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Nomophobia Dynamics among Students: A Study in Indonesian Islamic Higher Education

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Abstract

This research examines the frequent use of smartphones among college students. These conditions can lead to nomophobic behavior disorder (no mobile phone phobia). This study aims to: 1) analyze the level of nomophobia in students based on gender, faculty academic culture, and age; 2) analyze differences in nomophobia simultaneously based on gender, faculty academic culture and age. This study uses a quantitative descriptive comparative approach. Data were obtained from 988 students at Islamic tertiary institutions. Samples were selected by convenience sampling technique. The instrument used is the nomophobia questionnaire (NMP-Q) (Yildirim, 2014), with high reliability. Data were analyzed using Independent Sample T-test, analysis with one-way ANOVA and two-way ANOVA analysis. The results of the study show that nomophobia among students is in the high category. This study proves that there are differences in the level of nomophobia in terms of gender where women are higher than men. Based on the faculty's academic culture and age, there is no difference in student nomophobia. There is an interaction between gender and age in influencing nomophobia. Simultaneously there was no interaction between gender, faculty academic culture and age in determining the level of nomophobia.

INTRODUCTION

The 5.0 Industrial Revolution generally refers to technological developments that continue to increase automation and digitalization in the world of education. This concept focuses on the integration between technology and humans and the need to develop systems that are more adaptive and responsive to the educational process. The Industrial Revolution 5.0 focuses more on the integration of advanced technology with human expertise and innovation that can encourage the development of educational approaches that are more efficient, flexible, sustainable and improve welfare (George & George, 2020). Advanced technology that is popular for use by all people is mobile phones. According to Yildirim & Correia (2015), due to the many benefits that mobile phones provide, they have evolved from being a luxury good into an essential component of human existence.

Mobile phones facilitate engagement and communication across great distances, making it easy for users to connect at any time (Than & Shan, 2021). Ease with which the most up-to-date information may be obtained (King et al., 2014). According to Sauhenda et al. (2019),

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students may benefit from the ease that mobile phones provide to the completion of learning tasks. These are the main factors contributing to the rise in popularity of mobile phones in today's society. This condition requires adaptability from the user. People in this era are always connected to the internet, have unlimited access, but must be ready to face changes in volatility, uncertainty, complexity and ambiguity (VUCA) (LeBlanc, 2018).

According to data provided by Media Informatics, as of right now, around 89% of Indonesia's population has a mobile phone (Hanum, 2021). According to the findings of the poll, there are around 202,6 million people in Indonesia who use the internet. 96.4 percent of users access the internet using their mobile phones, spending an average of 8 hours and 52 minutes every day doing so. According to the findings of the research conducted on 47 nations, Indonesia is in the top 10 countries in terms of the prevalence of addiction to social media.

Using a mobile phone an excessive amount may lead to a variety of issues. Nomophobia is a psychological issue and risk that arises from an individual's inability to adapt to changes in behavior and habits in the fifth industrial revolution. According to Dongre et al. (2017), nomophobia is a sickness that is often encountered by members of contemporary society today. The pattern of compulsive usage of mobile phones will eventually cause the user to be unable to separate themselves from their device. According to Yildirim & Correia (2015), nomophobia is the dread and anxiety experienced by a person when they are away from their mobile device, specifically a cell phone.

The excessive intensity of mobile phone use causes a person to become easily anxious and excessively afraid when away from their mobile phone. According to Hwang et al. (2012), increased levels of despair and anxiety are a cause of dependency and addiction (Bivin et al., 2013). The manifestation of unacceptable patterns of conduct. According to Pavithra et al. (2015), the inability of a person to use their mobile phone would cause that person to feel uneasy, worried, and tense, as well as cause them to suffer irregular melancholy. According to Fadhilah et al. (2021), a person is considered to have nomophobia if they already experience feelings of anxiety and fear when they are away from their mobile phone.

A significant number of students also suffer from this contemporary anxiety. Students often assert that they use their mobile devices to study, despite the fact that mobile devices are also used to access social media, play games, and do other activities that are not necessary in learning. According to the findings of Fadhilah et al.'s study (2021), the use of mobile phones causes a person to lose attention on learning, which in turn lowers their learning outcomes, makes them look indifferent, and lowers their feeling of worry.

The results of a study in Turkey showed that out of 400 young people, 8.5% had severe nomophobia, 71.5% had moderate nomophobia, and 2.0% had mild nomophobia (Gurbuz & Ozkan, 2020). Meanwhile, according to the findings of the study conducted by Syaputra et al. (2022), out of the total of 368 students who participated in the survey, 88 of them contained extremely high levels of nomophobia, 135 of them experienced levels of nomophobia that fell into the high category, 111 of them had levels of nomophobia that fell into the moderate category, and 34 of them experienced levels of nomophobia that fell into the low category. The academic community gets unsettled as a result of this circumstance.

