Enhancing Resilience and Mental Well-Being Through AI Using WYSA Among Prospective Teachers

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Abstract: *This experimental study explores the effectiveness of Wysa, an AI-powered mental health application, in enhancing resilience and mental well-being among prospective teachers. A total of 60 teacher trainees were randomly assigned to either an experimental group (n=30) or a control group (n=30). The experimental group engaged with the Wysa app daily for six weeks, while the control group received no digital mental health support during the same period. Standardized instruments—the Connor-Davidson Resilience Scale (CD-RISC) and the Warwick-Edinburgh Mental Well-being Scale (WEMWBS)—were administered pre- and post-intervention. The post-test analysis revealed statistically significant improvements in the experimental group's resilience (M=72.4, SD=6.8) and mental well-being scores (M=59.8, SD=5.1) compared to the control group (Resilience: M=66.3, SD=7.2; Well-being: M=52.6, SD=6.3), with p-values < 0.01. These findings suggest that AI tools like Wysa can serve as effective, accessible mental health interventions for prospective teachers, supporting their emotional resilience and psychological well-being during their formative training period.*

Keywords: AI, Mental health, Resilience, Well-being, Wysa, Experimental study, College students

INTRODUCTION

In today's rapidly evolving digital world, the integration of artificial intelligence (AI) into various domains has opened new avenues for addressing longstanding challenges, one of the most pressing of which is mental health. The pressures of modern life, academic responsibilities, and career uncertainties have led to a surge in mental health issues, particularly among young adults pursuing higher education. Among them, prospective teachers, who are in training to take on the crucial responsibility of educating and mentoring future generations, increasingly experience high levels of stress, emotional exhaustion, and psychological vulnerability.

Teacher education programs are intensive and emotionally demanding. Prospective teachers face numerous challenges, including academic workload, classroom management training, performance evaluations, and the need to develop subject expertise and pedagogical skills. These demands can significantly impact mental well-being, particularly during the formative training period. The situation has become more critical in the aftermath of the COVID-19 pandemic, which not only disrupted traditional modes of learning but also intensified feelings of isolation, anxiety, and helplessness among students and teacher trainees.

Several studies have documented an alarming increase in depression, anxiety, and burnout among student teachers during and after the pandemic. If left unaddressed, these mental health issues can lead to decreased academic performance, lack of motivation, absenteeism, and even withdrawal from the teaching profession altogether. Consequently, there is an urgent need to incorporate accessible and scalable mental health interventions into teacher-training programs.

In this context, artificial intelligence-based digital tools offer promising solutions to these challenges. These tools can provide consistent, stigma-free, and easily accessible psychological support to users. Among the most innovative of these interventions is *Wysa*, an AI-powered mental health application that has gained recognition for its evidence-based, user-centred design. Wysa offers a range of therapeutic features, including cognitive behavioural therapy (CBT) exercises, mindfulness practices, mood tracking, guided journaling, and empathetic AI chat support, all of which are available around the clock and can be accessed privately from a smartphone.

Therefore, this study seeks to evaluate the effectiveness of Wysa in enhancing two key components of mental health: resilience, defined as the capacity to

recover from stress and adapt to challenges, and mental well-being, encompassing emotional, psychological, and social well-functioning. By focusing on prospective teachers, this study underscores the critical importance of early psychological interventions in teacher preparation programs.

The results of this study aim to provide educational institutions, policymakers, and mental health practitioners with actionable insights into how AI-powered tools can be strategically integrated into teacher education curricula to build a more emotionally resilient and mentally healthy workforce.

BACKGROUND AND RATIONALE

Mental health services are often inaccessible and stigmatised. Students may hesitate to seek counselling or therapy. Digital interventions can bridge this gap by offering private, user-friendly, and 24/7 accessible resources. AI-powered chatbots simulate empathetic conversations and offer evidence-based tools that can be accessed discreetly by users. Wysa stands out among these tools because of its cognitive-behavioural grounding, anonymity, and interactive mental wellness exercises.

OBJECTIVES

· To examine the impact of Wysa on students' resilience levels.

· To assess changes in mental well-being before and after the intervention.

· To compare the experimental and control groups in terms of resilience and mental health outcomes.

HYPOTHESES

There was no significant difference in resilience scores between the experimental and control groups post-intervention.

There was no significant difference in mental well-being scores between the experimental and control groups post-intervention.

