





Hardiness and Zoom Fatigue on Nursing Students: A Cross-Sectional Study in Indonesia During Online Learning

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Introduction: The Covid-19 pandemic caused a change in learning methods to online learning. Zoom fatigue is a problem that many students experience during online learning. Zoom fatigue has an impact on physical and psychological problems so that it disrupts the online learning process. Hardiness is needed by students in order to adapt to online learning.

Aim: The purpose of this study was to determine the relationship between hardiness and zoom fatigue in nursing students at Universitas Padjadjaran.

Methods: This study used a quantitative approach with a cross-sectional study design. The sample technique used total sampling. Respondents were 480 nursing students at Universitas Padjadjaran. The research instrument used the Zoom Exhaustion & Fatigue Scale questionnaire and the Hardiness Instrument for the Online Learning.

Results: This study shows that almost half of the respondents have a medium hardiness level category (45%) and a zoom level of medium fatigue category (46.67%). The results of the analysis show that there is a significant negative relationship between hardiness and zoom fatigue in nursing students at Universitas Padjadjaran. The higher the student's hardiness level, the lower the student's zoom fatigue level. High hardiness can increase focus during the learning process, increase student participation, and reduce stress and fatigue in students during online learning.

Conclusion: Lecturers and students need to collaborate to improve the learning process and repeat mental health problems during online learning. This data forms the basis for university and school nurses in providing interventions for nursing students to reduce the problem of zoom fatigue.

Keywords: hardiness, nursing student, online learning, zoom fatigue

Introduction

The COVID-19 pandemic causes an online learning process for students. Online learning has a positive impact, namely learning is more efficient and flexible, making students more independent, because they are required to be able to understand the material taught by themselves, spend a lot of time with family, and be able to carry out activities.¹ However, online learning during the Covid-19 pandemic caused more negative impacts.² The negative impact experienced by students undergoing online learning is that students tend to experience difficulties in learning such as disconnection of the internet connection and many academic demands such as compiling papers or proposals and preparing for exams in very less time, which ultimately causes stress on students.^{3,4} Several studies say that academic stress has begun to appear and increase among students since the pandemic.^{5,6}

Increased academic stress on students causes students to experience confusion, anxiety, and a lack of motivation so that if students are unable to carry out the demands during lectures, students will be susceptible to zoom fatigue.⁷ Zoom fatigue is a feeling of tiredness experienced by individuals when facing various kinds of excessive demands, has a disinterested (cynical) attitude towards assignments given in lectures, and has a feeling that he is incompetent in

being a student during online learning.^{8,9} Previous study show that 52% of students experienced zoom fatigue during online learning.¹⁰ Another study in Indonesia showed that as many as 70% of students have a high level of zoom fatigue.¹¹ Zoom fatigue occurs to students because they are not used to online learning, but students are still required to meet various demands and assignments that have been given by lecturers, as well as pressure from parents and families who demand high scores and achievements.¹²

Individual reactions in dealing with the problem of zoom fatigue are of course different, there are negative responses and positive responses.¹³ If students show a reaction that zoom fatigue is not something that is burdensome, then students will try to overcome problems during online learning so that they do not end up experiencing academic stress, and vice versa.¹⁴ The difference in students' reactions to zoom fatigue is due to the different levels of student hardiness. This is in line with previous research which shows that one of the distinguishing attitudes of individuals in dealing with their problems is to have hardiness.¹² Other research also states that hardiness is one of the internal factors that affect academic stress.¹⁵

Hardiness is an individual trait that functions as resilience in dealing with stressful events.¹⁶ This is in accordance with previous research which shows that hardiness has a role in reducing stress in students.¹⁷ Other research also shows that students with high levels of hardiness have low zoom fatigue so they can focus on undergoing the learning process.¹⁸ This is because high hardiness can help students deal with various pressures that arise during online learning.

Previous studies have shown that there is a significant relationship between hardiness and stress on students.^{19,20} This study was conducted on freshman nursing students who were transitioning from high school students to college students. So that stress arises because new students have not adapted to the learning methods at the university. Other research also shows that there is a relationship between hardiness and academic stress in students when learning online during the Covid-19 pandemic.²¹ The research found that the source of student stress was the online learning process which was carried out for a long time and the fatigue in online learning. So that this study recommends researching the relationship between hardiness and zoom fatigue in students during online learning.

Nursing students are one of the students who require practical learning in clinics/hospitals to improve competence as prospective professional nurses.²² Covid-19 has made clinical practice impossible in hospitals. The learning process is also carried out online. So that the learning process is carried out online also causes various problems for nursing students, such as zoom fatigue.²³ This fatigue can cause negative impacts on nursing students such as decreased motivation and learning achievement. This can have long-term impacts, such as not continuing studies due to stress and not attending college.