Everyone who uses a mobile phone, but particularly those who do so for extended periods of time, runs the risk of developing a condition known as nomophobia. According to the findings of the study, out of 6246 persons who use mobile phones, it is known that males have a bigger proportion than women, namely 67% and 65% (Team of Centre for Research and Development of Informatics and Information and Public Communication Applications, 2017). The survey was conducted by the Centre for Research and Development of Informatics and Information and Public Communication Applications. The use of mobile phones might also alter one's routines. According to the findings of the research conducted by Hardianti et al. (2019), nomophobia has a very tight connection to the culture of students.

Previous research on nomophobia only discussed the level of nomophobia but did not discuss the characteristics of nomophobia based on gender, faculty background, and age. Even though there has been research on nomophobia based on gender, the results of the analysis do not provide a clear contribution, so other variables are needed to get more in-depth information. The results of this research contribute to early identification before providing intervention at universities.

Rationale of the Study

This research was carried out at the State Islamic University of Sultan Maulana Hasanuddin in Banten, Indonesia. The fundamental academic program became the major factor in conducting this research. The fundamental structure of educational programs in state higher education institutions for Islamic studies in Indonesia is based on Islamic rules. Consequently, this phenomenon became a major role in influencing nomophobia in the individual. Counselors have the responsibility of developing different programmes and courses of action for clients who exhibit symptoms of nomophobia based on the client's level of knowledge of their own nomophobia. This study aimed to determine the phenomenon of nomophobia in college students according to gender, age, academic year, and faculty. It is essential to do research on these elements since the differences discovered will serve as the foundation for the implementation of counseling at the university. People who suffer from nomophobia may benefit from receiving intervention counseling if it is recognised via the proper examination that they do so.

Objective

The primary purpose of this research was to investigate the fear of strangers from a number of different perspectives, including gender, age, academic year, and faculty. It is intended that knowledge may be acquired from these many elements on what causes might affect someone to suffer from nomophobia.

METHODS

Research Design

This kind of research is quantitative in nature and takes the form of a comparison study. The comparison in question is based on the many different aspects that were looked at, beginning with gender and continuing with age, academic year, and faculty. This research aims to explore the factors that can cause the emergence of nomophobia, both independent and informational due to interacting factors. This study used a factorial design with three variables/factors namely gender, age, and faculty. These three variables have an impact on nomophobic behavior. By using this design, researchers can find out how these variables interact with each other so that information is obtained about things that can cause nomophobic behavior.

Participants

This study was carried out at Universitas Islam Negeri (UIN) Banten using a sample population of 988 students drawn from six different faculties: the Faculties of Tarbiyah and Teacher Training, Science, Da'wah, Ushuluddin and Adab, Islamic Economics and Business, and Sharia. The sample population included both male and female students. The sample was chosen by the use of a method known as convenience random sampling. The choice of this technique is used to anticipate the potential for students who are less open to the conditions they are experiencing. In general, sample selection is basically aimed at those who are willing and open.The use of sampling techniques in terms of the availability of samples that have the opportunity to fill in the instruments used, as seen in table 1.

Table 1. Research Sample Demographics

Faculty	*Age*			*Gender*		*Total*
	19	*20*	*21*	*Male*	*Female*	
Da'wah	72	76	20	44	124	168
Islamic Economics and Business	121	68	35	59	165	224
Science	37	44	33	35	79	114
Sharia	84	75	22	80	101	181
Ushuluddin and Adab	110	34	3	53	94	147
Tarbiyah and Teacher Training	34	71	49	25	129	154
Total	458	368	162	296	692	988

Instruments

In this study, we used Nomophobia Questionnaire (NMP-Q). The questionnaires ware originally in English, so they needed an adaptation process into Indonesian before being used. The adaptation process follows WHO standards; forward translation, expert panel Back-translation, pre-testing and cognitive interviewing, and final version (WHO, 2021). For the forward translation section and the Back-translation expert panel, we have passed the ethical clearance test, and the questionnaire has passed the test in it. In the pre-testing and cognitive interviewing section, we used 167 respondents. We also took into account gender and age composition in the test. Next, we revised the questionnaire items that were not appropriate based on the evaluation at the cognitive interviewing stage and then published the final version of the questionnaire for use (See Table 2). After the test was completed, a total of twenty statement items received validation using pearson correlation as shown in table 2 and reliability score of .929 according to the Cronbach alpha.

