, a change from inactivity to activity from the age of 30 to 80 would translate into a gain in life expectancy of between 2.8 and 7.8 years for men and between 4.6 and 7.3 years for women, depending on the degree of activity increase.8 Another Danish study showed that physically inactive people can expect between 8 and 10 fewer life years without a major disease than physically active people.9

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A sedentary lifestyle plays a significant role in obesity. In 1997, World Health Organization (WHO) declared obesity a global epidemic with major health implications. There has been a large, worldwide shift toward less physically demanding work, and currently at least 60% of the world’s population gets insufficient exercise. Obesity has reached epidemic proportions in India in the 21st century, with morbid obesity affecting 5% of the country’s population. In a hospital-based case-control study done in India, it was proven that sedentary lifestyles were positively associated with risk of coronary heart disease (CHD) and that leisure-time exercise, including as much as 35 to 40 minutes of brisk walking per day, was protective for CHD risk. According to the 1999–2000 National Health and Nutrition Examination Survey, the prevalence of overweight or obesity in children and youth in the United States is over 15%, a value that has tripled since the 1960s.

Monitoring of population levels of physical activity using a standardized protocol is a core part of a public health response to current concerns regarding levels of physical inactivity and obesity. The Global Physical Activity Questionnaire (GPAQ) was developed by WHO for physical activity surveillance in countries. It collects information on the amount of physical activity and sedentary behavior in 3 settings (or domains)—activity at work, travel to and from places, and recreational activities—with 16 questions.

As health professionals, we often focus our efforts on providing care for our patients without taking proper care of ourselves. Sedentary work, which the dental profession demands, causes repeated strain in muscles, tendons, and other body tissues, which could lead to the development of musculoskeletal disorders. Dentists and hygienists in particular are at risk for developing musculoskeletal diseases because of the prevalence of prolonged static and unsupported postures during dental procedures, repetitive work, extended workdays, and working with thin instruments in overextended positions throughout the day. Hence, involvement in physical activity throughout life can increase and maintain musculoskeletal health or reduce the decline that usually occurs with age in sedentary people.

Keeping this in view, the current study aimed to assess physical activity using GPAQ, sedentary lifestyle, and obesity in relation to Body Mass Index (BMI) among dental health care professionals in the city of Bhopal in central India. As per our knowledge, this is one of the first investigations to date, if not the first, of the relation between physical activity and obesity among dental health professionals in India; though there are studies linking physical activity with obesity and other chronic diseases.

Methods

Study Population

GPAQ was used to assess physical activity among dental health care professionals in a dental school in Bhopal, India. The WHO questionnaire was chosen as a surveillance system and helps in comparison of data across various populations.

The study group was formed by selecting a school offering postgraduate dental education in Bhopal, India. This is the only school offering postgraduate education; therefore, most of the work force in the area is attached to it and were studied. The sample size comprised of 324 dental health care professionals, including 90 third-year dental students, 87 final-year students, 78 interns, and 69 faculty members. Some participants, mainly the faculty, refused to take part in the study. The reason could be due to busy schedule and lack of interest.

GPAQ Instrument

GPAQ is comprised of 16 questions that capture physical activity undertaken in different behavioral domains: at work, in transport, and discretionary (also known as leisure or recreation). Within the work and discretionary domains, questions assess the frequency and duration of 2 different categories of activity defined by the energy requirement or intensity (vigorous- or moderate-intensity physical activity). In the transport domain, the frequency and duration of all walking and cycling for transport is captured, but no attempt is made to differentiate between these activities. One additional item is collected: time spent in sedentary activities.

Metabolic equivalents (MET) are commonly used to express the intensity of physical activities and are also used for the analysis of GPAQ data. MET is the ratio of a person’s working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1 kcal kg·hour. For the analysis of GPAQ data, the existing guidelines have been adopted: It is estimated that, compared with sitting quietly, a person’s caloric consumption is 4 times as high when being moderately active, and 8 times as high when being vigorously active. Therefore, when calculating a person’s overall energy expenditure using GPAQ data, 4 METs are assigned to the time spent in moderate activities, and 8 METs to the time spent in vigorous activities.

To assess physical activity, MET scores were calculated separately for individual domains and sub-domains. For the calculation of a categorical indicator, the total time spent in physical activity during a typical week, the number of days as well as the intensity of the physical activity was taken into account. The 3 levels of physical activity suggested for classifying students were low, moderate, and high, and the criteria for these levels were:

- High: 7 or more days of any combination of walking, moderate-, or vigorous intensity activities achieving a minimum of at least 3000 MET minutes/week
• Moderate: 5 or more days of any combination of walking, moderate-, or vigorous-intensity activities achieving a minimum of at least 600 MET minutes/week and a maximum of 2999 MET minutes/week
• Low: a person not meeting any of the above mentioned criteria.