Hardiness is an important thing for nursing students to have in order to control fatigue during the online learning period. Hardiness is a factor that can help students manage the impact of zoom fatigue and can prevent zoom fatigue, so that students can manage themselves to focus on the learning process.²⁴ Previous research also shows that nursing students who have high hardiness can reduce academic burnout.²⁵ Based on this, researchers are interested in conducting research on the relationship between hardiness and zoom fatigue in nursing students at Universitas Padjadjaran.

Materials and Methods

Study Design and Participants

This study used a quantitative approach with a cross-sectional study design. The design aims to determine the relationship between zoom fatigue and hardiness in nursing students. Participants who were respondents in this study were students who underwent online learning at the Faculty of Nursing, Universitas Padjadjaran. The exclusion criteria in this study were students participating in offline learning. Participants filled out the research questionnaire online via google-form. Questionnaires were also distributed to prospective respondents through social media, namely Tiktok, Instagram, Whatsapp, Line and Twitter to reach all participants who took part in online learning. The total population in this study was 516 nursing students who underwent online learning. All participants were openly recruited through an online platform and had the freedom to fill out a questionnaire. The total sample in this study was 480 respondents because some students did not fill out the questionnaire even though they had been contacted by the researcher. Data collection carried out by online in March 2022.

Ethical Approval

Research ethics aims to ensure that respondents and researchers obtain rights and obligations during the research process. Researchers give freedom to prospective respondents to participate in this research after being given information about the research, research objectives, and the rights and obligations of the respondents. The researcher also respects every respondent's decision and respects the dignity of the respondent. The informed consent was presented by the researcher on the first page of the google-form. Researchers ensure the confidentiality of respondent data and guarantee that the data obtained will be coded and accessed by researchers only. Researchers also provide information to prospective respondents to fill in data anonymously. This study complied with the Declaration of Helsinki. This research has received ethical approval from the Universitas Padjadjaran Research Ethics Commission with number 86/UN6.KEP/EC/2022. Researchers guarantee the life, health, dignity, integrity, right to self-determination, privacy and confidentiality of personal information of research subjects.

Questionnaire Development

The research questionnaire consisted of three parts of the instrument, namely the first part of the respondent's demographic data which consisted of gender, age, and region of origin. Then in the second part consists of the Zoom Exhaustion & Fatigue Scale instrument to determine the zoom fatigue level of the respondents. Then the Hardiness Instrument for the Online Learning Period is to determine the hardiness level of the respondents. The Zoom Exhaustion & Fatigue Scale (ZEF scale) instrument has a validity value of 0.88 and a reliability value of 0.95.²⁶ This figure indicates that the instrument is valid and reliable for use in this study. The ZEF scale instrument has 15 items which are divided into five constructs, namely; general fatigue, visual fatigue, social fatigue, motivational fatigue, and emotional fatigue. While the Hardiness Instrument for the Online Learning Period is the result of the development of the DRS-15 v 3.2 instrument.²⁷ There are several sub variables in this instrument, namely control, commitment, and challenges. This instrument has 14 items consisting of 9 favorable items and 5 unfavorable items. The results of the validity test showed a validity value of 0.327–0.776 and a reliability of 0.896. This shows that the instrument is valid and reliable.

Respondents filled out the questionnaire with answer options using a Likert scale with a score range of one to five, namely: 1 = not at all, 2 = a little, 3 = moderate, 4 = very, 5 = very very. The instrument that was made by the researcher was then tested on 10 students. Then the researcher asked for feedback from 10 students as a basis for improving the instrument. Instruments were also discussed with experts, namely psychiatric nursing lecturers and professors in the psychiatric nursing field. Then after the instrument is repaired, it can only be distributed to prospective respondents. The instrument in this study was distributed via Google form in Indonesian.

Data Analysis

Researchers download data from google form and form google sheet. Then the researchers used the Statistical Package for Social Sciences software version 22.0 (SPSS Inc.) to analyze the research results. Researchers checked duplicate data and deleted incomplete data. Researchers double-checked in this study. Univariate test was conducted to find out the description of the characteristics of the research sample being conducted. Bivariate analysis using Rank Spearman to determine the relationship between zoom fatigue and hardiness in nursing students at Universitas Padjadjaran. The Spearman rank test was used based on the results of the Kolmogorov–Smirnov normality test which showed a zoom fatigue value of 0.004 <0.05 and a hardiness questionnaire of 0.01 <0.05. The normality test for both instruments shows a value of <0.05 which indicates the data is not normally distributed and is nonparametric data.

Results

The sampling technique used in this study is the total sample, namely all members in the population as the research sample. The number of samples in this study were 480 respondents.

