

Research Paper

Digital Technology Use and Mental Well-being among Student Teachers

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ABSTRACT

Digital technology impacts many aspects of our lives in our highly technological, fast-changing environment. People utilize digital technology at work to communicate, obtain information, and address issues specific to their workplace. Additionally, an increasing number of people use digital technology at home to communicate with friends and family, check bank accounts, play interactive games, take part in online forums, and engage in social networking on websites and mobile apps like Facebook, Twitter, and Instagram. Questions are being raised about what technology may be doing to us and whether it poses a risk to our physical and mental health and wellness in light of these lifestyle changes, where much of our communication, leisure, and entertainment is done online. Smartphones are also becoming an increasingly important part of daily life. This study describes the impact of digital technology on the mental well-being of student teachers. This study adopted a descriptive survey methodology, and data were collected through a random sampling technique. A self-made “Mental Well-being Scale” was used to collect data from the different teacher training institutes in Srinagar and Dehradun districts of Uttarakhand state. A sample of 259 student teachers was selected randomly. Furthermore, in the present paper, differences in the mental well-being among student teachers based on their gender, subject stream, and institution have been discussed.

Keywords: *Student Teachers, Digital Technology, Mental Well-being*

Digital devices have become an integral part of our lives, with people spending a significant amount of time using smartphones, tablets, computers, and other devices. While these devices offer numerous benefits such as easy communication, access to information, and entertainment, there is growing concern about their impact on mental well-being. One way digital devices can affect mental well-being is through excessive screen time. Spending excessive hours staring at screens can lead to physical health issues like eye strain, headaches, and disrupted sleep patterns. Moreover, excessive screen time can also contribute to mental health problems such as anxiety, depression, and stress (McCrae et al., 2017 & Poli, 2017). Constant exposure to social media and online platforms can lead to feelings of loneliness, inadequacy, and low self-esteem. Additionally, the constant

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bombardment of news and information can cause information overload and lead to feelings of overwhelm and anxiety.

Mental well-being refers to a person's state of mental health and overall emotional and psychological well-being. It encompasses factors such as happiness, life satisfaction, positive emotions, resilience, and the ability to cope with stress and adversity. In terms of technology, mental well-being can be supported through various digital tools and platforms that focus on promoting mental health, providing access to resources, and delivering interventions. For example, smartphone applications specifically designed for mental health have gained popularity in recent years. These apps offer features such as mood tracking, meditation exercises, cognitive-behavioral therapy techniques, and virtual support communities. Another way digital devices impact mental well-being is through addictive behaviors. The constant availability of social media, online games, and other digital platforms can lead to excessive use and addiction. This addiction can result in neglecting real-life relationships, responsibilities, and activities, leading to feelings of isolation and disconnection from the real world. Furthermore, the use of digital devices can also contribute to a sedentary lifestyle, which has been linked to mental health issues such as depression and anxiety. Spending excessive time sitting and using digital devices can reduce physical activity levels, which can negatively impact mood and overall mental well-being.

However, it is important to note that digital devices are not inherently detrimental to mental well-being. They can also be used in positive ways to promote mental health. For example, mental health apps and online therapy platforms have made mental health support more accessible and convenient. Digital devices can also provide opportunities for learning, creativity, and connection with others. To maintain a healthy balance, it is crucial to practice digital well-being. This includes setting boundaries and limits on screen time, taking regular breaks, engaging in physical activity, and prioritizing real-life interactions and relationships. It is also important to be mindful of the content consumed online and to seek support or professional help if digital device use starts to negatively impact mental well-being. In conclusion, while digital devices offer many advantages, their excessive and addictive use can have detrimental effects on mental well-being. It is essential to practice digital well-being and find a healthy balance between the use of digital devices and real-life activities to maintain good mental health.

A study published in the *Journal of Medical Internet Research* explored the impact of smartphone apps on mental well-being. The researchers found that these apps have the potential to improve mental well-being by increasing self-awareness, providing emotional support, promoting self-management of mental health conditions, and enhancing overall mental health literacy (Firth et al., 2017). Furthermore, online therapy platforms have emerged as a convenient and accessible option for individuals seeking professional mental health support. These platforms offer virtual counseling sessions, allowing people to connect with licensed therapists through video calls or messaging. A systematic review published in the *World Journal of Psychiatry* highlighted the effectiveness of online therapy in improving mental well-being, particularly for conditions such as depression and anxiety (Berryhill et al., 2019). There is a growing body of literature exploring the relationship between technology use and mental well-being. This review provides a summary of key findings from various studies in this area. One prominent theme in the literature is the impact of excessive technology use on mental health. Several studies have found a positive correlation between high levels of screen time and symptoms of depression, anxiety, and stress. For example, a study conducted by Twenge et al. (2017) found that adolescents who spent more

time on social media had higher rates of mental health issues. Similarly, another study by Przybylski and Weinstein (2017) found that excessive smartphone use was associated with lower well-being.