Procedures

Respondents in this study were voluntary without any element of coercion. The researcher asked for the respondent's consent to fill out this questionnaire and explained that filling out this questionnaire took approximately 10 minutes. Respondents who agree will fill

Table 2. Instrument Validity Values

Question Items	*r Value*	*r Table*	*Conclusion*
Item 1	.542	.159	Valid
Item 2	.461	.159	Valid
Item 3	.507	.159	Valid
Item 4	.384	.159	Valid
Item 5	.446	.159	Valid
Item 6	.549	.159	Valid
Item 7	.452	.159	Valid
Item 8	.542	.159	Valid
Item 9	.604	.159	Valid
Item 10	.677	.159	Valid
Item 11	.643	.159	Valid
Item 12	.730	.159	Valid
Item 13	.663	.159	Valid
Item 14	.697	.159	Valid
Item 15	.565	.159	Valid
Item 16	.545	.159	Valid
Item 17	.562	.159	Valid
Item 18	.615	.159	Valid
Item 19	.472	.159	Valid
Item 20	.617	.159	Valid

out a questionnaire. Respondents were asked to fill out a questionnaire according to their current condition. This questionnaire was distributed via WhatsApp social media.

Data analysis

Data analysis in this study used two-way ANOVA which aims to look at main effects, interactions and simple effects. With the assistance of the SPSS version 21 programme, we concurrently analyzed the differences in our subjects' levels of nomophobia using a two-way analysis of variance. The use of this method was chosen because this study used a factorial design. Design requires partial and simultaneous testing (interaction between variables) of the variables studied.

RESULTS AND DISCUSSION

Results

Student nomophobia level categories based on gender and faculty are presented in table 3. According to Table 3, the proportion of students who fall into the "high" category for their level of hostility towards non-Muslims is 55% for women and 52% for males. In the Faculty of Economics and Islamic Business, males make up 53% of those in the high category, while women make up 52%. The proportion of high-achieving men and women in the Faculty of Science is 43 percent and 53 percent, respectively. 60 percent of males in the faculty of Sharia fall into the low group, but 68 percent of women fall into the high category. Both Ushuludin and Adab Faculty fall into the high group, with 45% male students and 47% female students. While this is going on, the Faculty of Tarbiyah and Teacher Training likewise falls into the high category, with just 47% of its students being female and 80% male. According to these findings, the overall degree of nomophobia across faculty members and gender falls into the high category on average.

Table 3. Levels of Nomophobia by Gender and Faculty

Faculty	*Category*	*M*		*%*	
		Male	*Female*	*Male*	*Female*
Da'wah	Very high	83.00	84.40	9%	16%
	Tall	69.61	68.35	52%	55%
	Low	51.93	52.42	34%	27%
	Very low	33.50	32.67	5%	2%
Islamic Economics and Business	Very high	83.33	86.65	5%	12%
	Tall	67.55	69.08	53%	52%
	Low	52.36	53.47	37%	32%
	Very low	35.67	34.71	5%	4%
Science	Very high	82.75	85.67	11%	11%
	Tall	68.44	68.79	46%	53%
	Low	51.13	53.32	43%	32%
	Very low	.00	35.33	0%	4%
Sharia	Very high	83.14	86.76	13%	11%
	Tall	68.82	69.30	13%	68%
	Low	51.94	52.31	60%	17%
	Very low	32.43	36.60	13%	3%
Ushuluddin and Adab	Very high	87.75	86.22	8%	10%
	Tall	67.67	67.41	45%	47%
	Low	51.92	51.87	45%	40%
	Very low	39.00	32.33	2%	3%
Tarbiyah and Teacher Training	Very high	83.00	83.37	4%	15%
	Tall	68.70	68.03	80%	47%
	Low	53.75	52.47	16%	35%
	Very low	.00	34.40	0%	4%

Table 4. Results of Nomophobia Interactions Based on Gender, Age, and Faculty

Source	*Type III Sum of Squares*	*df*	*M Square*	*F*	*p*
Corrected Model	7134.609 [a]	34	209,841	1,350	.088
Intercepts	1874275.794	1	1874275.794	12062074	.000
Gender	404,369	1	404,369	2,602	.107
Age	38,175	2	19,088	.123	.884
Faculty	371,685	5	74,337	.478	.793
JK * Age	1034,222	2	517,111	3,328	.036
JK * Faculty	1051019	5	210,204	1,353	.240
Age * Faculty	1158,918	10	115,892	.746	.681
JK * Age * Faculty	1698,500	9	188,722	1.215	.282
Error	146528.868	943	155,386		
Total	4144845000	978			
Corrected Total	153663.478	977			

a. R Squared = .046 (Adjusted R Squared = .012)

