Original Article

FA Comparative Study of Mental Well-being between High and Low Smartphone Users among Medical Students

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Abstract

Background: The use of smartphones has become widespread among medical students and may affect their mental health. Overuse has been linked to anxiety, poor sleep, and worsening psychological health. **Material and Methods:** To evaluate and compare the mental health of the high and low smartphone users among medical students. The study used a cross-sectional comparative design with a sample of 101 first-year MBBS students. The Smartphone Addiction Scale-Short Version (SAS-SV) was used to determine smartphone use. The scale used to assess mental well-being was the Warwick-Edinburgh Mental Well-being Scale (WEMWBS). High and low smartphone users were divided into high and low groups based on SAS-SV. **Results:** The independent-samples t-test was used for data analysis. High smartphone users had a lower mean WEMWBS than low smartphone users. The average was not found to be statistically significant. **Conclusion:** The group of low smartphone users had higher mental well-being than the high smartphone users, but this difference was not statistically significant. Medical students. A larger study should be conducted further to examine the link between smartphone use and mental health.

Keywords: Mental well-being, Smartphone usage, Medical students, High smartphone users, Low smartphone users, Smartphone addiction, Psychological health, Stress, anxiety, and depression, Digital behaviour, Academic population.

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Introduction

Use of smartphones has become a familiar way of life among adolescents and young adults, especially medical students, who use mobile technology to communicate, learn, and engage in entertainment. Research has shown that even the temporary absence of smartphones induces anxiety, implying the emerging psychological addiction to the devices, which means a tendency towards overexpenditure on them.[1] Smartphones have been more than a luxury over the years and have become indispensable devices that have replaced other gadgets like computers, cameras, and music players.

It has also been attributed to excessive smartphone use leading to less concentration and disruptive study habits, and to an inability to switch off their digital lives, particularly among students accustomed to constant connectivity.[2] Use of smartphones has been increasing among medical students, driven by academic demands, web-based learning, and the availability of third- and fourth-generation smartphones.[3] Nevertheless, the studies point to an increasing problem with smartphone addiction, with approximately 40 percent of undergraduate medical students being addicted users; most of their usage is focused on entertainment, not necessarily studying.

The increased settings of screen time have also been associated with lack of exercise, hormonal imbalances, insomnia, depression, and impaired psychosocial health.[6-9] Such results also present key questions on how the use of smartphones can impact the mental health of medical students, who are already at risk of mental distress as a result of high academic pressure and constant contact with digital devices.

Here, the current study tests the association between smartphone use and mental health among medical students. In particular, the purpose of the study was to examine the mental well-being of first-year MBSS students using the Warwick-Edinburgh Mental Well-being Scale (WEMWBS ¹ 1) and to compare the results between high and low smartphone users, as assessed using the Smartphone Addiction Scale-Short Version (SAS-SV ¹ 10).

Materials and Methods

It is a cross-sectional comparative study conducted in the Department of Physiology at Shrimant Rajmata Vijayaraje Scindia (SRVS) Medical College, Shivpuri, Madhya Pradesh.

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The target population comprised a sample of first-year MBBS students at SRVS Medical College enrolled in a two-month study period between October 2025 and November 2025. There were 101 respondents in the study. Participants were stratified into two groups based on smartphone use: Group 1, high smartphone users (n = 69), and Group 2, low smartphone users (n = 32).

The students of the first year MBBS were only involved to maintain consistency in terms of age, exposure to studies, and learning atmosphere, hence reducing possible confounding variables.

To measure Smartphone use, the Smartphone Addiction Scale-Short Version (SAS-SV) was used, which consisted of 10 items. The post-response was added to get an aggregate score. According to gender-specific cut-off values shown to be valid, male participants with a score above 31 and female participants with a score above 33 were considered high smartphone users, whilst those with a score below these cut-offs were regarded as low smartphone users.

Mental well-being was measured using the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS), which comprises 14 questions assessing positive qualities of mental health. The accumulation of responses across all items yielded a total score, with higher scores indicating better mental well-being.

