Relationship between Psychological Health and Online Learning Satisfaction among Nursing Students at IIUM Kuantan after the COVID-19 Pandemic

Airul Azizan Zainudin[1*], Muhammad Afif Hakim Mohd Ariff[2]

[1,2] Kulliyah (Faculty) of Nursing, International Islamic University Malaysia, Jalan Kuantan Campus , 25200 Kuantan Pahang, Malaysia, Email: airul@iium.edu.my
*Corresponding Author

ABSTRACT
With the sudden transition to online learning, students were faced with unprecedented challenges, including disruptions to their learning environments, especially after the COVID-19 pandemic. The adaptability of the online learning environment to cater to diverse learning needs plays a pivotal role in determining student satisfaction.It is also essential to recognize and address the early signs of psychological distress to prevent the escalation of mental health issues.This study aims to investigate the relationship between the psychological health and online learning satisfaction of nursing students in IIUM Kuantan after Covid 19 pandemic.This study employed a quantitative cross-sectional design to investigate the relationship between the psychological health and online learning satisfaction among nursing students at the International Islamic University Malaysia (IIUM), Kuantan campus.The results indicated a statistically significant, albeit weak, negative correlation between psychological health and online learning satisfaction among the students, with a correlation coefficient of r = -0.203 and a p-value of 0.002. The weak but significant negative correlation between psychological health and online learning satisfaction implies that students with better psychological health tend to be more satisfied with online learning.

Keywords: Psychological Health, Online Learning Satisfaction, Nursing Education, COVID-19

INTRODUCTION
The COVID-19 pandemic drastically altered the landscape of education, particularly in higher learning institutions. With the sudden transition to online learning, students were faced with unprecedented challenges, including disruptions to their learning environments, heightened stress levels, and difficulties in adapting to new technologies. This shift placed immense pressure on both educators and students to adjust rapidly, often without sufficient preparation or support. As a result, the pandemic has had a profound effect on students' mental health and satisfaction with online learning platforms, making it imperative to examine how these experiences have shaped their well-being in the post-pandemic world.
Psychological health refers to the overall well-being of an individual in the emotional, cognitive, and social domains. It encompasses factors such as mental illnesses, emotional stability, and the resilience required to manage stress and adversity (WHO, n.d.). The maintenance of optimal psychological health necessitates proactive engagement in activities such as therapy, meditation, exercise, and self-care. It is also essential to recognize and address the early signs of psychological distress to prevent the escalation of mental health issues. A holistic approach to psychological health not only enhances an individual's quality of life but also contributes positively to their interpersonal relationships and productivity at work (Ribeiro et al., 2024).
In the educational context, satisfaction with online learning refers to the extent to which students are content with their experiences of participating in courses and completing assignments through digital platforms. The quality of course content, the level of interaction with peers and instructors, and the usability and accessibility of the online platform are key factors influencing online learning satisfaction (Sharif Nia et al., 2023). Additionally, the adaptability of the online learning environment to cater to diverse learning needs plays a pivotal role in determining student satisfaction. It is also crucial that students have access to technical support and resources, as these elements significantly enhance the learning experience, making it more effective and fulfilling.

The psychological health of students plays a crucial role in shaping their satisfaction with online learning. Students who experience better mental and emotional well-being tend to report higher levels of satisfaction with their online learning experiences (Kumalasari & Akmal, 2021). Empirical studies suggest that students with lower levels of stress, anxiety, and emotional distress are more likely to feel motivated, engaged, and satisfied with their online courses. These students also exhibit greater self-esteem and are more inclined to achieve positive academic outcomes, such as higher grades and successful course completion (Oducado & Estoque, 2021).

On the other hand, students with poor psychological health may experience dissatisfaction with online learning, often due to heightened stress, anxiety, and feelings of isolation. Factors such as inadequate support, poor course design, and technical difficulties may exacerbate their emotional struggles, leading to frustration and disengagement. As a result, these students are more likely to report lower satisfaction with their online learning environment. The lack of face-to-face interaction in online settings can further intensify feelings of loneliness and disconnection, negatively impacting their overall learning experience (Baltà-Salvador et al., 2021). Ultimately, this dissatisfaction can manifest in academic challenges, including decreased motivation, reduced academic performance, and a higher likelihood of course withdrawal or educational discontinuation