The two-way analysis of variance (ANOVA) was used to answer questions about the relationship between nomophobia and gender, age, and academic culture. The following table presents the findings of the investigation, which are as follows, see tabel 4. The significance level for the gender component is shown to be more than .05 in table 4, which displays the value of Sig (2-tailed). Therefore, we may conclude that the null hypothesis (Ho) is correct and the alternative hypothesis (Ha) is incorrect. At the Sultan Maulana Hasanuddin State Islamic University, Banten, it can be concluded that there is no significant difference in the average level of nomophobia shown by male and female students according to the analysis results which show a significance value of .107 (greater than .05).

In addition, the Sig value for the age factor is known to be .884. This value has been determined. The fact that the value of Sig .884 is more than .05 indicates that Ha cannot be accepted whereas Ho may. Therefore, it is possible to draw the conclusion that there is no difference in terms of age disparities in terms of nomophobia. Regarding the faculty factors, the Sig value has been determined to be .793. The fact that the value of Sig .793 is more than .05 indicates that Ha cannot be accepted whereas Ho can. Therefore, it is possible to draw the conclusion that there is no difference in terms of capacity regarding nomophobia. In addition, the only interaction that showed significance in the test of interactions was the one that looked at the relationship between gender and age and found that it had a value of .036. This number is lower than the threshold for significance, which is set at .05, indicating that there is a relationship between the variables of age and gender. In keeping with this idea, Figure 1 demonstrates that there is a cross between the age component and the sex factor, which further increases the interaction between sex and age.

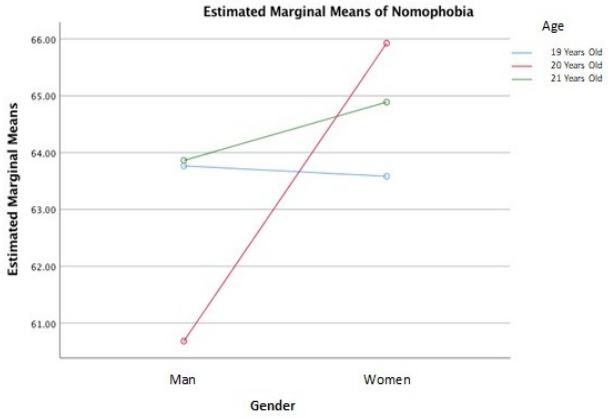

Figure 1. Interaction between age and gender

Table 5. Nomophobia Interactions by Gender and Age

Gender	*Age*	*M*	*SD*	*N*
Male	19 years old	62.0192	12.73576	156
	20 years	59.8556	12.63361	90
	21 years	65.1200	11.55226	50
	Total	61.8851	12.59299	296
Female	19 years old	63.1192	12.53748	302
	20 years	66.0216	13.22505	278
	21 years	64.5446	14.11975	112
	Total	64.5159	13.12915	692
Total	19 years old	62.7445	12.60224	458
	20 years	64.5136	13.33267	368
	21 years	64.7222	13.34690	162
	Total	63.7277	13.02043	988

According to the findings of the two-way ANOVA study shown above, there is a significant interaction between the two variables of age and gender. As a result, we get a better look into the interaction. According to Table 8, the degree of nomophobia experienced by males aged 21 is the greatest, while the level experienced by males aged 20 is the lowest. This finding pertains to the male gender. The female population aged 20 years old reports the greatest prevalence of nomophobia, whereas the female population aged 19 years old reports the lowest rate of the condition.

Discussion

Analysis nomophobia based on gender

The results of this study found that there was an average difference in nomophobia in terms of gender. Based on the average nomophobia score, students are in the high category. These results also reveal that women have a higher average score than men. The results of this study also support the previous study, which states that 70% of women are more susceptible to nomophobia than 61% of men (Yildirim & Correia, 2015). This study also aligns with previous studies stating that women are more at risk of developing nomophobia than men (Sagita & Santika, 2020).

The study results (Ozdemir et al., 2018) state that women are more vulnerable to nomophobia because they express their feelings more through mobile phones, so they will more easily experience anxiety when they cannot use mobile phones. While men only have more problems in using mobile phones. In essence, homophobic behavior goes hand in hand with the need to use the internet. This is evidenced by Gezgin, who stated that the greater the internet addiction, the more likely homophobic behavior will be carried out (Gezgin et al., 2018).