Physical inactivity among dental health care professionals was calculated under the 3 domains of the questionnaire (ie, activity at work, travel to and from places, and recreational activities). The term physical inactivity was used for subjects with an energy expenditure of 0 MET minutes/week for the various domains recorded. Physical inactivity does not include energy spent in sedentary lifestyle. Sedentary behavior was calculated in mean MET minutes/week for third year, final year, interns, and faculty.

The questionnaire was distributed in individual classrooms for third- and final-year dental students. Faculty and interns were given the questionnaire in their respective departments. The respondents were instructed to complete the survey without discussion within 15 minutes.

Informed consent and university clearance were obtained for the study. The questionnaire was pretested to a random sample of 30 participants to ensure practicability, validity, and interpretation of responses. Data of participants in the pilot study were included in final analysis. The validity of the questionnaire was assessed using Cronbach’s alpha internal consistency coefficient. The collection of the data was completed within 15 days in between June and July 2010.

### Body Mass Index (BMI)

Methods of estimating body composition include measuring weight and weight for height, BMI, waist circumference, skinfold thickness, and ponderal index. Of these, perhaps the most convenient is BMI, which can be calculated according to the following formula: 

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m)^2}}.$$  

BMI defines people as underweight, overweight (preobese), and obese. WHO regards a BMI of < 18.5 kg/m² as underweight and may indicate malnutrition, an eating disorder, or other health problems, while a BMI greater than 25 kg/m² is considered overweight and above 30 kg/m² is considered obese.

### Statistical Analysis

The validity of the questionnaire was assessed using Cronbach’s alpha internal consistency coefficient. Mean MET scores of physical activity and inactivity were calculated for individual domains and sub domains. Analysis of variance (ANOVA) was used to compare the mean physical activity scores among dental health care professionals. A chi-square test was used to compare categorical risk indicators and obesity (BMI) among dental professionals. Kendall’s test was used to compute correlation between physical activity categorical indicator (CI), obesity, and sedentary behavior. Logistic regression analysis was performed to determine the importance of the factors associated with obesity. Odds ratio was calculated for all variables with 95% confidence intervals. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) software for Microsoft Windows version 13. A P-value of ≤ 0.05 was considered significant for all statistical analyses.

### Results

A questionnaire study to assess physical activity was conducted among dental health care professionals in a dental school in Bhopal. Out of the 324 professionals examined, 143 (44.1%) were males and 181 (55.9%) were females. No significant difference was noted between the number of males and females. Distribution of dental health care professionals in dental school is depicted in Table 1.

Table 2 lists physical activity among the dental professionals. Information on physical activity participation was calculated in 3 settings (or domains): activity at work, travel to and from places, and recreational activities. Intensity of physical activity was calculated in mean MET minutes/week. Activity at work was further classified in 2 sub domains, vigorous and moderate. Total mean activity at work for third year, final year, interns, and faculty was 195.8, 400.9, 163.5, and 57.4 MET minutes/week, respectively. Significant differences were noted for activity at work between the various groups (P ≤ .05). Mean MET minutes/week for travel to and from places was 212.9, 185.2, 167.2, and 69.4 for third year, final year, interns, and faculty, respectively. Differences between the groups were also noted in travel to and from places domain (P ≤ .05). Recreational activities were further classified into

### Table 1 Distribution of Dental Health Care Professionals

<table>
<thead>
<tr>
<th>Dental professionals</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third-year students</td>
<td>32 (22.3%)</td>
<td>58 (32%)</td>
<td>90 (27.8%)</td>
</tr>
<tr>
<td>Final-year students</td>
<td>35 (24.5%)</td>
<td>52 (28.7%)</td>
<td>87 (26.9%)</td>
</tr>
<tr>
<td>Interns</td>
<td>31 (21.7%)</td>
<td>47 (26%)</td>
<td>78 (24%)</td>
</tr>
<tr>
<td>Faculty</td>
<td>45 (31.5%)</td>
<td>24 (13.3%)</td>
<td>69 (21.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>143 (44.1%)</td>
<td>181 (55.9%)</td>
<td>324</td>
</tr>
</tbody>
</table>
2 sub domains, vigorous and moderate. MET scores were calculated separately for individual sub domains. Significant differences were noted between the groups for energy expenditure in recreational activities ($P \leq 0.001$). Total physical activity was calculated by sum of energy expenditures in the 3 domains. Total physical activity measured in mean MET minutes/week was 625.6, 786.3, 296.5, and 296.5 for third year, final year, interns, and faculty, respectively. Significant differences were noted between the various groups ($P \leq 0.05$).