Given these dynamics, it is crucial for educators and online learning platforms to prioritize the psychological well-being of students. Enhancing online learning satisfaction is essential for fostering positive mental and emotional health outcomes. This can be achieved by offering engaging and interactive course materials, promoting interaction and collaboration among students, and providing adequate support for mental health and well-being. This study aims to investigate the relationship between the psychological health and online learning satisfaction of nursing students in IIUM Kuantan after Covid 19 pandemic.Thus, Fig. 1 has shown the research framework of the present study.
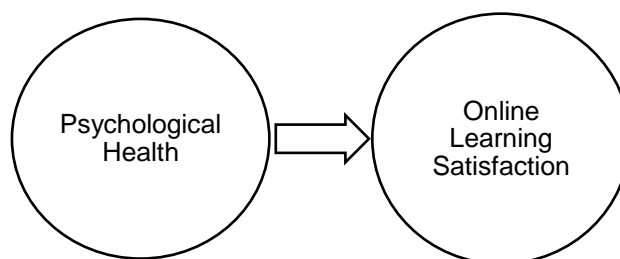
Figure 1. The research framework used in the present study

METHODOLOGY
Study Design and Sample
This study employed a quantitative cross-sectional design to investigate the psychological health and online learning satisfaction among nursing students at the International Islamic University Malaysia (IIUM), Kuantan campus. The sample population consisted of nursing students from Year 1 to Year 4, selected through random sampling. Data collection was facilitated via a Google Form link distributed through email and WhatsApp, ensuring accessibility and convenience. Participation was restricted to students who met the predefined inclusion and exclusion criteria. Informed consent was obtained from all participants, and confidentiality of the data was strictly maintained. A total of 222 students participated in the survey, providing valuable insights into the program.

Instrument
The survey was structured into three sections. In Part A, sociodemographic data were gathered, including gender and year of study. These variables were later used to analyze their association with psychological health and online learning satisfaction. In Part B, psychological health was evaluated using the General Health Questionnaire-12 (GHQ-12), a widely recognized instrument for measuring mental health status. The GHQ-12 comprises 12 items rated on a 4-point Likert scale, with response options ranging from 0 (never) to 3 (always). The total score, which ranges from 0 to 36, reflects the level of psychological distress, with higher scores indicating greater distress. The GHQ-12 has demonstrated sensitivity to individual differences over time (Roberts et al., 2021). In this study, the reliability of the GHQ-12 was confirmed with a Cronbach's alpha of 0.784, indicating good internal consistency. In part C, the level of satisfaction with online learning was measured using the E-Learning Satisfaction Scale, which consists of 10 items rated on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The scale yields

a total score ranging from 10 to 50, with higher scores reflecting greater satisfaction with online learning. The reliability of this scale was supported by a Cronbach's alpha of 0.776, demonstrating acceptable internal consistency.

Analysis

The analysis included both descriptive and inferential statistics. Psychological health was treated as the primary independent variable, with online learning satisfaction as the dependent variable. Descriptive statistics were used to summarize the levels of psychological health and online learning satisfaction among the nursing students post-COVID-19 pandemic.

A normality test using the Kolmogorov-Smirnov test revealed that the psychological health data were normally distributed, while the online learning satisfaction data were not. Consequently, both parametric and non-parametric tests were employed. The association between sociodemographic factors and psychological health was assessed using independent t-tests and one-way ANOVA. For online learning satisfaction, Mann-Whitney and Kruskal-Wallis tests were applied due to the non-normal distribution of the data. Finally, Spearman's correlation was conducted to explore the relationship between psychological health and online learning satisfaction

RESULTS

A total of 222 nursing students in IIUM Kuantan were participated in the study which 86.5% was female and 13.5% was male. From the total nursing students who participated in the study, 27% from year 1, 14.9% from year 2, 32% from year 3 and 26.1% from year 4. Table 1 shows the frequency and percentage of sociodemographic background.

Table 1. Sociodemographic Data

Variables	Frequency (n)	Percentage (%)
Gender		
Male	30	13.5
Female	192	86.5
Year of Study		
Year 1	60	27.0
Year 2	33	14.9
Year 3	71	32.0
Year 4	58	26.1

Based on the data presented in Table 2, the mean score of the GHQ-12 was 13.60 (SD = 5.039), indicating that the psychological health of the nursing students in IIUM Kuantan tends to be closer to the lower end of the scale, suggesting a low level of psychological distress. Conversely, Table 3 shows that the mean score for e-learning satisfaction was 34.22 (SD = 5.205), which is closer to the upper limit of the scale, indicating a generally high level of satisfaction with online learning among the nursing students at IIUM Kuantan.