Based on (Table 1), it can be seen that the number of research samples that were male as many as 20 people (10%) and the number of research samples with female sex were 180 people (90%). Then the distribution of the age of the study sample at the most with the age of 18 years as many as 130 people (65%). Most of the students used the internet connection the most, namely Wifi and Cellular Hotspot as many as 105 people (52.5%). The research sample using

Table 1 Characteristics of Respondents (n=480)

Demographic Variables	Total	Percentage
Gender		
Male	60	12.5%
Female	420	87.5%
Age		
17–18 years	105	21.88%
19–20 years	127	26.45%
21–22 years	156	32.50%
23–24 years	92	19.17%
Internet Connection		
Only wifi	168	35%
Only Hotspot	57	11.88%
Wifi and Hotspot	255	53.12%
Device		
Laptop/Computer	21	4.38%
Handphone	36	7.50%
Laptop/Computer and Handphone	423	88.12%

laptops/computers and mobile phones/smartphones as lecture media was 185 people (92.5%). And most of the domiciles of the research sample came from West Java as many as 153 people (76.5).

This study shows that the number of research samples from both the zoom fatigue scale and from the hardiness is 480 respondents (Table 2). On the zoom fatigue scale the minimum score is 25 and the maximum score is 78 with a mean of 51.34 and a standard deviation of 9.56. While on the hardiness scale the minimum score is 74 and the maximum score is 140 for the mean value is 104.02 and the standard deviation is 21.16.

The table shows that there is a lot of data, namely from 480 respondents with respondents experiencing low zoom fatigue as many as 104 respondents (21.67%), 224 respondents in the medium category (46.67%) and 152 respondents in the high category (31.67%) (Table 3). As for the respondents who experienced low hardiness as many as 172 respondents (35.83%), 216 respondents in the medium category (45%) and 92 respondents in the high category (19.17%).

Based on (Table 4), it is found that the significance value of the zoom fatigue scale is $0.004 < 0.05$ while the significance value of the hardiness scale is $0.000 < 0.05$. Because the two significance values of the two scales are less than 0.05, it can be said that the data are not normally distributed.

Table 2 Descriptive Statistics (n=480)

	N	Min	Max	Mean	Std. Deviation
Zoom Fatigue	480	25	78	51.34	9.56
Hardiness	480	74	140	104.02	21.16

Table 3 Variable Category (n=480)

	Frequency			Percentage		
	Low	Moderate	High	Low	Moderate	High
Zoom Fatigue	104	224	152	21.67%	46.67%	31.67%
Hardiness	172	216	92	35.83%	45%	19.17%

Table 4 Normality Test Results

One-Sample Kolmogorov–Smirnov Test			
		Zoom Fatigue	Hardiness
N		200	200
Normal Parameters	Mean	50.2000	105.82
	Std. Deviation	9.66789	20.95
Most Extreme Differences	Absolute	0.084	0.169
	Positive	0.036	0.169
	Negative	-0.084	-0.067
Test Statistic		0.084	0.169
Asymp. Sig. (2-tailed)		0.004	0.000

Table 5 Spearman's Rank Correlation Test Results

		Zoom Fatigue	Hardiness
Zoom Fatigue	Correlation Coefficient	1.000	-0.782
	Sig. (2-tailed)		0.030
	N	480	480
Hardiness	Correlation Coefficient	-0.782	1.000
	Sig. (2-tailed)	0.030	
	N	480	480

The results of data analysis that has been carried out using the Spearman correlation test, the results of data analysis showed that the Spearman rank value was -0.782 and the p value was 0.03 (Table 5). This shows that there is a significant negative relationship between zoom fatigue and hardiness in nursing students at Universitas Padjadjaran.

Discussion

The results of this study showed that almost half of the respondents had a zoom level of fatigue in the medium category (46.67%) and hardiness level in the medium category (45%) for nursing students at Universitas Padjadjaran. The results of the bivariate analysis showed that there was a significant negative relationship between zoom fatigue and hardiness in nursing students. This can be seen from the p value of 0.03 ($p < 0.05$). So that zoom fatigue is a factor that affects the hardiness of nursing students when learning online.

