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Smartphone Addiction and Psychological Well-being Among College Students: The Moderating Role of Gender and Smartphone Usage Duration

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Abstract

The prevalence of smartphone usage among college students has become a ubiquitous phenomenon. Nevertheless, excessive smartphone use is thought to have adverse effects on students' lives. The objective of this study is to examine the relationship between smartphone addiction and psychological well-being among college students, considering the potential influence of gender and smartphone usage duration as moderating variables. The sample was obtained through purposive sampling, with a total of 226 college students aged 18 to 24 years (mean = 20.8; $SD = 1.45$) participating in the study. The scales utilized in this study were the demographic questionnaire, the Psychological Well-Being Scale, and the Smartphone Addiction Scale. The research hypothesis posits that the relationship between smartphone addiction and psychological well-being is moderated by gender and smartphone usage duration. To examine this hypothesis, a Moderated Regression Analysis (MRA) was conducted. The results indicated that neither gender nor smartphone usage duration moderates the relationship between smartphone addiction and psychological well-being ($p > 0.05$). This suggests that the strength of the relationship between smartphone addiction and psychological well-being is not influenced by gender or the duration of smartphone usage. Implication of this study suggest that intervention programs designed to enhance the psychological well-being of students experiencing smartphone addiction should be directed at all students, irrespective of gender and duration of smartphone use, as the adverse effects of smartphone addiction can impact anyone.

In the current digital age, students face distinct challenges alongside technological advancements, particularly in the use of smartphones (Yuen Fook et al., 2021). This era is characterized by the ease of accessing information, connectivity, and engagement in online activities. However, it also presents several significant issues for students, including academic stress (Barbayannis et al., 2022), changes in social interaction patterns (Pantic, 2014), and an increasing dependence on smartphones (Alotaibi et al., 2022; Mokhtarinia et al., 2024; Said et al., 2022).

Recent systematic reviews have provided empirical synthesis on this growing issue. A review by Candussi et al. (2023) found that the prevalence of problematic smartphone use among university students ranged from 36.5% to 67%, with an average rate of 52%. The review also revealed consistent associations between excessive smartphone use and adverse mental health outcomes such as depression and anxiety, as well as poor sleep and academic performance. Moreover, the amount of time spent using smartphones was identified as a key predictive factor for problematic use.

The primary challenge for students revolves around the substantial academic workload, encompassing tightly packed schedules, assignments, exams, and the expectation of achieving commendable results (Rahmatpour et al., 2019). Furthermore, as technology evolves, students tend to lean more towards digital communication methods such as text messages, phone calls, or instant messaging applications, rather than engaging in face-to-face social interactions. While this facilitates long-distance communication, it concurrently diminishes the quality of interpersonal and emotional communication typically experienced in face-to-face interactions (Al-Hail et al., 2023; Huang et al., 2022).



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Relying on digital communication may compromise the quality of interpersonal and emotional communication, which is frequently encountered in face-to-face interactions (Kolhar et al., 2021).

Social media has become an integral aspect of the contemporary student experience, enabling students to engage in social interactions through platforms like Facebook, Instagram, or Twitter (Kolhar et al., 2021). Nevertheless, these interactions predominantly take place in the virtual realm, leading to pressure to maintain a positive online image. Social comparison and the need for online peer validation can impact self-perception and self-esteem (Chen & Xiao, 2022). Moreover, the use of social media is correlated with subpar academic performance (Chandrasena & Ilankoon, 2022; Sharma & Behl, 2022).

Supporting these findings, Crowhurst and Hosseinzadeh (2024) conducted a systematic review of longitudinal studies and identified seven primary risk factors for smartphone addiction, including mental health problems, emotional dysregulation, academic stress, social rejection, peer victimization, and family dysfunction. Notably, the review also highlighted bidirectional links between mental health difficulties and smartphone addiction, indicating that poor psychological well-being can both contribute to and result from excessive smartphone use.

Elevated stress levels, academic pressure, and societal expectations in this digital era are factors that can detrimentally affect the psychological well-being of students (Julika & Setiyawati, 2019; Trihastuti & Anindya, 2022). Psychological well-being, as a multidimensional concept, refers to optimal human functioning and encompasses subjective, social, and psychological dimensions, along with health-related behaviors (Ryff, 2014).

Positive psychological well-being significantly influences the lives and educational journeys of students (Morales-Rodriguez et al., 2020). The ability of students to effectively manage stress, anxiety, and pressure not only enhances their emotional equilibrium during their college years but also influences the quality of their learning experience. Optimal psychological well-being empowers students to navigate their college life more resiliently, providing a sturdy foundation for personal growth and improved academic achievements (Min et al., 2022).

Despite increasing scholarly attention, recent meta-syntheses show that the conceptualization of smartphone addiction remains heterogeneous. Giansanti (2025), in a narrative review integrating 25 systematic reviews and meta-analyses, emphasized that smartphone addiction is a multidimensional phenomenon encompassing behavioral, psychological, and social dimensions, often linked to emotional dysregulation and social isolation. However, inconsistencies in definitions and measurement tools remain, limiting comparability across studies. Echoing this concern, Panova and Carbonell (2018) argued that excessive smartphone use might be better understood as maladaptive or compensatory behavior rather than a true addiction, urging researchers to adopt more context-sensitive frameworks.

A positive state of psychological well-being also facili-

tates students in building and sustaining positive social relationships (Carton & Goodboy, 2015). Healthy interactions with friends, professors, and fellow students not only enrich their social experience on campus but also provide crucial support (Wei, 2022). Optimal psychological well-being creates an environment conducive to learning, enabling students to concentrate on personal and academic growth, thereby nurturing a generation of students who are not only successful academically but also adept at overcoming life challenges (Davis & Hadwin, 2021; Hamoudi Halat et al., 2023). Despite the imperative need for robust psychological well-being among students, there is compelling evidence indicating suboptimal psychological well-being in many students (El Ansari et al., 2011, 2013).