However, the relationship between technology use and mental well-being is not solely negative. Some studies have found positive effects of technology use on mental health outcomes. For instance, research by Wang et al. (2018) found that engaging in online social support was associated with higher levels of psychological well-being. Additionally, studies have shown that technology-based interventions, such as online therapy or mental health apps, can be effective in improving mental health outcomes for individuals with certain conditions. Another important aspect explored in the literature is the role of specific types of technology use on mental well-being. For example, research suggests that passive use of social media, such as scrolling through feeds without actively engaging, is more likely to be associated with negative mental health outcomes compared to active use, such as posting or commenting (Lin et al., 2016). Similarly, heavy gaming has been linked to a higher risk of addiction and mental health problems, particularly among vulnerable populations such as adolescents (Gentile et al., 2011). Furthermore, the literature also highlights the importance of considering individual differences and contextual factors when examining the relationship between technology use and mental well-being. For instance, some studies have found that certain personality traits, such as extraversion or neuroticism, can moderate the effects of technology use on mental health outcomes (Elhai et al., 2017).

Additionally, the social context in which technology is used, such as the quality of online interactions or the presence of social support, can influence its impact on mental well-being. Overall, the review of related literature suggests a complex relationship between technology use and mental well-being. While excessive and passive use of technology may be associated with negative mental health outcomes, there are also instances where technology can have positive effects on mental well-being. The research gap in the study of digital device use and mental well-being among teacher trainees refers to the lack of comprehensive research and understanding of how the use of digital devices impacts the mental well-being of individuals undergoing teacher training. While there have been studies conducted on the use of digital devices and mental health in various populations, such as students or working professionals, there is a scarcity of research specifically focusing on student teachers. Student teachers, who are in the process of acquiring the skills and knowledge necessary to become educators, may face unique challenges and stressors related to the use of digital devices. By conducting this research, researchers can gain a better understanding of the impact of digital technology use on the mental well-being of student teachers. The findings will be used to develop interventions and guidelines to promote a healthy balance between digital device use and mental health among individuals in teacher training programs.

Objectives of the study

1. To explore the different digital technologies used by the student teachers.
2. To know the level of Mental well-being of the student teachers.
3. To know the difference between the level of mental well-being of the student teachers.

Hypotheses of the study

1. There will be no significant difference between mental well-being amongst student teachers in relation to their gender.

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2. There will be no significant difference between mental well-being amongst student teachers in relation to their habitation.
3. There will be no significant difference between mental well-being amongst student teachers in relation to their subject stream.
4. There will be no significant difference between mental well-being amongst student teachers in relation to their Institutions.

RESEARCH METHODOLOGY

The study aimed to investigate the mental well-being of student teachers. In this quantitative research, a descriptive (survey) method was administered. The population of the study consisted of all student teachers (2nd semester and 4th semester) enrolled in the Bachelor of Education program of teacher training institutions that are affiliated with HNB Garhwal University, Srinagar, Uttarakhand. The sample for this study consisted of 259 student teachers selected from various institutions/colleges through a random sampling method. Gender-wise, the sample consisted of 101 males and 158 females. To achieve the research objectives a self-made “mental well-being scale” was developed on the basis of the objectives formulated. The mental well-being scale included 18 items that tend to measure student teachers’ levels of mental well-being. Out of these 15 items, 8 items are positively and 7 items are negatively formulated. The questionnaire was constructed on a 10-point scale, i.e., 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, where the rating 1 means the minimum rate and 10 means the maximum rate for an individual statement.

RESULTS AND FINDINGS

Table 1: The frequencies of various Digital Devices used by the Student Teachers.