Table 3 depicts physical inactivity among dental health care professionals under the 3 domains of the questionnaire. It includes the number of subjects with energy expenditure of 0 MET minutes/week. Total energy expenditure at work of 0 MET minutes/week was reported by 58.9%, 35.6%, 51.2%, and 76.8% health care professionals in third year, final year, interns, and faculty groups, respectively. Energy expenditure of 0 MET minutes/week in travel to and from places was reported by 56.7%, 55.1%, 41%, and 69.6% of third year, final year, interns, and faculty groups, respectively. Total energy expenditure of 0 MET minutes/week in recreational activities was reported by 74.4%, 58.6%, 53.8%, and 52.1% of third year, final year, interns, and faculty groups, respectively. Total energy expenditure of 0 MET minutes/week was calculated in 32.2%, 10.3%, 17.9%, and 44.9% of third year, final year, interns, and faculty, respectively.

Table 4 shows categorical risk indicators for dental health care professionals. The 3 levels of physical activity for classifying dental health care professionals are low, moderate, and high. Of the 211 health care professionals in the high-risk group to develop obesity, 28.9% were in third year, 19.9% were in final year, 20.4% were interns, and 30.8% were faculty members. In the moderate risk group, 33.3% of subjects were in third year, 40% were in final year, 26.7% were interns, and 6.7% were faculty members. As few as 17% of subjects in third year, 47.2%...
Physical Activity Among Health Professionals

in final year, and 35.8% interns were in the low-risk group. Surprisingly, none of the faculty members were present in the low-risk group. Significant differences were noted between the various risk categories for dental health care professionals ($P \leq .001$).

Table 5 depicts obesity (as per BMI) and sedentary behavior among dental health care professionals. Obesity was calculated in 22.4% of third-year students, 16.3% of final-year students, 20.4% of interns, and 40.8% of faculty members. Overweight problems were seen in 19.7%, 24.7%, 24.7%, and 30.8% of third years, final years, interns, and faculty, respectively. Significant differences were noted between the various health care professional groups ($P \leq .001$). Sedentary behavior was calculated in mean MET minutes/week. A maximum sedentary behavior of 4047 mean MET minutes/week was calculated in the faculty members. Significant differences were noted between faculty members and various other dental health care professional groups ($P \leq .001$).

Logistic regression analysis was done to determine the contribution of batch, gender, physical activity, and sedentary behavior as independent variables to obesity. The results of logistic regression showed that all independent variables were significantly related to obesity. Males were more likely to have obesity as compared with females (OR = 2.42; $P = .001$). Faculty and interns were more prone to obesity as compared with third- and final-year dental students (OR = 2.04; $P = .001$). Physically inactive subjects had an odds ratio of 3.37 of developing obesity as compared with those who were physically active. Dental health professionals with a sedentary behavior (>2000 MET min/week) were more likely to have obesity (OR = 1.18; $P = .001$) (Table 6).

Significant positive correlation was seen between physical activity and BMI ($r = .209; P \leq .001$), and BMI and sedentary behavior ($r = .135; P \leq .01$). A significant negative correlation was noted between physical activity and sedentary behavior. ($r = -0.111; P \leq .01$) (Table 7).

Discussion

Physical activity is a fundamental means of improving the physical and mental health of individuals. The findings from this study indicate that the majority of the dental professionals involved in this study participated in very little physical activity when assessed using multidomain GPAQ. Sedentary work, like that performed in dentistry, exerts stress on to certain muscles which builds tension in the body. Thus, it appears total physical activity remains insufficient to ensure energy balance and prevent obesity.

During the past few decades, in developed countries, physical activity levels among both adults and children have declined steadily. Using the logistic regression model, it was noted that male faculty and interns, physically inactive subjects, and health professionals with a sedentary behavior (>3000 MET min/week) were more likely to be obese. Faculty

### Table 4 Categorical Risk Indicator for Obesity in Health Care Professionals

<table>
<thead>
<tr>
<th>Dental professionals</th>
<th>Category indicator for obesity</th>
<th>Number of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low risk (&gt;3000 MET min/week)</td>
<td>9 (17%)</td>
</tr>
<tr>
<td></td>
<td>Moderate risk (600–3000 MET min/week)</td>
<td>20 (33.3%)</td>
</tr>
<tr>
<td></td>
<td>High risk (&lt;600 MET min/week)</td>
<td>61 (28.9%)</td>
</tr>
<tr>
<td>Third-year students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final-year students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>53</td>
</tr>
</tbody>
</table>

* $P \leq .001$, $\chi^2 = 46.5$.