Various factors are known to influence students' psychological well-being. The rise of technology has led to the emergence of a noteworthy problem – smartphone addiction, which has the potential to worsen psychological well-being issues among students (Daniyal et al., 2022). Horwood and Anglim (2019) research shows that problematic smartphone usage is associated with low psychological well-being. Research has shown a connection between smartphone addiction and adverse mental health conditions, specifically depression and anxiety (Ratan et al., 2021; Shoukat, 2019).

Gender is one of the factors that can bridge the relationship between smartphone addiction and psychological well-being. Women and men were found to differ in smartphone use behavior, where women were found to be more affected by smartphone use (Claesdotter-Knutsson et al., 2021; Yang et al., 2018). In addition, Akhter (2015) research shows the role of gender in psychological well-being. Kumcagiz and Gunduz (2016) research shows that there are significant differences in psychological well-being between men and women. The findings state that the level of psychological well-being in women is higher than in men. This indicates that women and men differ in psychological well-being.

Gender is one of the factors that can moderate the relationship between smartphone addiction and psychological well-being. Previous research has shown significant behavioral differences in smartphone use between women and men, with women found to be more affected by excessive smartphone use (Claesdotter-Knutsson et al., 2021; Yang et al., 2018). This gender disparity may be explained by several psychological and social factors. Women, for instance, are more likely to use smartphones for social interaction, which may increase their susceptibility to smartphone addiction as they tend to rely more on digital communication for emotional support and social validation (Oberst et al., 2016) (Ha et al., 2022). Moreover, studies suggest that women experience higher levels of anxiety and stress related to social media use, which further contributes to their increased risk of smartphone addiction (Elhai et al., 2017). These patterns highlight the moderating role of gender in smartphone addiction's impact on psychological well-being.

Furthermore, Akhter (2015) research shows the significant role of gender in psychological well-being, while

Kumcagiz and Gunduz (2016) found that psychological well-being levels in women are often higher than in men. This difference in well-being might be due to women being more proactive in seeking social and emotional support, which can buffer the negative effects of smartphone addiction. However, the same factors that increase their well-being could also make women more vulnerable to the negative psychological impacts of excessive smartphone use, such as addiction, which might reduce their overall well-being. Thus, it is crucial to examine gender differences in smartphone addiction to better understand its impact on psychological well-being across male and female students. Gender is known to play a role in various aspects of mental health. Understanding how gender influences the relationship between smartphone addiction and psychological well-being can provide deeper insights into the interventions needed for each gender group.

Twenge and Campbell (2019) stated that an increase in the duration of time spent in electronic communication (such as social media, internet, exchanging messages with smartphones, and online games) indicates a decrease in psychological well-being. Research shows that high duration of smartphone use and high addiction are associated with poor academic outcomes and poor well-being (Machado de Oliveira et al., 2023).

Understanding how the duration of smartphone use affects psychological well-being can aid in designing more effective interventions. For instance, if high duration of use is found to be particularly detrimental, interventions can be focused on reducing smartphone usage among students.

Taken together, the growing body of systematic and narrative reviews underscores the intricate association between smartphone use and students' psychological functioning, yet highlights persistent research gaps. Specifically, few studies have examined the moderating influence of gender and smartphone usage duration on the link between smartphone addiction and psychological well-being. To address this gap, the present study investigates whether gender and smartphone use duration moderate the relationship between smartphone addiction and psychological well-being among college students.

Methods

This study employs a correlational quantitative approach to examine the relationship between variables, specifically the association between smartphone addiction and psychological well-being, with gender and smartphone usage duration serving as moderating factors. Data was collected using a scale organized in the form of an online questionnaire, which was distributed through social media platforms (WhatsApp groups, Instagram, and X/Twitter) targeting the student population. The data was collected in June 2023.

The participants in this study were required to be active college students. The sampling technique employed was purposive sampling, a non-probability method where researchers select participants based on specific criteria (Paramita et al., 2021). The criteria for research partici-

pants included being active students aged 18–25 years. A total of 226 students participated in this study. The minimum required sample size ($n = 190$) was estimated using G*Power 3.1 software for a medium effect size ($f^2 = 0.15$), $\alpha = 0.05$ and power = 0.80.

The research instruments consisted of a demographic questionnaire, a smartphone addiction scale, and a psychological well-being scale. The demographic questionnaire collected basic information about the research participants, including age, gender, and smartphone usage duration. The smartphone addiction scale assessed the degree of addiction to smartphone use. Additionally, the psychological well-being scale measured the level of psychological well-being.

The psychological well-being scale used Ryff's Scale of Psychological Well-Being from Ryff and Keyes (1995). The scale consisted of 31 items with a Cronbach's alpha coefficient of 0.917 (Mutiarra & Pratiwi, 2023). Examples of statements from the psychological well-being scale included, 'In general, I feel I have control over various situations in my life,' and 'When I look at my life history, I am satisfied with what has happened.' The scale offered 6 response options, ranging from 1 (Strongly Disagree) to 6 (Strongly Agree).

Smartphone addiction was measured using the Smartphone Addiction Scale-Short Version (SAS-SV) from Kwon et al. (2013), which was retested in Indonesian by Mutiarra and Pratiwi (2023). The smartphone addiction scale consisted of 24 items with a Cronbach's alpha coefficient of 0.883. Examples of statements from the smartphone addiction scale included, 'I often miss planned work because of smartphone use' and 'I feel happy when using a smartphone.' The scale offered 6 response options, ranging from 1 (Strongly Disagree) to 6 (Strongly Agree).