REVIEW OF RELATED LITERATURE

The increasing prevalence of mental health issues among students and young adults has catalysed a global rise in digital mental health interventions. These interventions, ranging from mobile applications and chatbots to fully automated therapy platforms, are designed to deliver psychological support outside traditional clinical settings. With widespread smartphone access and growing comfort with digital technology, especially among youth and young adults, such tools offer promising alternatives to face-to-face therapy, particularly for populations facing barriers to traditional mental health care (Firth et al., 2017).

A significant body of research has validated the efficacy of self-guided digital therapeutic tools in mitigating anxiety, depression, and stress symptoms. For example, *Fitzpatrick et al. (2017)* demonstrated that *Woebot*, an AI-driven chatbot delivering cognitive behavioural therapy (CBT) techniques, significantly reduced depression symptoms among college students within just two weeks of use. Similarly, *Youper*, an AI-based emotional health assistant, has been found to be effective in promoting mindfulness and emotional awareness among its users. These applications employ evidence-based strategies to encourage self-reflection, emotional regulation, and behaviour modification, all of which are crucial skills for maintaining psychological well-being.

Among these tools, Wysa has emerged as a particularly impactful application owing to its hybrid approach that combines CBT-based exercises, guided meditations, positive psychology interventions, and conversational AI support. Designed with a user-friendly interface and an interactive, non-judgmental chatbot, Wysa allows users to engage with mental health content in a confidential and supportive digital environment. The app's ability to tailor its responses based on user input enhances perceived empathy and effectiveness. According to *Inkster et al. (2018)*, Wysa users reported significant improvements in emotional resilience and mood regulation, with many citing the app's accessibility and anonymity as key benefits.

Resilience and Mental Health in Educational Settings

Resilience is increasingly recognised as a vital construct in mental health. It refers to the capacity to withstand and adapt positively to stress, adversity and trauma (Masten, 2001). Resilience not only acts as a buffer against psychological disorders but also enhances coping ability and long-term emotional growth. For prospective teachers, cultivating resilience is essential given the emotional demands of teaching, classroom management, and academic pressure experienced during teacher training. High resilience is linked to greater job satisfaction, lower burnout rates, and better student outcomes in the profession (Beltman et al., 2011).

Parallel to resilience, mental well-being encompasses emotional balance, psychological functioning, and social relationships. The *Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)* defines well-being through positive affect, satisfying interpersonal relationships, and purposefulness in life (Tennant et al., 2007). Mental well-being is not merely the absence of mental illness but the presence of mental health, which includes emotional vitality, optimism and resilience.

Recent research has emphasised the need for early mental health interventions among student teachers to address these issues. *Roeser et al. (2013)* found that teacher trainees who engaged in mindfulness-based stress reduction programs exhibited improved attention regulation, lower cortisol levels, and enhanced emotional intelligence. However, these programs often require in-person participation and consistent facilitation, which may not always be feasible in resource-constrained educational settings.

AI-BASED INTERVENTIONS FOR RESILIENCE BUILDING

AI-powered apps, such as Wysa, fill this gap by offering cost-effective, scalable, and private mental health support that users can access anytime and anywhere. Wysa's strength lies in its CBT-based modules which help users identify negative thinking patterns and restructure them into more adaptive thought processes. Additionally, it includes features such as mood tracking, which enables users to monitor emotional fluctuations and identify triggers. \n- Guided journaling, which fosters self-awareness and reflective thinking.\n- Breathing and mindfulness exercises,

which promote calmness and emotional regulation.\n-Personalized conversation pathways, which adapt in real-time to the user's responses, offering a sense of empathetic interaction.\n\nA study conducted by *Singh et al. (2020)* on healthcare workers using Wysa during the pandemic indicated significant improvements in emotional stability and resilience scores after a four-week intervention. Likewise, *Ly et al. (2015)* concluded that AI-powered self-help tools, such as Wysa, are effective not only in reducing symptoms of psychological distress but also in cultivating sustainable coping mechanisms through repeated usage.

RELEVANCE TO PROSPECTIVE TEACHERS

In the context of teacher education, where students often lack access to formal mental health support systems, AI-based apps such as Wysa can serve as practical tools for resilience training and emotional well-being enhancement. By providing daily support through brief structured interventions, these tools encourage self-care habits that are essential for future educators. Moreover, the flexibility of such apps ensures that users can integrate mental health practices into their personal schedules without disrupting their academic responsibilities.

METHODOLOGY

Research Design A quantitative experimental design with pre- and post-test control group methodology was used.