Based on the results of the hardiness variable categorization, the majority of subjects in this study had moderate hardiness levels. Hardiness level can be influenced by the age of students who are still teenagers and early adults. Previous research stated that with age maturity, the more life experience an individual has, the stronger the individual's hardiness will be.²⁸ Adolescents and adults do not have enough life experience so they are not able to overcome stressful events and fatigue and increase their level of hardiness.²⁹ Previous studies have shown that students have a low level of hardiness due to a lack of experience in solving problems.³⁰

Based on the results of the zoom fatigue variable categorization, the majority of subjects in this study had moderate levels. The high level of zoom fatigue in students is influenced by the low level of hardiness in students who do online learning. Besides that, age also affects the level of zoom fatigue in students. In line with previous studies which show that adolescents and early adults have high levels of stress when they have pressure and burdens.³¹ In addition, this study also shows that most of the respondents are women. Previous study have shown that women's zoom fatigue is significantly higher than women's.³² Other research also shows that women tend to experience significantly more extreme burnout and fatigue than men.³³

Hardiness becomes an important thing for students to have to reduce the negative symptoms of zoom fatigue. Students who are able to change negative stressors in their academics into experiences that can motivate their learning activities, students are likely to experience symptoms of academic stress will be low.²⁹ However, the results of previous research indicate that students cannot manage the zoom fatigue that is felt during online learning.¹⁶ The results of other studies indicate that students have difficulty adapting to online learning methods that have a lot of assignments, causing fatigue.^{34,35}

Students with low hardiness think that their zoom fatigue is a minor problem and does not need to be addressed. This is in line with previous studies which show that individuals with low hardiness perceive the tasks they are undertaking as a source of fatigue, so that the negative consequences they have to face become even more severe.^{17,36,37} In addition, other studies also show that as many as 30.5% of other students have hardiness in the low category with a high level of zoom fatigue. Previous research showed that students with moderate hardiness were able to withstand learning loads and assignments during a pandemic.³⁸ However, there are still some students who have low hardiness, so they are not able to survive the stressors of online learning. Other research also shows that students with low hardiness tend to surrender to circumstances, and perceive the changes that occur in their lives as a threat.³⁹

A significant negative relationship between hardiness and burnout is in line with previous research on 97 respondents which showed the result that there is a relationship between hardiness and zoom fatigue, there is a negative correlation.^{36,40} This explains that if the zoom fatigue behavior is high, then the hardiness is low, and vice versa if the zoom fatigue is low, then the hardiness is high. These results are in line with previous research which showed that there was a significant negative relationship between hardiness and zoom fatigue.⁴¹ The higher the level of student hardiness, the stronger the student's endurance in dealing with a situation that causes zoom fatigue. Students who have high hardiness are able to respond to the workload and activities they receive as challenges that must be completed, so that the level of zoom fatigue in these individuals is lower.⁴² Previous studies also show that students with high hardiness can solve problems and pressures that arise during the online learning process.^{14,43,44}

The results of other studies show that hardiness will make individuals stronger, more resistant, and more stable.^{35,45} Optimism can reduce the negative effects of zoom fatigue that students face. Individuals who have high hardiness tend to react to events that cause fatigue in a positive way. Students with high hardiness can be actively and productively involved during online learning, so that students have good learning motivation and have good adaptive coping and actively seek solutions or solutions to the problems they face.⁴⁶

Students with high hardiness will interpret stressful life events in a meaningful way and reflect high levels of commitment and control over challenging events and see these challenges as growth opportunities.^{47,48} Students with strong hardiness are able not to give up and have commitment in dealing with stressful situations that lead to self-development and growth. Students with strong hardiness are able to influence the course of life events so that individuals are able to control and overcome stressful events which are the source of zoom fatigue.^{49,50} Individuals with a hardiness personality tend to reframe stressful events into growth opportunities and evaluate challenges positively.⁵¹

Limitations

This study has limitations, namely not being able to describe the factors that affect zoom fatigue in students. This study only explains that hardiness is one of the factors that affect the zoom level of fatigue in nursing students. In addition, researchers also have limitations, namely there is no analysis of the source of zoom fatigue in nursing students. The pressure and learning load of nursing students is certainly different from other students. Moreover, clinical practice experience is not obtained during online learning. So that the source of zoom fatigue needs to be analyzed in more depth to obtain comprehensive data on the learning process of nursing students.

Conclusion

Based on the results of correlation analysis using the Spearman correlation technique, it was found that the values of $\text{sig. } 0.03 < 0.05$ with a Spearman coefficient value of -0.782 , this shows that there is a significant negative relationship between hardiness and zoom fatigue in nursing students when learning online. This means that the higher the individual hardiness, the lower the zoom fatigue level. Efforts to increase hardiness are important to improve the optimal learning process. Even though learning is done online, lecturers and students must collaborate to provide participatory learning.

The implication of this research is that there is a foundation for universities in organizing optimal online learning by paying attention to students' mental health conditions, one of which is hardiness and zoom fatigue problems. In addition, the research results also form the basis for nurses in organizing school-health nursing in increasing students' hardiness during online learning. Recommendations for further research are the need to analyze the factors that influence student hardiness when learning online. Research on factors that influence hardiness in students will be a consideration for lecturers and nurses to develop methods to increase hardiness in students as an effort to reduce zoom fatigue. In addition, the need for analysis related to effective learning methods in implementing online learning.

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