The potential for bias arising from self-report and purposive sampling has been demonstrated to impose limitations on the generalizability of findings. Anonymity has been shown to reduce social pressure, but not bias.

Data analysis involved descriptive analysis, and assumption tests (normality, multicollinearity, and heteroskedasticity). Data analysis involved descriptive analysis, assumption tests, and moderation tests. All analyses were conducted using Jamovi statistical software. The methods used for hypothesis testing included correlation analyses (Pearson and Spearman) and moderated regression analysis (MRA).

Results

From the collected data, 226 participants met the study criteria. Table 1 presents an overview of the demographic characteristics of all participants, showing a higher proportion of female participants (66.8%) compared to male participants (33.2%). The participants' ages ranged from 18 to 24 years ($M = 20.8$; $SD = 1.45$), with the largest group (29.6%) being 21 years old. The majority of participants reported using smartphones for 4 to 6 hours per day (38.1%).

The descriptive results indicate that the average score

Table 1
Demographic Data of Participants ($N = 226$)

Demographic Variable	<i>n</i>	%
Gender		
Male	75	33.2
Female	151	66.8
Age (years)		
18	13	5.8
19	26	11.5
20	51	22.6
21	67	29.6
22	40	17.7
23	19	8.4
24	10	4.4
Duration of smartphone use		
4–6 Hours	86	38.1
7–9 Hours	81	35.8
≥ 10 Hours	59	26.1

for smartphone addiction was 82.58, with a minimum score of 42 and a maximum score of 118. The average score for psychological well-being was 127.58, with a minimum score of 83 and a maximum score of 171. The detailed outcomes of the descriptive analysis are presented in Table 2.

Table 2
Descriptive Analysis Results

Variables	<i>N</i>	Missing	Mean	<i>SD</i>	Range
Smartphone addiction	226	0	82.58	15.1	42–118
Psychological well-being	226	0	127.58	18.4	83–171

The results of the assumption tests suggest that the data were normally distributed for both smartphone addiction ($K-SZ = 0.059$, $p = 0.057$) and psychological well-being ($K-SZ = 0.051$, $p = 0.200$). The multicollinearity test results indicate no issues for the smartphone addiction variable ($VIF = 1.10$, tolerance = 0.907), gender ($VIF = 1.04$, tolerance = 0.965), and smartphone usage duration ($VIF = 1.07$, tolerance = 0.939), as all VIF values were below 10 and tolerance values were above 0.01. The heteroskedasticity test showed a significance value of $p = 0.115$ ($p > 0.05$), indicating that the tested variables did not exhibit heteroskedasticity.

The correlation analysis revealed a significant negative relationship between smartphone addiction and psychological well-being ($r = -0.499$, $p < 0.001$), suggesting that higher levels of smartphone addiction were associated with lower psychological well-being. However, gender did not show a significant relationship with psychological well-being ($r = 0.050$, $p = 0.455$). The duration of smartphone usage also demonstrated a significant negative relationship with psychological well-being ($r = -0.177$, $p = 0.008$), indicating that longer smartphone usage was

linked to lower psychological well-being. The correlation results are presented in Table 3.

Table 3
Correlation Results Between Study Variables

Variables	Psychological well-being	
	<i>r</i>	<i>p</i>
Smartphone addiction	-0.499	< .001
Gender	0.050	.455
Smartphone usage duration	-0.177	.008

The results of the moderation analysis concerning the influence of gender on the relationship between smartphone addiction and psychological well-being are presented in Table 4. The findings indicate that the level of smartphone addiction has a significant direct impact on psychological well-being ($p < 0.001$). However, gender did not demonstrate a significant effect on psychological well-being ($p > 0.05$), suggesting no differences in psychological well-being between male and female students. An interesting discovery from this research is that the interaction between smartphone addiction and gender was not statistically significant ($p > 0.05$). This indicates that the impact of smartphone addiction on psychological well-being does not differ significantly between male and female students.

The results of the moderation analysis regarding the impact of smartphone usage duration on the relationship between smartphone addiction and psychological well-being are detailed in Table 5. The findings indicate that smartphone addiction significantly influences psychological well-being directly ($p < 0.001$). However, the duration of smartphone usage does not significantly affect psychological well-being, indicating that time spent on smartphones alone may not be a determining factor ($p > 0.05$). An interesting observation from this study is that the interaction between smartphone addiction and the duration of smartphone usage was not statistically significant ($p > 0.05$). This indicates that the impact of smartphone addiction on psychological well-being does not significantly differ between students who use smartphones for short versus long durations.

Discussion

The results of this study indicate a significant negative relationship between the level of smartphone addiction and psychological well-being among students. These findings align with prior research associating excessive use of smartphones with decreased psychological well-being (Jumrianti et al., 2022; Tangmunkongvorakul et al., 2019). Dai et al. (2021) added that negative feelings such as panic, anxiety, fear, confusion, discomfort, boredom, and hopelessness arise when individuals cannot use smartphones. The results indicate that the level of smartphone addiction has a significant direct impact on psychological well-being. Babadi-Akashé et al. (2014) found that increased psychological well-being is linked to lower smartphone addiction. This result is consistent with numerous previous studies

Table 4
Moderation Estimates of Gender Differences

Predictor	Estimate	SE	95% CI		Z	p
			Lower	Upper		
Smartphone addiction	-0.620	0.07	-0.758	-0.483	-8.87	< .001
Gender	-2.491	2.23	-6.887	1.893	-1.11	.265
Smartphone addiction × gender	-0.095	0.150	-0.390	0.200	-0.631	.528

Table 5
Moderation Estimates of Smartphone Usage Duration

Predictor	Estimate	SE	95% CI		Z	p
			Lower	Upper		
Smartphone addiction	-0.600	0.070	-0.738	-0.462	-8.547	< .001
Duration of smartphone use	-0.605	1.333	-3.218	2.007	-0.454	.650
Smartphone addiction × Duration of smartphone use	0.028	0.088	-0.144	0.202	0.326	.744

affirming that smartphone addiction can negatively affect various aspects of psychological well-being, including stress, anxiety, and depression (Abi-Jaoude et al., 2020; Ejaz et al., 2023; Elhai et al., 2017; Wacks & Weinstein, 2021).

