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# The Association Between Lifestyle Factors and Mental Well-being among Dental Students

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## ABSTRACT

Dentistry can be considered a challenging field, with dental students often experiencing high levels of stress and poor mental health. Hence, maintaining mental well-being is important so that dental students can cope with their stressors effectively. Lifestyle factors like physical activity, sleep problems, and addictions impact the levels of mental well-being. This paper aimed to identify the association between dental students' lifestyle factors and mental well-being. This cross-sectional descriptive study was conducted among all the undergraduate dental students at a university in Malaysia. Data was collected by using a self-administered questionnaire (which included questions on demographic background, lifestyle factors, and Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)) and analysed using IBM SPSS (Statistical Package for the Social Sciences) software version 26.0. Out of the survey students, 83.2% responded. The mean WEMWBS score for this study population was  $46.09 \pm 7.93$ . The results showed that engagement in physical activity positively affected mental well-being scores, while the presence of sleep-related problems was associated with lower mental well-being scores. Encouraging the adoption of healthier lifestyle factors, such as regular physical activity and practising good sleep hygiene along with the intervention of sleep-related problems, could improve mental well-being levels among dental students significantly.

**Keywords:** dental students, mental well-being, lifestyle, sleep, physical activity

## CORRESPONDING

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## INTRODUCTION

The World Health Organization (WHO) defines mental health as a state of well-being in which an individual realises their own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to their own community (1). Mental well-being is thus the foundation for overall well-being and effective functioning. It is more than just the absence of mental illness. Mental illness and mental well-being are two separate but correlated entities (2). Therefore, the keys to improving mental well-being lie not only in preventing mental illnesses but also in understanding their causes and promoting good mental well-being.

Dentistry is a challenging profession due to the nature of its work (3). Dental students often exhibit a high prevalence of depression, anxiety, and stress (4-8). They often experience multifactorial stresses, with academic and clinical factors being the main sources (9,10). Chronic stress can lead to poor mental well-being. This often causes detrimental effects on students, typically manifesting as psychological complaints like fatigue, loss of motivation, feelings of isolated or down, having suicidal thoughts (11,12), and resulting in poorer academic performance (13). Hence, it is crucial for dental students to improve their mental well-being in order for them to cope with their stresses effectively.

Lifestyle and behavioural choices have been found to affect mental well-being, which in turn affects an individual's overall health. Healthy lifestyle choices include refraining from tobacco products, being physically active, maintaining a healthy diet and healthy weight, as well as refraining from or reducing intake of alcohol (14). Lack of physical activity and sleeplessness were found to be associated with higher odds of psychological distress (15). Having a regular habit of exercise has been discovered to improve mental well-being and reduce stress levels in dental students (16).

Having good mental well-being is essential to dental students as they face a high chance of chronic stresses that are inevitable during their academic years. Hence, there is a need to identify factors associated with their mental well-being to have a better mental well-being promotion. Many studies have provided evidence that lifestyle and behavioural factors affect the levels of mental well-being. Hence, this study aimed to determine the association between lifestyle factors like addiction, smoking status, levels of physical activity, and sleep-related problems with mental well-being among undergraduate students at the International Islamic University of Malaysia (IIUM).

## MATERIALS AND METHODS

### Study Population and Sampling

A cross-sectional survey involving all the Year 1 to Year 5 students in the 2019/2020 academic year at the International Islamic University Malaysia was conducted. All 286 dental students were invited to participate in the study. Participation in this study was voluntary and all undergraduate students were eligible. Ethical approval was obtained from the IIUM Research Ethics Committee (ID number: IREC 2020/029).

### Data Collection

A self-administered questionnaire was distributed for data collection. To ensure maximum coverage and participation of the subjects, the data collection slot was added to the academic timetable.

## Instruments

The self-administered questionnaire collected information on the dental students' demographic background, lifestyle factors, and their mental well-being levels. Demographic information like age, gender, and year of study were included in the questionnaire. The students were also requested to indicate the frequency of their physical activity in a week, whether they had any addiction, and whether they had any sleep-related problems.