### Table 5 Obesity and Sedentary Behavior Among Dental Health Care Professionals

<table>
<thead>
<tr>
<th>Dental professionals</th>
<th>Body mass index</th>
<th>Sedentary behavior Mean MET min/week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal (&lt;25 kg/m²)</td>
<td>Overweight (25–30 kg/m²)</td>
</tr>
<tr>
<td>Third-year students</td>
<td>61 (31.8)</td>
<td>16 (19.7)</td>
</tr>
<tr>
<td>Final-year students</td>
<td>59 (30.7)</td>
<td>20 (24.7)</td>
</tr>
<tr>
<td>Interns</td>
<td>49 (25)</td>
<td>20 (24.7)</td>
</tr>
<tr>
<td>Faculty</td>
<td>25 (12.5)</td>
<td>25 (30.8)</td>
</tr>
<tr>
<td>Total</td>
<td>194</td>
<td>81</td>
</tr>
</tbody>
</table>

* $P \leq .001$, $\chi^2 = 52.2$. 
and interns were more prone to obesity as compared with third- and final-year dental students (OR = 2.04; P = .001). The finding could be attributed to declining levels of physical activity among faculty and interns.

Data from 3 national surveys among Iranian adults have shown that more than 80% of the Iranian population is physically inactive.19 The physical activity level of 198 Estonian family doctors was assessed by Suija et al in 2010 using the International Physical Activity Questionnaire (IPAQ). Analysis revealed no statistically significant relationship between the level of physical activity and general characteristics (age, living area, BMI, time spent sitting).20 In 1996, Ching et al examined relationships between nonsedentary activity level, time spent watching television, and risk of overweight among male health professionals in a 2-year follow-up study. Odds of being overweight were 50% lower for men. Among men watching 41 or more hours of television per week, the odds of being overweight were 406 times greater than those for men watching no more than 1 hour per week. The study concluded that sedentary and nonsedentary activities represent separate domains, each with independent risks for overweight.21

Frank et al assessed in 2008 the physical activity levels of 2316 U.S. medical students. More than half (61%) of the students had a level of physical activity higher than those of age-matched peers in the general population.22 In a survey on physical activity conducted by Hensrud et al (1992) on physicians of the Minnesota Medical Association, the prevalence of physical activity was higher compared with the general population. Overall, 65.6% of the 393 respondents reported performing regular exercise, while 38.2% participated in exercise vigorous enough to be of cardiovascular benefit. Men reported a significantly higher prevalence of regular exercise and cardiovascular exercise than did women.23 Lobelo et al (2009) conducted a study to assess how physical activity habits of doctors and medical students influence their counseling practices. They concluded that medical schools need to increase the proportion of students adopting and maintaining regular physical activity habits to increase the rates and quality of future physical activity counseling delivered by doctors.24

In 2009, Fretts et al examined the association between total physical activity (leisure-time plus occupational) and incident diabetes among 1651 American Indians who participated in the Strong Heart Study for a period of 10 years. Compared with participants who reported no physical activity, those who reported any physical activity had a lower risk of diabetes.25 Physical activity was also found to reduce the risk of periodontitis in a study in male health professionals. The results suggest that engaging in the recommended level of exercise is associated with lower periodontitis prevalence, especially among never and former smokers.26

### Table 6  Logistic Regression Analysis With Obesity as Dependent Variable [Absence of Obesity; BMI (<25 kg/m²) vs. Presence of Obesity (>25 kg/m²)] and Batch, Gender, Physical Activity, and Sedentary Behavior as Independent Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>SE β</th>
<th>P</th>
<th>OR (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1.89</td>
<td>0.298</td>
<td>0.01</td>
<td>2.42 (3.83, 1.99)</td>
</tr>
<tr>
<td>Batch</td>
<td>0.71</td>
<td>0.294</td>
<td>0.01</td>
<td>2.04 (3.63, 1.49)</td>
</tr>
<tr>
<td>Physical activity</td>
<td>1.21</td>
<td>0.481</td>
<td>0.01</td>
<td>3.37 (5.16, 2.76)</td>
</tr>
<tr>
<td>Sedentary behavior</td>
<td>0.170</td>
<td>0.316</td>
<td>0.01</td>
<td>1.18 (2.20, 0.63)</td>
</tr>
</tbody>
</table>

Note. Variables = Gender: male and female; Batch: students (third year and final year) and graduates (faculty and interns); Physical activity: Low risk and risk group (moderate and high); Sedentary behavior: <3000 MET min/week and >3000 MET min/week.