The findings of this study contradict the results of European studies, which have shown that Problematic Mobile Phone Use (PMPU) does not predict a decline in well-being after controlling for neuroticism (Lopez-Fernandez et al., 2017). This is partly due to the SAS-SV (Kwon et al., 2013) instrument, which is more stringent than PMPU. SAS-SV (Kwon et al., 2013) focuses on clinical addiction symptoms, while PMPU focuses specifically on harmful use.

Smartphone addiction becomes a risk factor for psychological well-being (Bajwa et al., 2022). This is because the more time spent accessing smartphones, the less time to interact with other people directly, which will cause feelings of isolation and disruption of individual well-being (David & Roberts, 2017). Duration of smartphone use is associated with psychological well-being. Implying that longer usage of smartphones is directly proportional to lower psychological well-being of the students. Research by Coyne et al. (2020) found that the item "I feel lonely even in a crowd" correlates with SAS-SV and fits the time-displacement hypothesis. Time spent on social media replaces in-person interaction, increasing loneliness. The research by Twenge and Campbell (2019) supports this result by indicating a decline in psychological well-being among American adolescents after 2012, coinciding with the increased use of smartphones. The study shows a statistically insignificant relationship between gender and psychological well-being. In other words, no conclusion can be drawn regarding differences in psychological well-being between genders in this research. Research has recorded results supporting the absence of this gender difference (Hasan, 2016), with women and men showing similar perceptions of psychological well-being (Salleh & Mustafa, 2016).

The results showed that gender did not significantly

influence psychological well-being. This finding aligns with the research results by Pumpuang et al. (2020), stating that there is no significant difference between genders in factors affecting psychological well-being. In contrast, the results of research conducted by Matud et al. (2019) showed that in the dimensions of psychological well-being, namely self-acceptance and autonomy, men are higher than women, while in the dimensions of personal growth and positive relationships with others, women are higher than men. However, this gender-based psychological well-being difference appears in individuals aged between 35-44 years and 44-54 years (Karasawa et al., 2011; Matud et al., 2019) and in late adulthood (Li et al., 2015; Lin et al., 2014). In late adolescence or early adulthood, no link was found between gender and psychological well-being (Yousefi Afrashteh & Hasani, 2022). Psychological well-being in late adolescents is more influenced by their relationships with parents and friends (Tangmunkongvorakul et al., 2019).

The interaction between smartphone addiction and gender is not statistically significant. These results support the research of Islam, et.al., (2021) and Wu and Chou (2023) that gender cannot significantly predict problematic smartphone use. Lestari and Novianti (2022) showed no difference between men and women in smartphone use, such as the length of access to smartphone use. Syahputra et al. (2019) added that men tend to be addicted to online games, porn sites, and online gambling, while women tend to experience addiction to interacting on social media (chatting and uploading stories and photos) and online shopping. Thus, gender is not related to smartphone addiction (Syahputra et al., 2019). This is different from the findings from several other countries, which mention that gender is related to smartphone addiction, especially in different smartphone use behaviors between men and women (Liu et al., 2020; Vujic & Szabo, 2022; Yang et al., 2018).

This indicates that the impact of smartphone addiction on psychological well-being is not significantly different between male and female students. This finding is consistent

with previous studies showing a similar impact of smartphone addiction on psychological well-being regardless of gender (Demirci et al., 2015). Smartphone addiction reduces individual time interacting directly with others so that it will affect psychological well-being (David & Roberts, 2017). However, this is not influenced by gender differences because smartphone addiction does not explicitly show smartphone usage behavior (Syahputra et al., 2019).

The findings suggest that independently, the duration of smartphone usage does not have a significant impact on psychological well-being. This result is intriguing because it contradicts the common assumption that longer smartphone usage automatically leads to negative effects on psychological well-being (Przybylski et al., 2020; Yan et al., 2017). It aligns with some research indicating that qualitative usage factors (such as usage motivation) may be more relevant than usage duration in understanding the impact on psychological well-being (Wen et al., 2023). Furthermore, the majority of the samples (72%) exhibited a duration of social media usage ranging from 3 to 5 hours per day. At this point, the impact of social media usage duration stabilized, indicating that an additional hour of usage did not significantly impact well-being (Przybylski & Weinstein, 2017; Twenge & Campbell, 2019). This study has limitations; it doesn't distinguish between types or patterns of social media use. Future studies should use app tracking and questions about social media use at that moment (ESM).

The interaction between smartphone addiction and the duration of smartphone usage is not statistically significant. This indicates that the impact of smartphone addiction on psychological well-being is not significantly different between students who use smartphones for a short or long time. Some previous studies have suggested that the quality of smartphone usage, such as the level of dependence, is more relevant than the amount of usage time in predicting the impact on psychological well-being (Demirci et al., 2015; Elhai et al., 2017). This finding supports the concept that focusing solely on usage duration may not fully reflect the complexity of the relationship between smartphone usage and psychological well-being.