Digital Device	Frequency	%
Smart Phone	152	58.7
Computer	1	0.4
Laptop	2	0.8
Smart Watch	1	0.4
More Than One Device	103	39.8
Total	259	100

Based on table 1 it revealed that out of the 259 respondents, 152 respondents (58.7%) reported using a Smart Phone as their digital device, only 1 respondent (0.4%) reported using a computer, 2 respondents (0.8%) reported using a laptop, 1 respondent (0.4%) reported using a Smart Watch, 103 respondents (39.8%) reported using more than one digital device. From this table, it can be concluded that the majority of people (58.7%) use a smartphone as their primary digital device. Additionally, a significant portion of people (39.8%) use more than one device, indicating that they may use a combination of devices such as smartphones, computers, laptops, and smartwatches. The usage of computers, laptops, and smartwatches individually is relatively low, with each device representing less than 1% of the total (fig.1).

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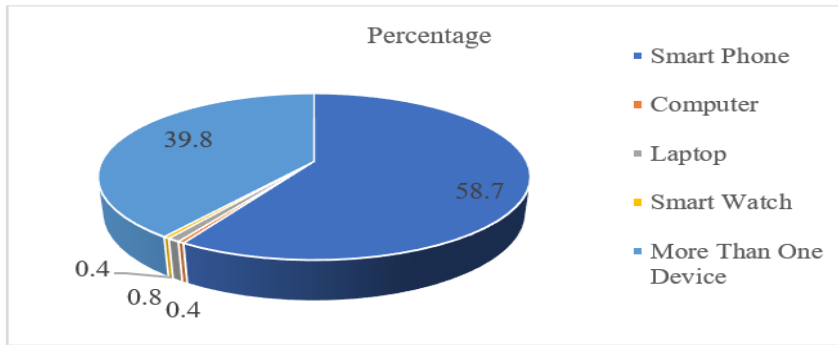


Fig. 1 Frequency distribution of Digital Devices used by Student Teachers

Table 2: Gender-wise distribution of Student Teachers' Digital Devices

Digital Device	Total (N)	Gender			
		Male	%	Female	%
Smartphone	152	62	40.78%	90	59.21%
Computer	1	1	100%	0	0
Laptop	2	0	0	2	100%
Smartwatch	1	0	0	1	100%
More than one device	103	38	36.89%	65	63.11%
Total	259	101		158	

Table 2 provides a comprehensive analysis of the usage of various digital devices by gender. The data reveal that out of 259 participants, 101 were male student teachers and 158 were female student teachers. Among the participants, the majority (40.78%) of male student teachers and (59.21%) of female student teachers owned a smartphone. Interestingly, the percentage of female student teachers utilizing smartphones is slightly higher than that of male users. On the other hand, the usage of laptops and smartwatches is comparatively low, with only two female student teachers utilizing laptops and one utilizing a smartwatch. Surprisingly, no male student teachers reported using a smartwatch, while only one male student teacher reported utilizing a computer. This data indicates that individuals, irrespective of gender, are more inclined towards utilizing smartphones over other digital devices. It is also noteworthy that a significant proportion of female student teachers (63.11%) owned more than one device, while the majority (36.89%) of male student teachers owned more than one digital device in the total sample. Additionally, the majority of student teachers owned more than one digital device, indicating the widespread use of technology in today's society. It's interesting to note that only a few student teachers owned specific devices such as a computer, laptop, or smartwatch (Fig. 2).

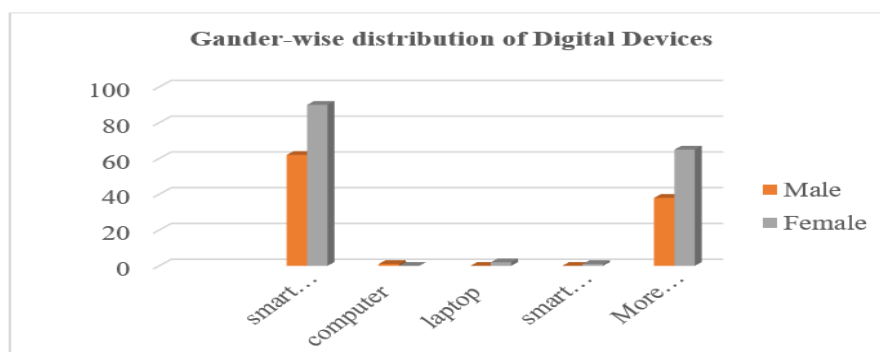
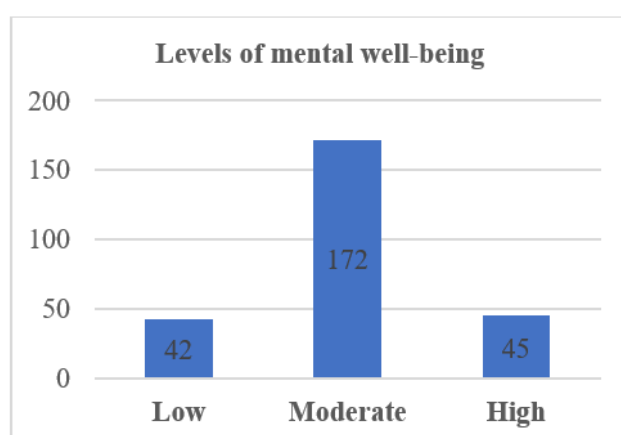