Analysis nomophobia based on culture of faculty

The study results show that nomophobia is the same based on the faculty's academic culture. These findings align with the previous research, which stated that nomophobia is not different based on department (Dalbudak et al., 2020). Faculty academic culture is not a factor influencing nomophobia. This finding means that this modern phobia can affect all students. Therefore, students must be careful and control themselves when using mobile phones. This is because of the faculty's current academic culture, which gives students freedom to use and access mobile phones while studying. Excessive use of mobile phones will negatively affect learning outcomes (Garcia et al., 2020; Lee et al., 2017).

The academic culture is the same if viewed based on the academic culture of the faculties at UIN Sultan Maulana Hasanuddin Banten. For example, all students can, so this could be one of the factors why there is no difference in nomophobia based on the faculty's academic culture. All faculties use cell phones to interact both in class and when interacting socially.

Analysis nomophobia based on age

The results of the study also showed that there was no difference in nomophobia based on age. This finding reinforces the results of research conducted by Moreno-Guerrero et al. (2020) which stated that there is no difference in nomophobia based on age. Age is not a factor that affects nomophobia. This means that nomophobia can be experienced by all people regardless of age.

Simultaneous nomophobia testing showed that there was no interaction between gender and faculty in determining the level of nomophobia, there was no interaction between age and faculty and there was no interaction between gender, faculty and age towards nomophobia. However, these findings show an interaction between gender and age that affects a person's level of nomophobia. The highest nomophobia was experienced by men at the age of 21 and women at the age of 2.

Men and women tend to experience nomophobia. The results of the study (Aparna et al., 2017) state that the highest nomophobia is experienced in the age range of 18-24 years. In this age range, men and women are students. Students use and access cell phones more often to study. The ease and convenience offered by mobile phones often make students dependent. Students start accessing their cell phones when they wake up, go to school, while studying, and even when they are going to sleep again (Hardianti, 2019).

Excessive use of mobile phones will have a negative effect. The study results (Mallya et al., 2018) show that psychological and behavioral dimensions develop among smartphone users, such as compulsion, irritation, stress, poor academic performance and dependence on mobile phones. The thing to realize is that all genders can experience nomophobia in any age range. Therefore, this study suggests that male and female students must be able to control themselves and share their time when using mobile phones.

The results of this research contribute to the field of Islamic guidance and counseling at universities to obtain in-depth preliminary data about the profile of nomophobia in students. This research also supports universities to understand in depth the characteristics of students so they can plan appropriate counseling interventions, especially in dealing with the issue of nomophobia.

Implications

The findings of this research suggest some consequences for universities, one of which is that they should pay attention to the elements that affect nomophobia. Both gender and age have a crucial role in the development of nomophobia. These two aspects may be given a heightened degree of consideration, particularly by counselors working at the university and faculty levels, to ascertain the most appropriate course of action and provide accommodations for those with a tendency towards nomophobia. For the proposed intervention to be effective in mitigating the inclination towards nomophobia.

Limitations and suggestions

The research locus, which does not include all areas of Indonesia in general and is still territorial in character, is one of the limitations of this study. Other limitations include those listed below. Aside from that, the elements that are thought to be potential for the emergence of nomophobia should be given greater attention in order for information to be known about items that are capable of causing nomophobia. This research is specifically for State Islamic Religious Universities. It is vital to do a comparison between public universities and private universities about how things now stand. Taking into consideration the fact that students at the two institutions come from a wider variety of educational backgrounds.

CONCLUSION

The nomophobia level of students is in the high category. Based on gender, there are differences in nomophobia between men and women, where women have a higher tendency to experience nomophobia. Faculty academic culture and age factors show no differences in nomophobia. Simultaneously there is no interaction between gender, faculty academic culture and age in determining a person's level of nomophobia. However, based on gender and age there is an interaction influencing a person's nomophobia. Nomophobia can be experienced by both men and women. The highest nomophobia will be experienced by male students at the age of 21 years. Whereas in female students the highest nomophobia will be experienced at the age of 20 years. These findings can be used as a basis for lecturers involved in the guidance and counseling laboratory to take appropriate action in an effort to prevent and reduce nomophobia among students. The results of this study can be continued with the provision of interventions to reduce the level of nomophobia in students through guidance and counseling service programs at Islamic higher education.

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AUTHOR CONTRIBUTION STATEMENT

All authors contributed according to their respective fields of knowledge and expertise in completing this manuscript. All authors have given their consent in completing this article and there is no specific conflict of interest in completing this article.

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