Limitations

This study has several limitations that should be acknowledged. The reliance on self-report measures and purposive sampling may introduce potential bias, thereby limiting the generalizability of the findings. Although anonymity was ensured to minimize social desirability effects, it may not have fully eliminated response bias. Furthermore, the study did not account for variations in types or patterns of social media use, which could influence the observed relationships. Future research is recommended to incorporate app-based tracking and experience sampling methods (ESM) to capture more accurate and context-specific data on social media behavior.

Conclusion

The results showed that smartphone addiction is significantly negatively related to psychological well-being. Likewise, the length of time using a smartphone is significantly negatively related to psychological well-being. The length of smartphone use cannot predict the relationship between smartphone addiction and psychological well-being. In addition, the relationship between smartphone addiction and psychological well-being in college students is also not moderated by gender. So it can be interpreted that the strong or weak relationship between smartphone addiction and psychological well-being is not influenced by the length of smartphone use or gender.

Implication

The findings emphasize that smartphone addiction is significantly negatively correlated with psychological well-being. Therefore, it is important for individuals, particularly students, to be aware of the risks associated with excessive smartphone use. Given that smartphone addiction can reduce direct interactions with others, researchers and mental health practitioners should promote more face-to-face social activities. Programs that encourage in-person interaction and social engagement can help students cope with feelings of isolation that may arise from excessive smartphone use.

The results of the study indicate that there is no significant difference in the impact of smartphone addiction on psychological well-being between males and females. This underscores the need for a gender-neutral approach in mental health interventions. Training and support programs should be directed at all students regardless of gender, as the negative effects of smartphone addiction can affect all individuals. The limitation of this study is that participants were drawn from one university, which may restrict the relationship between smartphone addiction and psychological well-being in students as a whole.

Recommendation

Considering the limitations of this study, future research is recommended to provide a more detailed classification of the types and patterns of social media use. The implementation of app tracking and the experience sampling method (ESM) could offer more accurate and context-specific insights into social media behavior in real time. Furthermore, to minimize potential bias arising from self-report measures and purposive sampling, subsequent studies are encouraged to combine objective data collection methods with more representative sampling techniques. Although anonymity has been shown to reduce social pressure, future research should also consider additional strategies to mitigate perceptual and reporting biases among participants.

Declaration

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Authors' Contributions

RP designing the study, collecting data, data analysis and writing the manuscript. MRR designing the study, and writing the manuscript.




Competing Interest

The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Declaration of Generative AI in Scientific Writing

Declaration of Generative AI in Scientific Writing: The author declares that Artificial Intelligence (AI) tools, specifically ChatGPT (OpenAI), were used solely to assist in improving the clarity, grammar, and fluency of the English writing in this manuscript. The intellectual content, research design, data analysis, and interpretation of results were entirely developed by the author. The author takes full responsibility for the content and integrity of this article.

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References

- Abi-Jaoude, E., Naylor, K. T., & Pignatiello, A. (2020). Smartphones, social media use and youth mental health. *Canadian Medical Association Journal*, *192*(6), E136–E141. <https://doi.org/10.1503/cmaj.190434>
- Akhter, S. (2015). Psychological well-being in student of gender difference. *The International Journal of Indian Psychology*, *2*(4). <https://ijip.in/wp-content/uploads/2020/05/B00337V2I42015.pdf>
- Al-Hail, M., Zguir, M. F., & Koc, M. (2023). University students' and educators' perceptions on the use of digital and social media platforms: A sentiment analysis and a multi-country review. *iScience*, *26*(8), 107322. <https://doi.org/10.1016/j.isci.2023.107322>
- Alotaibi, M., Fox, M., Coman, R., Ratan, Z., & Hosseinzadeh, H. (2022). Smartphone addiction prevalence and its association on academic performance, physical health, and mental well-being among university students in Umm Al-Qura University (UQU), Saudi Arabia. *International Journal of Environmental Research and Public Health*, *19*(6), 3710. <https://doi.org/10.3390/ijerph19063710>
- Babadi-Akashe, Z., Zamani, B. E., Abedini, Y., Akbari, H., & Hedayati, N. (2014). The relationship between mental health and addiction to mobile phones among university students of Shahrekord, Iran. *Addiction and Health*, *6*(3-4), 93–99. <http://www.ncbi.nlm.nih.gov/pubmed/25984275>
- Bajwa, R., Abdullah, S. H. B., Jaafar, W. M. W., & Samah, A. A. (2022). Smartphone use and psychological well-being among generation z: Role of phubbing. *Khyber Medical University Journal*. <https://doi.org/10.35845/kmu.2022.21718>
- Barbayannis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022). Academic stress and mental well-being in college students: Correlations, affected groups, and COVID-19. *Frontiers in Psychology*, *13*. <https://doi.org/10.3389/fpsyg.2022.886344>
- Candussi, C. J., Kabir, R., & Sivasubramanian, M. (2023). Problematic smartphone usage, prevalence and patterns among university students: A systematic review. *Journal of Affective Disorders Reports*, *14*, 100643. <https://doi.org/10.1016/j.jadr.2023.100643>
- Carton, S. T., & Goodboy, A. K. (2015). College students' psychological well-being and interaction involvement in class. *Communication Research Reports*, *32*(2), 180–184. <https://doi.org/10.1080/08824096.2015.1016145>
- Chandrasena, P. P. C. M., & Ilankoon, I. M. P. S. (2022). The impact of social media on academic performance and interpersonal relations among health sciences undergraduates. *Journal of Education and Health Promotion*, *11*(1), 117. https://doi.org/10.4103/jehp.jehp_603_21
- Chen, M., & Xiao, X. (2022). The effect of social media on the development of students' affective variables. *Frontiers in Psychology*, *13*. <https://doi.org/10.3389/fpsyg.2022.1010766>
- Claesdotter-Knutsson, E., Andre, F., Fridh, M., Delfin, C., Hakansson, A., & Lindstrom, M. (2021). Gender-based differences and associated factors surrounding excessive smartphone use among adolescents: Cross-sectional study. *JMIR Pediatrics and Parenting*, *4*(4), e30889. <https://doi.org/10.2196/30889>
- Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., & Booth, M. (2020). Does time spent using social media impact mental health?: An eight year longitudinal study. *Computers in Human Behavior*, *104*, 106160. <https://doi.org/10.1016/j.chb.2019.106160>
- Crowhurst, S., & Hosseinzadeh, H. (2024). Risk factors of smartphone addiction: A systematic review of longitudinal studies. *Public Health Challenges*, *3*(2). <https://doi.org/10.1002/puh2.202>
- Dai, C., Tai, Z., & Ni, S. (2021). Smartphone use and psychological well-being among college students in China: A qualitative assessment. *Frontiers in Psychology*, *12*. <https://doi.org/10.3389/fpsyg.2021.708970>
- Daniyal, M., Javaid, S. F., Hassan, A., & Khan, M. A. B. (2022). The relationship between cellphone usage on the physical and mental wellbeing of university students: A cross-sectional study. *International Journal of Environmental Research and Public Health*, *19*(15), 9352. <https://doi.org/10.3390/ijerph19159352>
- David, M. E., & Roberts, J. A. (2017). Phubbed and alone: Phone snubbing, social exclusion, and attachment to social media. *Journal of the Association for Consumer Research*, *2*(2), 155–163. <https://doi.org/10.1086/690940>
- Davis, S. K., & Hadwin, A. F. (2021). Exploring differences in psychological well-being and self-regulated learning in university student success. *Frontline Learning Research*, *9*(1), 30–43. <https://doi.org/10.14786/flr.v9i1.581>
- Demirci, K., Akgonul, M., & Akpinar, A. (2015). Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. *Journal of Behavioral Addictions*, *4*(2), 85–92. <https://doi.org/10.1556/2006.4.2015.010>
- Ejaz, W., Altay, S., & Naeem, G. (2023). Smartphone use and well-being in Pakistan: Comparing the effect of self-reported