Fig. 2 Male and Female Student Teachers' Distribution of Digital Devices

Table 3: Classification of Levels of Mental Well-being among Student Teachers

Levels of Mental Well-being	Frequency (N)	Percentage (%)
Low	42	16.22
Moderate	172	66.41
High	45	17.37
Total	259	100

Table 3 shows the classification of levels of mental well-being among student teachers. The levels are categorized into three groups of mental well-being such as low, moderate, and high. Based on the frequency, there were 42 trainees (16.22%) classified as having low mental well-being, 172 (66.41%) classified as moderate, and 45 (17.37%) classified as high. In total, 259 trainees were included in the study. Based on this table, it is to be said that most of the students' teachers have moderate levels of mental well-being, which concludes that the use of digital technology by the students' teachers does not impact negatively (Fig.3). The findings of Gururaja C.S. (2018) support the findings of this study.

**Fig. 3 Level of Mental Well-being of Student Teacher****Table 4: Comparison of the Level of Mental Well-being between the Student Teachers.**

Gender	N	Mean	Std. Deviation	t-value	p-value	Sig
Male	101	88.93	15.042	2.14	0.033	Sig. at 0.05
Female	158	92.80	13.608			

According to Table 4, there is a significant difference between male and female Student Teachers regarding their mental well-being scores ($t = 2.14$, $p < 0.05$). Female student teachers obtained an average score of 92.80, while male student teachers had an average score of 88.93. This indicates that female student teachers have better mental well-being levels than their male counterparts. As a result, the null hypothesis that "there is no significant impact on the mental well-being of Student Teachers based on their gender" is rejected. Thus, there is a significant difference in mental well-being between male and female student teachers, with female student teachers showing higher levels of mental well-being than male student teachers (Fig. 4). The findings of Sethi Rajan (2016) support the findings of this study.

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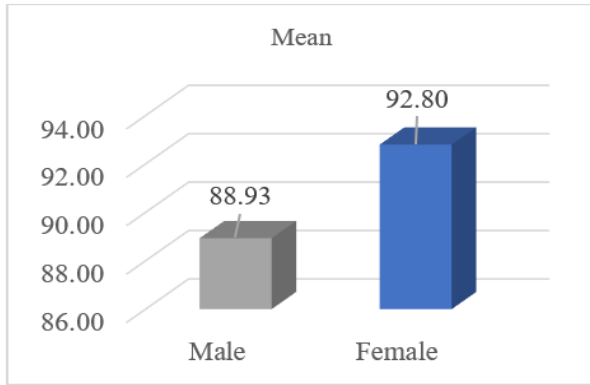


Fig. 4: Mean scores of Male and Female Student Teachers

Table 5: Comparison of the Level of Mental Well-being between the Art and Science Student Teachers.

Stream	N	Mean	Std. Deviation	df	t-value	p-value	Sig.
Art	116	90.60	13.704	257	0.696	0.487	Not Sig.
Science	143	91.85	14.757				

Table 5 demonstrates that there is no significant difference in the mental well-being scores between student teachers in the Art and Science stream ($t = 0.696$, $p > 0.05$). The mean scores for arts and science student teachers were 90.60 and 91.85, respectively. These results imply that both groups of student teachers experience similar levels of mental well-being. Thus, it can confidently assert that the null hypothesis, "there is no significant impact on the mental well-being of teacher trainees on the basis of their Subject stream," is valid. The results suggest that arts and science stream student teachers have the same level of mental well-being.

Table 6: Comparison of the Level of Mental Well-being between the Student Teachers from Hill and Plain Habitation.

Habitation	N	Mean	Std. Deviation	df	t-value	p-value	Sig.
Hill	111	90.95	12.723	257	0.335	0.738	Not Sig.
Plain	148	91.55	15.385				

Table 6 revealed that there is no significant disparity in the mental well-being scores of student teachers residing in the Hill and Plain habitation ($t = 0.335$, $p > 0.05$). On average, Hill student teachers scored 90.95, and Plain student teachers scored 91.55 in mental well-being. These findings suggest that both groups of student teachers have similar levels of mental well-being. Therefore, we can confidently conclude that the null hypothesis, which posits that "there is no significant impact on the mental well-being of student teachers on the basis of their habitation," is accurate. The findings indicate that there is no discernible difference in mental well-being between Hill and Plain student teachers.