Population and Sample The population comprised undergraduate students from a private arts and science college. A total of 60 prospective teachers from St. Justin's College of Education Madurai were randomly selected and divided into two equal groups.

· Experimental Group (n=30): Used the Wysa app for 6 weeks.

· Control Group (n=30): No digital intervention.

TOOLS FOR DATA COLLECTION

1. Connor-Davidson Resilience Scale (CD-RISC): 25 items rated on a 5-point Likert scale.

2. Warwick-Edinburgh Mental Well-being Scale (WEMWBS): 14 items assessing psychological functioning.

PROCEDURE AND STATISTICAL TECHNIQUES

The study followed a pre-test/post-test experimental design involving two groups: an experimental group and a control group, each comprising 30 prospective English teachers. Initially, both groups were administered standardised instruments to measure resilience and mental well-being, thereby establishing baseline (pre-test) scores for both groups. The experimental group then received an orientation session on how to use the *Wysa* AI mental health application, effectively. They were instructed to interact with the app daily for six weeks, engaging with its features, such as mood tracking, CBT-based exercises, guided journaling, and mindfulness activities. During this period, the control group received no intervention and continued their routine academic activities. At the end of the six-week period, both groups were reassessed using the same standardised tools to obtain post-test scores.

Several statistical techniques were employed to analyse the data. Descriptive statistics, including the mean and standard deviation, were calculated to summarise the central tendencies and dispersion of the scores. To assess within-group differences between pre- and post-test scores, paired-sample t-tests were conducted separately for each group. To evaluate the effectiveness of the intervention between the groups, independent sample t-tests were applied to compare post-test scores. Additionally, Cohen's d was calculated to determine the effect size and magnitude of the observed changes, providing further insights into the practical significance of the findings.

Hypothesis Testing

Table 1: Descriptive Statistics of Resilience and Mental Well-being Scores

Group	Measure	Mean (M)	Standard Deviation (SD)
Experimental	Resilience Pre-Test	65.2	7.1
	Resilience Post-Test	72.4	6.8
	Well-being Pre-Test	52.8	6.5
	Well-being Post-Test	59.8	5.1
Control	Resilience Pre-Test	64.7	6.9
	Resilience Post-Test	66.3	7.2
	Well-being Pre-Test	53.1	6.7
	Well-being Post-Test	52.6	6.3

The pre-test scores for resilience and well-being were statistically comparable between the experimental and control groups, suggesting similar baseline mental health profiles between the groups. After the six-week intervention with Wysa, the experimental group showed marked improvements in both variables.

· Resilience increased from a mean of 65.2 to 72.4 (M = 7.2)

· Mental well-being increased from 52.8 to 59.8 (M= 7.0)

In contrast, the control group, which did not receive any AI-based intervention, showed minimal change in both resilience (M = 1.6) and well-being (M = -0.5), suggesting that the improvements in the experimental group can be attributed to the Wysa intervention alone.

These findings support the hypothesis that AI-powered mental health tools, such as Wysa, can significantly enhance the emotional resilience and psychological well-being of prospective teachers. The app's consistent use of CBT techniques, mood journaling, and mindfulness may have contributed to increased self-awareness, improved emotional regulation, and better stress coping mechanisms in users.

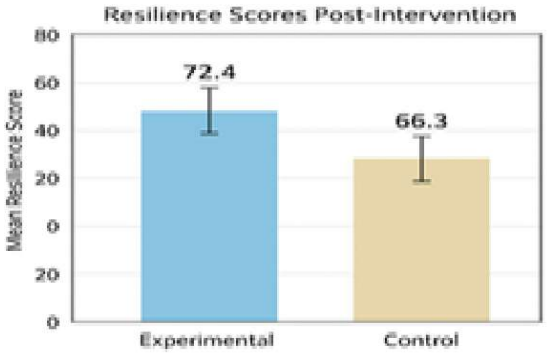
These results align with those of prior research by Inkster et al. (2018) and Singh et al. (2020), who found significant psychological benefits from Wysa across various

populations. In the context of teacher education, where high emotional demands are prevalent, such interventions may serve as vital support, not only to enhance personal well-being but also to prepare emotionally intelligent and resilient educators.

Hypothesis Testing

Hypothesis 1:There is no significant difference in resilience scores between the experimental and control groups post-intervention.