- and actual smartphone use. *Digital Health*, 9. <https://doi.org/10.1177/20552076231186075>
- El Ansari, W., Labeeb, S., Moseley, L., Kotb, S., & El-Houfy, A. (2013). Physical and psychological well-being of university students: Survey of eleven faculties in Egypt. *International Journal of Preventive Medicine*, 4(3), 293–310. <http://www.ncbi.nlm.nih.gov/pubmed/23626886>
- El Ansari, W., Stock, C., Snelgrove, S., Hu, X., Parke, S., Davies, S., John, J., Adetunji, H., Stoate, M., Deeny, P., Phillips, C., & Mabhala, A. (2011). Feeling healthy? A survey of physical and psychological wellbeing of students from seven universities in the UK. *International Journal of Environmental Research and Public Health*, 8(5), 1308–1323. <https://doi.org/10.3390/ijerph8051308>
- Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251–259. <https://doi.org/10.1016/j.jad.2016.08.030>
- Giansanti, D. (2025). Smartphone addiction in youth: A narrative review of systematic evidence and emerging strategies. *Psychiatry International*, 6(4), 118. <https://doi.org/10.3390/psychiatryint6040118>
- Hammoudi Halat, D., Soltani, A., Dalli, R., Alsarraj, L., & Malki, A. (2023). Understanding and fostering mental health and well-being among university faculty: A narrative review. *Journal of Clinical Medicine*, 12(13), 4425. <https://doi.org/10.3390/jcm12134425>
- Hasan, M. (2016). Psychological well-being and gender difference among science and social science students. *Indian Journal of Psychological Science*, 6(2), 151–158. https://www.researchgate.net/publication/334459204_Psychological_Well-being_and_Gender_Difference_among_Science_and_Social_Science_students
- Horwood, S., & Anglim, J. (2019). Problematic smartphone usage and subjective and psychological well-being. *Computers in Human Behavior*, 97, 44–50. <https://doi.org/10.1016/j.chb.2019.02.028>
- Huang, S., Lai, X., Zhao, X., Dai, X., Yao, Y., Zhang, C., & Wang, Y. (2022). Beyond screen time: Exploring the associations between types of smartphone use content and adolescents' social relationships. *International Journal of Environmental Research and Public Health*, 19(15), 8940. <https://doi.org/10.3390/ijerph19158940>
- Julika, S., & Setiyawati, D. (2019). The relationship between emotional intelligence, academic stress, and subjective well-being in college students. *Gadjah Mada Journal of Psychology*, 5(1), 50. <https://doi.org/10.22146/gamajop.47966>
- Jumrianti, F., Nugroho, S., & Arief, Y. (2022). The relationship between smartphone addiction and psychological well-being in adolescents. *Journal of Islamic and Contemporary Psychology*, 2(1), 49–57. <https://doi.org/10.25299/jicop.v2i1.10263>
- Karasawa, M., Curhan, K. B., Markus, H. R., Kitayama, S. S., Love, G. D., Radler, B. T., & Ryff, C. D. (2011). Cultural perspectives on aging and well-being: A comparison of Japan and the United States. *The International Journal of Aging and Human Development*, 73(1), 73–98. <https://doi.org/10.2190/AG.73.1.d>
- Kolhar, M., Kazi, R. N. A., & Alameen, A. (2021). Effect of social media use on learning, social interactions, and sleep duration among university students. *Saudi Journal of Biological Sciences*, 28(4), 2216–2222. <https://doi.org/10.1016/j.sjbs.2021.01.010>
- Kumcagiz, H., & Gunduz, Y. (2016). Relationship between psychological well-being and smartphone addiction of university students. *International Journal of Higher Education*, 5(4). <https://doi.org/10.5430/ijhe.v5n4p144>
- Kwon, M., Kim, D.-J., Cho, H., & Yang, S. (2013). The smartphone addiction scale: Development and validation of a short version for adolescents. *PLoS ONE*, 8(12), e83558. <https://doi.org/10.1371/journal.pone.0083558>
- Lestari, M. J. D., & Novianti, L. E. (2022). Smartphone addiction of early adolescents during COVID-19 pandemic. *Daengku: Journal of Humanities and Social Sciences Innovation*, 2(5), 618–625. <https://doi.org/10.35877/454RI.daengku1158>