### Table 7  Correlation Between Physical Activity Categorical Indicator (CI), Body Mass Index (BMI), and Sedentary Behavior

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation coefficient</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity (CI)—BMI</td>
<td>0.209</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Physical activity (CI)—Sedentary behavior</td>
<td>–0.111</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>BMI—Sedentary behavior</td>
<td>0.135</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
costs in England—including those to the health system, days of absence from work, and loss of income due to premature death—have been estimated to be €3–12 billion. This excludes the contribution of physical inactivity to overweight and obesity, whose overall cost might run to €9.6–10.8 billion per year. Similariy, a Swiss study estimated the direct treatment costs of physical inactivity at €1.1 to 1.5 billion. On the basis of these 2 studies, physical inactivity can be estimated to cost a country about €150 to 300 per citizen per year. Increasing current levels of activity could significantly reduce the costs to society, but even maintaining them can result in savings. For example, the Swiss study estimated the savings on direct treatment costs for the physically active at about €1.7 billion.28

Almost 2 million deaths per year are attributable to inactivity leading to physical activity being described as the “best buy in public health.”29 Despite global concern about noncommunicable diseases in low- and middle-income countries, increasing obesity, and rapid changes in pattern of work, transport, and recreation, physical activity surveillance and monitoring is only carried out in a few countries.30 Addressing this societal issue is not the task of public health professionals and politicians alone. It requires action from and partnership across a broad range of sectors and professions, many of which do not have physical activity as a core element of their missions.

Regular physical activity is recommended for all, including dental health care professionals. It is associated with an increase in self-esteem and self-concept and a decrease in anxiety and depression. Promotion of adequate physical activity habits and awareness of the risk of musculoskeletal injuries in the profession should be incorporated during medical and dental education to improve the health of future clinicians. A daily routine of exercise is recommended for oral health care providers to prevent musculoskeletal work-related disorders. Warm-up stretching exercises can easily be performed at chair side or in between patients to help reduce pain and increase limberness and muscle flexibility. Daily in-office exercises should be accompanied by routine physical activity and stress reduction regimens outside the workplace.31

Physicians tend to preach to patients what we ourselves practice. Many studies have now shown that (starting with freshman medical students) physicians with healthy personal habits are more likely to encourage patients to adopt such habits. This is specifically true for both diet and exercise: physicians who eat less fat are half as likely to test patients’ cholesterol, and those who exercise more are significantly more likely to counsel their patients about exercise. It has also been shown that patients find doctors with healthier diet and exercise habits to be more believable and more successful at motivating patients in both diet and exercise.32

We acknowledge that certain factors might have influenced the findings of the current study, such as the potential recall bias in the process of recalling and recording physical activity and inactivity. Because the BMI is dependent only on weight and height, it makes simplistic assumptions about distribution of muscle and bone mass, and thus may overestimate adiposity on those with more lean body mass (eg, athletes) while underestimating adiposity on those with less lean body mass (eg, the elderly). The reason for low levels of physical activity among Indian health professionals may be attributed to the sedentary nature of job or a busy schedule. This work can be generalized to health professionals in other developing countries. Still, we recommend similar studies to be conducted in other countries.

**Conclusion**

The majority of the dental professionals in this study appeared to undertake very little physical activity when assessed using multidomain GPAQ. Physically inactive health professionals, especially the male gender faculty and interns with a sedentary lifestyle, were more likely to develop obesity. The sedentary lifestyle of dental health care professionals is a major threat to the present and future health of the professionals, which could make the community prone to an epidemic of chronic disease.

The economic costs attributable to physical inactivity are enormous. The health impacts and their related costs could be reversed by increasing levels of physical activity. Regular, moderate physical activity is a very cost-effective way of improving and maintaining health. Physical activity is a positive health behavior with an immense potential to improve public health and deserves to be central to any future public health strategy as it is likely to reduce the future burden of noncommunicable diseases. Workplaces are important settings for health promotion and disease prevention, thus enabling people to live longer and healthier lives. Therefore, it is the need of the hour for health professionals, including oral health care providers, to set an example for others to follow—making the vision a reality.

**References**