Table 2. The mean of 12 items General Health Questionnaire (GHQ 12).

	n	Minimum	Maximum	Mean	Standard deviation
Total score of GHQ 12	222	0	31	13.6	5.039

Table 3. The mean of 10 items E-Learning satisfaction scale.

	n	Minimum	Maximum	Mean	Standard deviation
Total score of E-learning satisfaction	222	17.0	48.0	34.22	5.205

Table 4 presents the analysis of the association between gender and the level of psychological health among IIUM undergraduate nursing students. The results indicate no statistically significant difference, as reflected by a p-value of 0.149 (p > 0.05). Specifically, the mean psychological health score for male students was 12.37 (SD = 5.580), while for female students, it was 13.80 (SD = 4.937), with a t-statistic of

-1.449 (df = 220). This suggests that gender does not have a significant impact on the psychological health levels within this student population.

Table 4. The association between gender and the level of psychological health.

Level of psychological health	Mean (SD)	t-statistics (df)	p-value
Male Female	12.37 (5.580) 13.80 (4.937)	-1.449 (220)	0.149

Table 5 illustrates the association between the year of study and the level of psychological health among IIUM undergraduate nursing students. The analysis reveals a statistically significant difference, with a p-value of 0.001 (p <0.05). The mean psychological health scores across the different years of study were as follows: Year 1 students had a mean score of 14.88 (SD = 4.698), Year 2 students had 13.45 (SD = 3.961), Year 3 students had 14.30 (SD = 5.089), and Year 4 students had 11.52 (SD = 5.312). The F-statistic for this comparison was 5.360 with degrees of freedom 3(221), indicating a significant variation in psychological health levels across the different years of study.

Table 5. The association between year of study and level of psychological health.

Level of Psychological Health	Mean (SD)	F-statistics (df)	p-value
Year 1 Year 2 Year 3 Year 4	14.88 (4.698) 13.45 (3.961) 14.30 (5.089) 11.52 (5.312)	5.360 3(221)	0.001

Table 6 presents the association between gender and the level of online learning satisfaction among IIUM undergraduate nursing students. The analysis shows no statistically significant difference between male and female students, with a p-value of 0.210 (p > 0.05). The mean satisfaction score for male students was 35.5 (SD = 4.25), while for female students, it was 34.5 (SD = 7.0), with a Z-statistic of -1.253. This suggests that gender does not significantly influence the level of online learning satisfaction in this cohort.

Table 6. The Association between Gender and Level of Online Learning Satisfaction

Gender	Mean (SD) Level of Online Learning Satisfaction	Z-statistic	p-value
Male	35.5 (4.25)	-1.253	0.210
Female	34.5 (7.0)		

Table 7 presents the analysis of the association between the year of study and the level of online learning satisfaction among IIUM undergraduate nursing students. The results indicate that there is no statistically significant difference across the different years of study, as reflected by a p-value of 0.187 (p > 0.05). The mean satisfaction scores were 35.0 (SD = 7.75) for Year 1, 35.0 (SD = 5.50) for Year 2, 34.0 (SD = 5.0) for Year 3, and 36.0 (SD = 9.0) for Year 4. The Z-statistic for this comparison was 4.799 with 3 degrees of freedom. These findings suggest that the level of online learning satisfaction does not significantly vary based on the year of study among the nursing students at IIUM.

Table 7. The Association between Year of Study and Level of Online Learning Satisfaction

Year of Study	Mean (SD) Level of Online Learning Satisfaction	Z-statistic	p-value
Year 1	35.0 (7.75)	4.799 (3)	0.187
Year 2	35.0 (5.50)		
Year 3	34.0 (5.0)		
Year 4	36.0 (9.0)		

The results presented in Table 8 indicate a statistically significant, albeit weak, negative correlation between psychological health and online learning satisfaction among the students, with a correlation coefficient of r = -0.203 and a p-value of 0.002. The negative correlation suggests that as psychological health deteriorates, characterized by higher psychological distress scores, online learning satisfaction

tends to decrease. Conversely, better psychological health is associated with higher levels of satisfaction in the online learning environment. Although the relationship is statistically significant, the strength of the correlation is weak, implying that psychological health is only one of several factors influencing online learning satisfaction.