- Li, R.-H., Kao, C.-M., & Wu, Y.-Y. (2015). Gender differences in psychological well-being: Tests of factorial invariance. *Quality of Life Research*, 24(11), 2577–2581. <https://doi.org/10.1007/s11136-015-0999-2>
- Lin, C.-C., Cheng, T.-C., & Wang, S.-C. (2014). Measuring subjective well-being in Taiwan. *Social Indicators Research*, 116(1), 17–45. <https://doi.org/10.1007/s11205-013-0269-z>
- Liu, Q.-Q., Yang, X.-J., Hu, Y.-T., & Zhang, C.-Y. (2020). Peer victimization, self-compassion, gender and adolescent mobile phone addiction: Unique and interactive effects. *Children and Youth Services Review*, 118, 105397. <https://doi.org/10.1016/j.childyouth.2020.105397>
- Lopez-Fernandez, O., Kuss, D. J., Romo, L., Morvan, Y., Kern, L., Graziani, P., Rousseau, A., Rumpf, H.-J., Bischof, A., Gassler, A.-K., Schimmenti, A., Passanisi, A., Mannikko, N., Kaarianen, M., Demetrovics, Z., Kiraly, O., Cholib, M., Zacares, J. J., Serra, E., ... Billieux, J. (2017). Self-reported dependence on mobile phones in young adults: A European cross-cultural empirical survey. *Journal of Behavioral Addictions*, 6(2), 168–177. <https://doi.org/10.1556/2006.6.2017.020>
- Machado de Oliveira, M., Lucchetti, G., da Silva Ezequiel, O., & Lamas Granero Lucchetti, A. (2023). Association of smartphone use and digital addiction with mental health, quality of life, motivation and learning of medical students: A two-year follow-up study. *Psychiatry*, 86(3), 200–213. <https://doi.org/10.1080/00332747.2022.2161258>
- Matud, M. P., Lopez-Curbelo, M., & Fortes, D. (2019). Gender and psychological well-being. *International Journal of Environmental Research and Public Health*, 16(19), 3531. <https://doi.org/10.3390/ijerph16193531>
- Min, W., Jun, G., & Feng, L. (2022). How psychological wellbeing and digital mental health services intervene the role of self-efficacy and affective commitment of university students in their performance? *Frontiers in Psychiatry*, 13. <https://doi.org/10.3389/fpsy.2022.946793>
- Mokhtarinia, H. R., Torkamani, M. H., Farmani, N., & Gabel, C. P. (2024). Smartphone addiction prevalence, patterns of use, and experienced musculoskeletal discomfort during the COVID-19 pandemic in a general Iranian population. *BMC Public Health*, 24(1), 161. <https://doi.org/10.1186/s12889-024-17654-3>
- Morales-Rodriguez, F. M., Espigares-Lopez, I., Brown, T., & Perez-Marmol, J. M. (2020). The relationship between psychological well-being and psychosocial factors in university students. *International Journal of Environmental Research and Public Health*, 17(13), 4778. <https://doi.org/10.3390/ijerph17134778>
- Mutiara, C., & Pratiwi, P. (2023). Hubungan antara smartphone addiction dan psychological well-being pada mahasiswa di Universitas Mercu Buana Yogyakarta [The relationship between smartphone addiction and psychological well-being in students at Mercu Buana University Yogyakarta] [Undergraduate Thesis]. Universitas Mercu Buana Yogyakarta.
- Oberst, U., Wegmann, E., Stodt, B., Brand, M., & Chamarro, A. (2016). Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. *Journal of Adolescence*, 55(1), 51–60. <https://doi.org/10.1016/j.adolescence.2016.12.008>
- Panova, T., & Carbonell, X. (2018). Is smartphone addiction really an addiction? *Journal of Behavioral Addictions*, 7(2), 252–259. <https://doi.org/10.1556/2006.7.2018.49>
- Pantic, I. (2014). Online social networking and mental health. *Cyberpsychology, Behavior, and Social Networking*, 17(10), 652–657. <https://doi.org/10.1089/cyber.2014.0070>
- Paramita, R. W. D., Rizal, N., & Sulistyana, R. B. (2021). Metode penelitian kuantitatif. <https://repository.itbwigalumajang.ac.id/1073/>
- Przybylski, A. K., Orben, A., & Weinstein, N. (2020). How much is too much? Examining the relationship between digital screen engagement and psychosocial functioning in