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS), which was developed by researchers from the University of Warwick and the University of Edinburgh, was used to assess dental students' mental well-being. It is a 14-item scale with five response categories which were summed into a single score. Hedonic and eudaimonic aspects of mental health were covered in the scale. To complete the scale, individuals were asked to tick the box that best describes their experience in the past two weeks using a Likert scale (none of the time, rarely, some of the time, often, all the time). The higher the WEMWBS scores, the better the mental well-being (17). The scale gives individuals a picture of their mental well-being and was also suitable to be used in evaluating the effectiveness of mental well-being interventions at a group and individual levels. It is a valid, reliable, and acceptable measure and has been found to be sensitive to change in various settings (18).

## Analysis

The as-collected data were then analysed using IBM SPSS (Statistical Package for the Social Sciences) software version 26.0. Descriptive and inferential statistical analyses were conducted.

## RESULTS

A response rate of 83.2% was obtained for the survey, with 238 out of 286 students who enrolled in the 2019/2020 academic year responding. Table 1 below summarises the demographic information of the respondents.

Table 1: Demographic Information

| Variables          | Mean Age | Gender        |                | Year of Study |               |               |               |              |
|--------------------|----------|---------------|----------------|---------------|---------------|---------------|---------------|--------------|
|                    |          | Male          | Female         | 1             | 2             | 3             | 4             | 5            |
| Number of students | 22.2     | 64<br>(26.9%) | 174<br>(73.1%) | 62<br>(26.1%) | 53<br>(22.3%) | 50<br>(21.0%) | 50<br>(21.0%) | 23<br>(9.7%) |

## WEMWBS Scores

The WEMWBS score of this study population ranged from 21 to 65. The mean WEMWBS score for this study population was  $46.09 \pm 7.93$ .

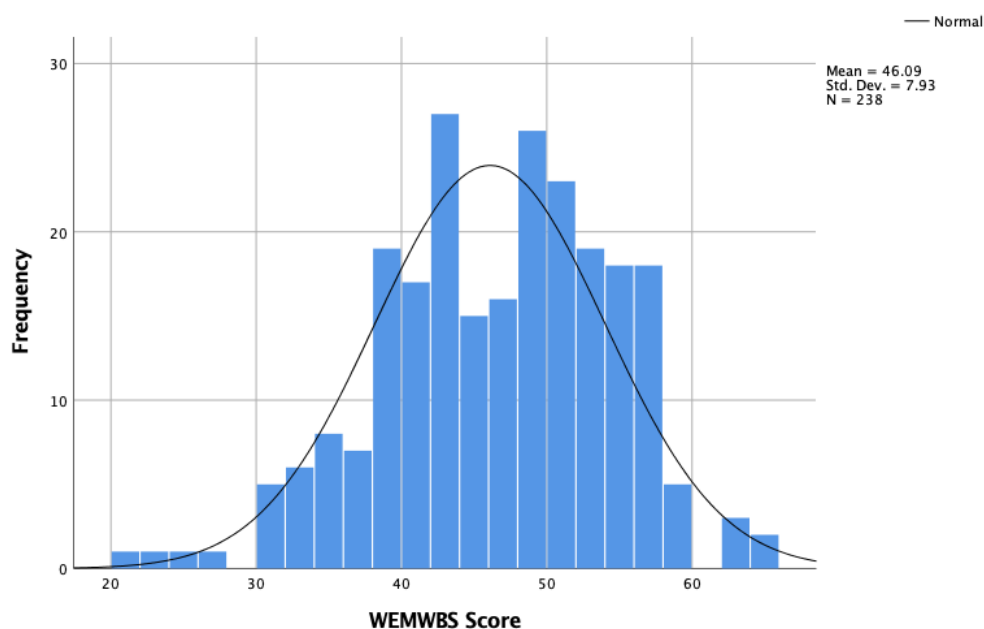


Figure 1: Histogram of WEMWBS Score

### Lifestyle factors and WEMWBS Scores

Students were asked if they had any addiction to smoking, vaping, pornography, alcohol, drugs, others, or if they had no addiction. A total of 221 (92.9%) students reported no addiction, while seventeen students (7.1%) reported having addictions.

Table 2: Addiction and WEMWBS Score

| Variables    | Median Score (SD) |               | U       | z    | p     |
|--------------|-------------------|---------------|---------|------|-------|
|              | No                | Yes           |         |      |       |
| WEMWBS Score | 47.00 (7.553)     | 49.00 (5.336) | 1618.00 | .953 | 0.340 |

\*Z

WEMWBS scores were not normally distributed for those without addictions, as assessed by Shapiro-Wilk's test,  $p < 0.05$ . The Mann-Whitney U test was used to compare the WEMWBS scores between those who reported they had addictions and those who reported without addictions. There was no significant difference between the two groups,  $U = 1618.00$ ,  $p = 0.340$ . In the present study, 99.2% (236/238) of students were non-smokers, with one being an ex-smoker and one being a current smoker.