Table 7: Comparison of the Level of Mental Well-being between the Student Teachers from Government and Self-financed Institutions.

Nature of Institution	N	Mean	Std. Deviation	df	t-value	p-value	Sig.
Government	130	91.89	13.545	257	0.681	0.496	Not Sig.
Self-finance	129	90.68	15.016				

Table 7 shows that there is no significant difference in the mental well-being scores of student teachers residing in the government and self-financed institutions ($t=0.681$, $p>0.05$). On average, government student teachers scored 91.89, and self-financed institutes' student teachers scored 90.68 in mental well-being. These findings suggest that both groups of student teachers have similar levels of mental well-being. Therefore, we can confidently conclude that the null hypothesis, which posits that "there is no significant impact on the mental well-being of student teachers based on their institutional type," is accepted. The results indicate that there is no discernible difference in mental well-being between government and self-financed institutes' student teachers.

CONCLUSION

Conducting a study on the relationship between digital device use and mental well-being among student teachers provides numerous benefits. It can raise awareness, identify risk factors, develop guidelines, provide support and intervention, enhance training and education, and contribute to research and knowledge advancement. Ultimately, this can help student teachers develop healthy digital device habits and prioritize their mental health for their overall well-being and effectiveness as future educators. The study concluded that most of the student teachers used their smartphones as their primary digital devices, while only a small percentage used computers, laptops, or smartwatches. Many student teachers reported using multiple devices. These findings emphasize the need to consider digital device usage when implementing educational technology initiatives. Based on the results, it can be concluded that student teachers, regardless of their gender, prefer smartphones over other digital devices. In the direction of knowing the level of mental well-being of student teachers, it was found that most of the student teachers have moderate levels of mental well-being, which expresses their balanced interaction with digital technology. However, female student teachers tend to own more than one digital device compared to male student teachers. The findings also indicate that the use of laptops and smartwatches is relatively low among student teachers. Overall, the data provides valuable insights into the patterns of device usage by gender. The majority of student teachers have moderate levels of mental well-being, while a significant minority have low levels. However, it is encouraging to see that a portion of the student teachers were classified as having high mental well-being. Institutions need to prioritize the mental health of their students, and this study highlights the need for support and resources for those who may be struggling. Based on the conclusion, the data suggest that gender has a significant impact on the mental well-being of student teachers. Female student teachers tend to have better levels of mental well-being than male trainees. Therefore, it is important to consider gender differences when addressing mental health concerns in student teachers. The mental well-being scores of Arts and Science student teachers are similar. The subject stream does not have a significant impact on mental well-being, as per the null hypothesis. The mental well-being scores of student teachers living in the Hill and Plain areas are not significantly different. Both groups have similar mental well-being levels, supporting the null hypothesis that place of residence does not impact mental well-being. Overall, there is no notable variation in mental well-being between Hill and Plain student teachers. Another conclusion indicates that there is no significant difference in mental well-being scores between government and self-financed student teachers. Both groups of student teachers have similar levels of mental well-being. Therefore, it is safe to say that institutional type does not significantly affect the mental well-being of student teachers.

The research emphasizes several educational implications derived from this study. Firstly, it highlights the necessity for institutions to implement awareness programs that address the

impact of digital device usage on mental health, along with training on effective usage management. Additionally, the establishment of clear guidelines regarding digital device engagement is crucial to promote a balanced approach and mitigate the risks of digital overload. Mental health support services must be enhanced to provide easily accessible resources, such as counseling and workshops, particularly for those reporting low levels of mental well-being. Tailored interventions that cater to the specific needs of different genders are also essential to ensure equitable support for all student teachers. Furthermore, integrating modules on digital literacy and mental health into teacher education curricula will prepare future educators to better manage their well-being and that of their students. The study calls for the thoughtful integration of educational technology, taking into account student teachers' preferences and their mental health. This study underscores the importance of continuous research to further investigate the connections between digital device usage patterns and mental well-being, ultimately leading to more effective strategies for support. Addressing these implications is vital for fostering a supportive and healthy learning environment for future educators.

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Conflict of Interest

The author(s) declared no conflict of interest.

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