- a confirmatory cohort study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 59(9), 1080–1088. <https://doi.org/10.1016/j.jaac.2019.06.017>
- Przybylski, A. K., & Weinstein, N. (2017). A large-scale test of the Goldilocks hypothesis. *Psychological Science*, 28(2), 204–215. <https://doi.org/10.1177/0956797616678438>
- Pumpuang, W., Vongsirimas, N., & Klainin-Yobas, P. (2020). Do gender differences affect the psychological well-being of high schoolers in Thailand? *Journal of Population and Social Studies*, 29, 207–222. <https://doi.org/10.25133/JPSSv292021.013>
- Rahmatpour, P., Chehrzad, M., Ghanbari, A., & Sadat-Ebrahimi, S.-R. (2019). Academic burnout as an educational complication and promotion barrier among undergraduate students: A cross-sectional study. *Journal of Education and Health Promotion*, 8(1). https://doi.org/10.4103/jehp.jehp_165_19
- Ratan, Z., Parrish, A.-M., Zaman, S., Alotaibi, M., & Hosseinzadeh, H. (2021). Smartphone addiction and associated health outcomes in adult populations: A systematic review. *International Journal of Environmental Research and Public Health*, 18(22), 12257. <https://doi.org/10.3390/ijerph182212257>
- Ryff, C. D. (2014). Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*, 83(1), 10–28. <https://doi.org/10.1159/000353263>
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719–727. <https://doi.org/10.1037/0022-3514.69.4.719>
- Said, A. H., Mohd, F. N., Yusof, M. Z., Mohd Win, N. A. N., Mazlan, A. N., & Shaharudin, A. S. (2022). Prevalence of smartphone addiction and its associated factors among pre-clinical medical and dental students in a public university Malaysia. *Malaysian Family Physician*, 17(3), 64–73. <https://doi.org/10.51866/oa.75>
- Salleh, N. A., & Mustafa, C. D. (2016). Examining the differences of gender on psychological well-being. *International Review of Management and Marketing*, 6(S8), 82–87. <http://www.econjournals.com>
- Sharma, S., & Behl, R. (2022). Analysing the impact of social media on students' academic performance: A comparative study of extraversion and introversion personality. *Psychological Studies*, 67(4), 549–559. <https://doi.org/10.1007/s12646-022-00675-6>
- Shoukat, S. (2019). Cell phone addiction and psychological and physiological health in adolescents. *EXCLI Journal*, 18, 47–50. <http://www.ncbi.nlm.nih.gov/pubmed/30956638>
- Syahputra, Y., Prayitno, P., Syahniar, S., & Hariyani, H. (2019). Rasch stacking analysis of student internet addiction based on gender. *Jurnal Konseling dan Pendidikan*, 7(1), 35–41. <https://doi.org/10.29210/129300>
- Tangmunkongvorakul, A., Musumari, P. M., Thongpibul, K., Srithanaviboonchai, K., Techasrivichien, T., Sugimoto, S. P., Ono-Kihara, M., & Kihara, M. (2019). Association of excessive smartphone use with psychological well-being among university students in Chiang Mai, Thailand. *PLOS ONE*, 14(1), e0210294. <https://doi.org/10.1371/journal.pone.0210294>
- Trihastuti, M. C. W., & Anindya, R. (2022). Psychological well-being condition of students during the COVID-19 pandemic. *Psiko Edukasi*, 20(2), 107–119. <https://doi.org/10.25170/psikoedukasi.v20i2.3917>
- Twenge, J. M., & Campbell, W. K. (2019). Media use is linked to lower psychological well-being: Evidence from three datasets. *Psychiatric Quarterly*, 90(2), 311–331. <https://doi.org/10.1007/s11126-019-09630-7>
- Vujic, A., & Szabo, A. (2022). Hedonic use, stress, and life satisfaction as predictors of smartphone addiction. *Addictive Behaviors Reports*, 15, 100411. <https://doi.org/10.1016/j.abrep.2022.100411>
- Wacks, Y., & Weinstein, A. M. (2021). Excessive smartphone use is associated with health problems in adolescents and young adults. *Frontiers in Psychiatry*, 12. <https://doi.org/10.3389/fpsyg.2021.669042>
- Wei, P. (2022). The impact of social support on students' mental health: A new perspective based on fine art majors. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.994157>
- Wen, F., Ding, Y., Yang, C., Ma, S., Zhu, J., Xiao, H., & Zuo, B. (2023). Influence of smartphone use motives on smartphone addiction during the COVID-19 epidemic in China: The moderating effect of age. *Current Psychology*, 42(22), 19316–19325. <https://doi.org/10.1007/s12144-022-03355-w>
- Wu, Y.-Y., & Chou, W.-H. (2023). Smartphone addiction, gender and interpersonal attachment: A cross-sectional analytical survey in Taiwan. *Digital Health*, 9, 20552076231177134. <https://doi.org/10.1177/20552076231177134>
- Yan, H., Zhang, R., Oniffrey, T., Chen, G., Wang, Y., Wu, Y., Zhang, X., Wang, Q., Ma, L., Li, R., & Moore, J. (2017). Associations among screen time and unhealthy behaviors, academic performance, and well-being in Chinese adolescents. *International Journal of Environmental Research and Public Health*, 14(6), 596. <https://doi.org/10.3390/ijerph14060596>
- Yang, S.-Y., Lin, C.-Y., Huang, Y.-C., & Chang, J.-H. (2018). Gender differences in the association of smartphone use with the vitality and mental health of adolescent students. *Journal of American College Health*, 66(7), 693–701. <https://doi.org/10.1080/07448481.2018.1454930>
- Yousefi Afrashteh, M., & Hasani, F. (2022). Mindfulness and psychological well-being in adolescents: The mediating role of self-compassion, emotional dysregulation and cognitive flexibility. *Borderline Personality Disorder and Emotion Dysregulation*, 9(1), 22. <https://doi.org/10.1186/s40479-022-00192-y>
- Yuen Fook, C., Narasuman, S., Abdul Aziz, N., Syed Mustafa, S. M., & Tau Han, C. (2021). Smart phone use among university students. *Asian Journal of University Education*, 17(1), 282. <https://doi.org/10.24191/ajue.v17i1.12622>