Group	Mean (Post)	SD	t-value	p-value
Experimental	72.4	6.8		
Control	66.3	7.2	3.45	0.001**



An independent samples t-test was conducted to compare the post-intervention resilience scores between the experimental and control groups. The results showed a significant difference in resilience scores between the two groups (t (df) = 3.45, p =.001). The experimental group (M = 72.4, SD = 6.8) demonstrated significantly higher resilience scores than the control group (M = 66.3, SD = 7.2). This suggests that the intervention had a positive effect on improving resilience among the participants in the experimental group. The data supported rejecting the null hypothesis, indicating that the intervention was effective in significantly increasing resilience scores in the experimental group compared to the control group. This implies that the intervention enhanced the participants' resilience.

Hypothesis 2:There is no significant difference in mental well-being scores between the experimental and control groups post-intervention.

Group	Mean (Post)	SD	t-value	p-value
Experimental	59.8	5.1		
Control	52.6	6.3	3.87	0.000**

An independent samples t-test was conducted to compare post-intervention mental well-being scores between the experimental and control groups. The experimental group (M = 59.8, SD = 5.1) showed significantly higher mental well-being scores than the control group (M = 52.6, SD = 6.3; t(118) = 3.87, p < .001). These results indicate that the intervention had a positive effect on improving the mental well-being of participants in the experimental group. The null hypothesis stating that there is no significant difference in mental well-being scores between the experimental and control groups post-intervention was rejected. This significant difference suggests that the intervention effectively enhanced mental well-being in the experimental group compared to the control group.

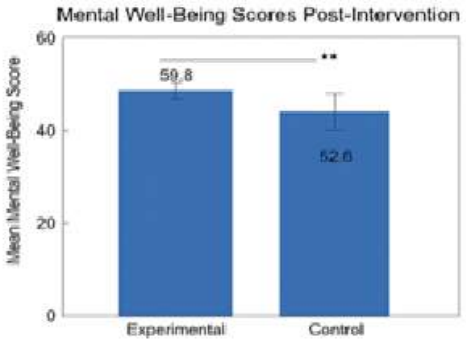
Findings

· The Wysa intervention led to a marked increase in resilience scores.

· Mental well-being significantly improved in the experimental group.

· Students reported feeling empowered and less stressed.

· AI tools can supplement traditional mental health services, especially in college settings.



Educational and Clinical Implications

· AI tools can be integrated into college counselling programs.

· Mobile-based CBT tools provide accessible and cost-effective alternatives to therapy.

· Teachers and academic mentors can use such tools as first-level interventions.

· It can be used in stress management workshops and academic orientation programs.

DISCUSSION

The findings of the present study underscore the significant positive impact of the Wysa application on enhancing psychological resilience and mental well-being in students. Participants in the experimental group who engaged with Wysa over the intervention period reported notable improvements in their ability to manage stress, regulate emotions, and cope with daily challenges. A recurring theme among participant feedback was the value of the app's structured prompts, particularly those grounded in cognitive behavioral therapy (CBT), which facilitated self-reflection and emotional processing. Breathing exercises and mindfulness-based interactions offered through the platform were also cited as highly effective tools for mitigating feelings of anxiety and emotional overwhelm.

These outcomes are consistent with earlier research conducted by Ly et al. (2015), who found that digital mental health interventions, particularly those designed around CBT frameworks, are effective in promoting emotional resilience and reducing psychological distress symptoms. The conversational agent embedded in Wysa appears to offer timely support that mirrors the aspects of traditional therapeutic interactions. Its availability on demand may contribute to fostering consistent self-regulation habits, emotional insight, and a sense of psychological support, especially in moments when human

intervention is unavailable or inaccessible.

` Moreover, the interactive and user-centred design of Wysa may explain its effectiveness. The chatbot's empathetic tone, goal-setting features, and non-judgmental approach encourage students to engage regularly and authentically.

CONCLUSION

The present study substantiates the hypothesis that AI-powered mental health tools, specifically Wysa, play a significant role in improving students' psychological resilience and mental wellbeing. The intervention demonstrated that digital support systems grounded in evidence-based therapeutic approaches can successfully aid emotional development, particularly among student populations comfortable with mobile technologies. Given the increasing mental health demands in academic environments, often coupled with a shortage of professional psychological support, tools like Wysa offer a timely, cost-effective, and scalable solution.

As digital natives, students are more inclined to engage with interactive, discreet, and available mobile interventions. These findings suggest a strong case for integrating digital mental health support within institutional frameworks, such as schools, colleges, and universities. This could revolutionise the delivery of psychological assistance, ensuring early intervention, reducing stigma, and promoting proactive mental wellness practices among youth.

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