Informed consent was obtained, and then questionnaires were administered in a supervised, standardised manner to ensure clarity and completeness. During the study, the participants' anonymity and confidentiality were strictly maintained.

The data were entered into Microsoft Excel and analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive and inferential statistics were applied. An independent samples t-test was used to compare WEMWBS scores between high and low smartphone users. A p-value < 0.05 was considered statistically significant.

Results

A total of 101 first-year MBBS students were included in the analysis, of whom 69 were classified as high smartphone users (Group 1) and 32 as low smartphone users (Group 2).

Table 1: Group statistics of WEMWBS scores

Group	Smartphone usage	N	Mean ± SD
1	High users	69	48.77 ± 9.15
2	Low users	32	52.72 ± 11.52

Low smartphone users had a higher mean WEMWBS score than high smartphone users, suggesting better mental well-being among students with lower smartphone use.

Table 2: Independent t-test comparing WEMWBS scores between groups

Test	Statistic	df	p-value
Levene's test for equality of variances	F = 6.775	—	0.011
t-test (Equal variances not assumed)	t = –1.707	49.855	0.094

Levene's test for equality of variances was statistically significant (p = 0.011), indicating unequal variances between the two groups. Therefore, the t-test results under the assumption of unequal variances were considered for interpretation. The mean difference in WEMWBS scores between high and low smartphone users was –3.95, with a 95% confidence interval ranging from –8.600 to 0.698. This difference was not statistically significant (p = 0.094).

In general, the mean score of the mental well-being of low smartphone users was statistically significantly lower than that of high smartphone users, even though the difference between the two groups was not statistically significant.

Discussion

Based on the results and findings above, the current study indicates a trend that may negatively affect the mental well-being associated with smartphone overuse. The results are similar to those of various studies conducted in India and show negative psychological consequences of high smartphone use among medical students.[10-12]

Research by Dharmadhikari et al. and Singh and Singh (2025) has shown higher levels of stress, poorer sleep quality, and higher SAS-SV scores among heavy smartphone users. Even though the primary parameters of these studies were stress and sleep, they indicate the overall trend in current research: the more people use their smartphones, the worse their psychological health is.[13,14]

A huge systematic review and meta-analysis conducted by Pradeep et al. demonstrated a combined prevalence of smartphone addiction of about 60 cases among Indian medical students and its correlation with depressive and anxiety symptoms, low self-esteem, and poor social functioning. On the same note, Prafull et al. observed a high correlation between overindulgence in smartphone use and anxiety, depression, and stress. Although the authors of the current research did not find statistically significant differences, the observed worsening of mental health among high smartphone users is consistent with these results.[15,16]

The insignificance of the current research might be explained by the small sample size, the non-uniform distribution of groups, and the relatively similar academic experience of first-year MBBS students. Besides, the Warwick Edinburgh Mental Well-Being Scale (WEMWBS) does not measure psychological distress but favours positive mental well-being; it might not be sensitive to early adverse psychological effects of smartphone overuse.[17,18]

Smartphones are also helpful in medical education, as they help both learn and communicate academically, which would help

offset the adverse consequences of overuse. However, the general tendency aligns with the world literature, which indicates that excessive screen time is associated with negative psychological outcomes among young adults.[19]

The results of the current research would support the need to teach medical students the value of adopting awareness and healthy digital behaviours. It is suggested that future research incorporating larger, multicenter samples and examining other psychological variables would help further understand the relationship between smartphone use and mental well-being.

Conclusion

The current research found lower mental well-being scores among high smartphone users than among low users, but the difference was not statistically significant. The pattern indicates that overuse of smartphones can have negative effects on the psychological health of novice medical students. Although smartphones are indispensable learning and communication devices, their uncontrolled use is contributing to the long-term deterioration of psychological well-being. It would be better to conduct further studies using larger, more varied samples to strengthen the evidence, while implementing balanced, mindful smartphone use among medical students would be a good idea.

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Conflicts of interest

There are no conflicts of interest.

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