Students were asked whether they participated in any physical activity in a week and the frequency of their physical activity. It was found that students who did not perform any exercise at all had significantly lower WEMWBS scores than students who did,  $t(236) = -2.451$ ,  $p = 0.015$ .

Table 3: Exercise and WEMWBS Score

| Variables     | Mean Score (SD) |               | T statistics (df) | p     |
|---------------|-----------------|---------------|-------------------|-------|
|               | No              | Yes           |                   |       |
| WEMWBS scores | 45.90 (7.812)   | 48.26 (9.134) | -1.245            | 0.214 |

Figure 2 shows that increased weekly physical activity led to a higher WEMWBS score. An analysis of variance showed that the effect of frequency of exercise on the WEMWBS score was significant,  $F(4, 233) = 2.416, p = .005$ . Post hoc comparison using the Bonferroni test revealed that the mean WEMWBS score for individuals reporting no physical activity ( $M = 42.68, SD = 9.05$ ) was significantly different from the mean score for students who participated in physical activity daily ( $M = 50.33, SD = 4.77$ ).

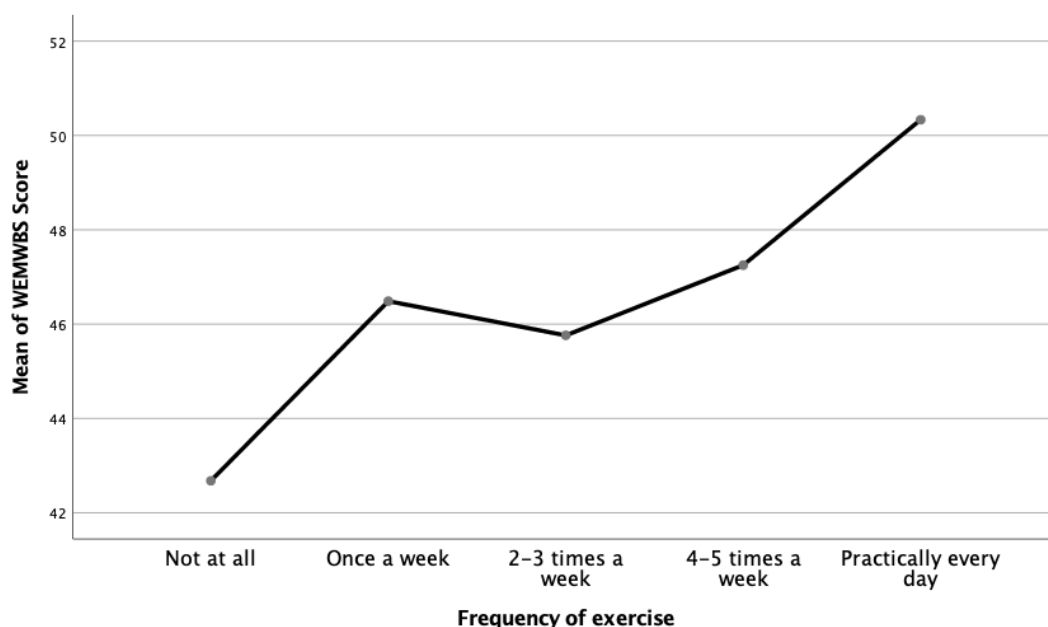


Figure 2: Frequency of Exercise and WEMWBS Score

Respondents were asked if they had any sleep-related problems like sleep apnoea, insomnia, parasomnia, daytime sleepiness, or sleep-related movement disorders. Table 4 shows the median WEMWBS scores for students with sleep-related problems and students without sleep-related problems. The results indicated that sleep-related problems generally contributed to lower mental well-being scores. All the groups did not fulfil the assumption of normality for the WEMWBS score, as assessed by Shapiro-Wilk's test,  $p < 0.05$ . A Mann-Whitney U test showed that the WEMWBS scores were significantly higher for students without sleep-related problems ( $md = 49.00, n = 79$ ) than for students who suffered from sleep-related problems ( $md = 44.00, n = 159, U = 4943.00, z = -2.677, p = .007, r = .174$ ). The Mann-Whitney U test also revealed that the difference was statistically significant for students who suffered from insomnia compared to students without insomnia ( $U = 2949.50, p = 0.00, r = 0.286$ ).