Table 8. The Relationship between Level of Psychological Health and Level of Online Learning Satisfaction

Variables	Psychological health	Online learning satisfaction
Psychological health	-	
Online Learning Satisfaction	-0.203	-

p-value= 0.002

DISCUSSION

This research explored the association between psychological health and online learning satisfaction among nursing students at IIUM Kuantan following the COVID-19 pandemic. The findings indicated that the nursing students exhibited a low level of psychological distress. This contrasts with a study conducted in Saudi Arabia, where students were reported to experience moderate to high levels of stress during the COVID-19 pandemic (AlAteeq et al., 2020). These results suggest a variation in stress levels during and after the pandemic.

In terms of online learning satisfaction, the nursing students at IIUM Kuantan reported a high level of satisfaction. This differs from a study conducted in Lebanon, where most students expressed dissatisfaction with their online learning experience during the pandemic (Fawaz & Samaha, 2020). Similarly, research in Egypt found that students held negative attitudes and perceptions towards online learning during the pandemic (Diab & Elgahsh, 2020). These findings indicate a change in online learning satisfaction levels between the pandemic period and the post-pandemic period.

The differences in psychological health and online learning satisfaction observed during and after the COVID-19 pandemic may be attributed to students' adaptation to new learning methods. Some individuals may have found it challenging to adjust to the online learning environment, especially those more accustomed to traditional classroom settings. Learning styles vary among students; while some may thrive in an online learning environment, others may struggle with the transition. A study by Sujiah and Yuliana (2022) noted that students experienced stress due to difficulties in adapting to the shift to online learning. Challenges in adapting to new learning methods can contribute to lower satisfaction levels and increased psychological distress.

This study identified a significant association between the year of study and the level of psychological health among nursing students, with a p-value of 0.001 (p < 0.05) using a one-way ANOVA test. To further explore these differences, multiple comparisons were conducted using the Bonferroni method. The results revealed that Year 4 students had significantly higher mean scores compared to both Year 1 and Year 3 students. However, no significant differences were found between Year 1 and Year 2, Year 2 and Year 3, or Year 3 and Year 4. These findings are consistent with a study conducted in Saudi Arabia, which also reported that the year of study is related to stress levels (Alshammari et al., 2022).

Conversely, the study found no significant association between gender and the level of psychological health, with a p-value of 0.149 (p > 0.05). This result aligns with findings from a study in the Republic of Kazakhstan, which reported no significant difference in anxiety levels between genders during the period of online learning (tov et al., 2020). Regarding online learning satisfaction, the study found no significant association between gender or year of study and the level of satisfaction, with a p-value of 0.187 (p > 0.05). Thapa et al. (2021) similarly found no correlation between respondents' satisfaction with e-learning and socio-demographic variables such as age, residence, college, and year of study. A similar result was reported by Kar et al. (2014), who found no significant association between students' gender and their perspectives toward online learning, with a p-value of 0.62, indicating a lack of significance even at the 0.05 level.

The correlation analysis between the level of psychological health and the level of online learning satisfaction reveals a statistically significant, but weak, negative correlation, with a correlation coefficient of r = -0.203 and a p-value of 0.002. This indicates that as psychological health improves (i.e., as the psychological health score decreases), online learning satisfaction tends to increase slightly. The significance of this correlation suggests that students who experience lower psychological distress (better psychological health) are likely to report higher satisfaction with online learning. However, the weak

strength of the correlation implies that while there is a trend, other factors likely influence online learning satisfaction. This finding may reflect that students with better mental health are better able to engage with and benefit from the online learning environment. However, the modest strength of this relationship indicates that additional variables, such as learning styles, technological proficiency, or external stressors, may also play a role in determining online learning satisfaction. Further research is needed to explore these factors and to understand the complexities of how psychological health interacts with perceptions of online learning.

CONCLUSION

This study examined the association between psychological health and online learning satisfaction among nursing students at IIUM Kuantan in the post-COVID-19 context. The findings revealed that students generally exhibited low levels of psychological distress and high levels of satisfaction with online learning. The significant association between the year of study and psychological health suggests that senior students, particularly those in Year 4, experienced better psychological health compared to their juniors. However, no significant associations were found between gender and psychological health or between gender/year of study and online learning satisfaction.

Moreover, the weak but significant negative correlation between psychological health and online learning satisfaction implies that students with better psychological health tend to be more satisfied with online learning. This relationship, while modest, highlights the importance of considering students' mental well-being when assessing and improving their online learning experiences.

These findings underscore the need for educational institutions to continue supporting the psychological health of students, particularly as they adapt to new learning environments post-pandemic. Future research should further explore the factors that influence the relationship between psychological health and online learning satisfaction, such as individual learning styles, technological capabilities, and external stressors, to develop more targeted interventions that enhance both mental well-being and educational outcomes.

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