Table 4: Sleep-Related Problems and WEMWBS Score

|                     | Median           |                 | U       | z      | p    |
|---------------------|------------------|-----------------|---------|--------|------|
|                     | No               | Yes             |         |        |      |
| <b>Insomnia</b>     | 49.00<br>(n=185) | 42.00<br>(n=53) | 2949.50 | -4.425 | 0.00 |
| <b>Sleep Apnoea</b> | 47.00<br>(n=220) | 46.50<br>(n=18) | 1690.50 | -1.032 | .302 |
| <b>Parasomnia</b>   | 47.00<br>(n=225) | 43.00<br>(n=13) | 1320.00 | -.591  | .554 |

|                      |         |         |         |        |      |
|----------------------|---------|---------|---------|--------|------|
| <b>Daytime</b>       | 48.00   | 45.00   | 6047.00 | -1.776 | .076 |
| <b>Sleepiness</b>    | (n=105) | (n=133) |         |        |      |
| <b>Sleep-related</b> | 47.50   | 42.00   | 2173.50 | -1.760 | .078 |
| <b>Movement</b>      | (n=212) | (n=26)  |         |        |      |
| <b>Disorders</b>     |         |         |         |        |      |

Mann Whitney U test values (U: U statistic, which provides the rank sum of the data, z: value of the normal U test approximation, p: level of the significance)

## DISCUSSION

Mental well-being forms the foundation of our everyday functioning. Therefore, it is important to ensure that dental students maintain good levels of mental well-being to better cope with the stressors they face.

The mean WEMWBS score in the current study was 46.09, which is lower than the scores found in previous studies. This finding suggests that dental students had lower levels of mental well-being compared to other populations. There were 50 respondents with WEMWBS scores of 40 or less, indicating they could be at risk of developing depression. A study found that a WEMWBS score below 40 is indicative of a high risk of depression (19). These respondents could benefit from mental well-being promotional activities to prevent further deterioration of their mental well-being.

A lack of physical activity and the presence of sleep-related problems were found to negatively correlate with the dental students' mental well-being. The researcher found that students who engaged in physical activity had significantly better mental well-being than those who did not exercise. The levels of mental well-being improved in tandem with the frequency of physical activity in a week. These findings show that engagement in physical activity positively affects an individual's mental well-being. Physical activity has been found to have a positive effect on individual overall well-being by enhancing mental health, moods, and sleep quality (20), and is associated with lower stress levels (16). On the other hand, a lack of physical activity was found to increase the odds of psychological disorders (15). This could explain why students who were more physically active experienced better mental well-being. Poor sleep quality has been associated with lower psychological well-being in undergraduate students (21). The findings of this study showed that sleep-related problems led to lower mental well-being among dental students, but the difference in levels of mental well-being was statistically significant between those with insomnia and those without. Insomnia has also been linked to high levels of perceived stress (22). Despite these findings, it remains unclear whether the presence of sleep-related problems led to lower levels of mental well-being or if the sleep-related problems resulted from stressors that caused lower mental well-being. However, promoting sleep hygiene and addressing sleep-related problems could potentially improve an individual's mental well-being.

This study revealed that certain lifestyle factors were correlated with the dental students' mental well-being levels. Being physically active and having better sleep were associated with higher levels of mental well-being. These findings indicate a need to assess the dental students' mental well-being levels and lifestyle factors. Knowledge of these attributes could provide a foundation for establishing effective mental well-being promotion programs. Ensuring the early adoption of healthy lifestyle choices could affect dental students' mental well-being positively, enabling them to achieve their full potential as healthcare providers in the future.

## CONCLUSION

Lifestyle factors like engagement in physical activity and sleep-related problems have been found to affect dental students' mental well-being. Engagement in physical activity positively influenced mental well-being scores, while the presence of sleep-related problems led to lower mental well-being scores. These findings provide a potential for early intervention to improve dental students' mental well-being and their capacity for success. The current study's results could pave the way for future interventions and health promotion programs.

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