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The Relationship Between Nomophobia and Boredom Intolerance in the Use of Social Media among Generation Z Muslim Students

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ABSTRACT

This study explores the relationship between nomophobia and boredom intolerance among Generation Z Muslim students who are active social media users. The increasing prevalence of smartphone dependency has been linked to anxiety disorders such as nomophobia while also exacerbating the inability to tolerate boredom, particularly in digital contexts. This study used a quantitative method with a survey approach, utilizing the Nomophobia Questionnaire (NMP-Q) and the Boredom Proneness Scale (BPS) to measure these variables among 47 randomly selected participants. The data were analyzed using simple linear regression, revealing a significant positive correlation between nomophobia and boredom intolerance: as nomophobia levels increased, tolerance for boredom decreased. This research highlights the growing concern about smartphone overreliance and its psychological effects on Generation Z. Given the crucial role of social media in the daily lives of these students, understanding the psychological dynamics at play offers insights into developing targeted interventions to reduce smartphone dependence and improve emotional regulation. The findings contribute to the broader discourse on mental health in the digital age, emphasizing the importance of fostering greater awareness of the psychological risks associated with excessive smartphone use and suggesting strategies for enhancing students' emotional resilience. Future research should investigate the cultural and social factors influencing these behaviors further to develop more effective interventions.

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INTRODUCTION

The rapid development of information and communication technology has brought about a new phenomenon in the landscape of social interaction, particularly through social media platforms. Generation Z, which consists of individuals born between 1997 and 2012, is the first demographic group to grow up in a fully integrated digital age (Seemiller & Grace, 2017). This phenomenon has created a new paradigm in the way this generation socializes, accesses information, and forms self-identities (Kasza, 2017).

Social media, as a manifestation of Web 2.0, has been a major catalyst in the digital communication revolution. Its diverse platforms, ranging from social networking and microblogging to multimedia content sharing, offer a complex ecosystem for users to interact (Yin et al., 2024). For Generation Z, social media is not just a communication tool but has become an integral part of their social existence (Yin et al., 2024). In this context, there is a significant transformation in the pattern of social interaction. The concepts of "social presence" and "constant connectivity" have become the new norm(Shulman, 2022). This phenomenon gave birth to the term "Fear of Missing Out" (FoMO), which reflects the anxiety of being left out of the real-time flow of information and social interactions in cyberspace. Social media has created a new space for the formation of a digital identity or "digital self." Generation Z is active in the process of "self-curation" through the content they share, creating idealized self-representations in virtual spaces. This is closely related to the concept of "impression management" proposed by Erving Goffman but is now applied in a digital context (Hall, 2020).

In addition, the phenomenon of "echo chamber" and "filter bubble" is also a concern in the discourse on social media (Bruns, 2021). Platform algorithms that personalize content based on user preferences can create an isolated information environment, potentially reinforcing confirmation bias and opinion polarization. From a neuroscience perspective, according to Goldberg (2022), Generation Z's intensive use of social media also has neuroplasticity implications. Constant exposure to digital stimuli may affect the development of neural circuits, especially those related to attention, information processing, and emotion regulation. In the psychosocial realm, social media has changed the dynamics of forming and maintaining interpersonal relationships. The concept of "weak ties" and "strong ties" introduced by Mark Granovetter now has a new dimension in the context of digital social networks (Sundararajan, 2020). Generation Z tends to have a wider social network but with varying degrees of closeness.

According to the We Are Social 2024 report, WhatsApp is the most used application, and the majority of users are in the age range of 16-65 years, accounting for 90.4%, followed by Instagram at 85.3% and Facebook at 81.1% (Databooks, 2024). The Indonesian Internet Service Providers Association, known as APJII, revealed that the number of internet users in Indonesia in 2024 reached 221,563,479 people from a total population of 278,696,200 in 2023. Based on the Indonesia 2024 internet penetration survey published by APJII, the

internet penetration rate in Indonesia has reached 79.5%. This figure shows an increase of 1.4% compared to the previous period (APJII, 2024).

A comprehensive study conducted by Yildirim & Correia (2015) explains that nomophobia can be defined as "the fear of not being able to communicate via a smartphone or the internet." This study developed and validated the Nomophobia Measurement Scale (NMP-Q), which has been widely used in subsequent studies. Several studies have shown a high prevalence of nomophobia in various age groups, especially among adolescents and young adults. A study conducted by (Dasgupta et al., 2017) on medical students in India found that 42.6% of respondents experienced moderate nomophobia, while 18.5% experienced severe nomophobia. These findings underscore how widespread this phenomenon is among the younger generation.

The impact of nomophobia on mental and physical health has also been a concern for researchers. Olivencia-Carrión et al. (2018) found a significant correlation between the level of nomophobia and symptoms of anxiety, depression, and sleep disorders. Furthermore, research by Tams et al. (2018) showed that nomophobia can increase stress levels and decrease productivity in the workplace. Several factors have been identified as contributing to the development of nomophobia. Research by Bragazzi & Del Puente (2014) revealed that dependence on social media, the need for constant connectivity, and fear of missing out (FOMO) are the main factors contributing to nomophobia. In addition, a study conducted by King et al. (2013) showed that individuals with high anxiety tendencies are more prone to nomophobia.

Recent research shows that mental health issues among Generation Z continue to be a serious concern. A study conducted by the Pew Research Center in 2023 found that 40% of U.S. teens reported feeling anxious or depressed most or all of the time (Pew Research, 2023). This figure shows a significant increase compared to previous years when the COVID-19 pandemic had a long-term impact on Generation Z's mental health. A meta-analysis published in JAMA Pediatrics in 2022 found that the prevalence of depression and anxiety in children and adolescents doubled during the pandemic, with a combined estimate of 25.2% for depression and 20.5% for anxiety (Racine et al., 2021). Social media use remains a significant factor in Generation Z's mental health. A longitudinal study found that excessive social media use was associated with increased symptoms of depression and anxiety in adolescents over a three-year period (El Haddad et al., 2024).

A comprehensive study conducted by Seemiller & Grace (2018)revealed that the average member of Generation Z spends around 2-3 hours a day on social media, with some individuals reporting up to 8 hours of use per day. The study also found that platforms such as Instagram, TikTok, and Snapchat are favorites among the Generation Z group. This high intensity of use has far-reaching implications, both positive and negative. On the one hand, Zhitomirsky-Geffet (2016) identified benefits such as increased social connectivity and access to

information. However, on the other hand, Twenge & Campbell (2019), in their longitudinal study, found a correlation between intense social media use and increased levels of anxiety and depression among Generation Z. In addition, a study conducted by Health (2017) in the UK revealed that while social media can enhance emotional support and self-expression, excessive use can negatively impact sleep quality, body image, and fear of missing out (FOMO). Overall, the intensity of Generation Z's use of social media reflects a fundamental shift in the way Generation Z interacts, learns, and views the world, posing new challenges and opportunities for educators, policymakers, and researchers in the field of social and communication psychology.

The survey results showed that the average nomophobia score was 88.55 out of a total of 140 (±21.71). The prevalence of nomophobia levels was distributed as follows: 9.4% experienced mild nomophobia, 56.1% moderate, and 34.5% severe. First-year students tended to have higher levels of nomophobia compared to students from other academic years. Significant predictors of nomophobia included daily duration of smartphone use, substance use, and romantic relationship status(Al-Mamun et al., 2023). In addition, the study by Talan & Kalinkara (2022) revealed that the level of cyberloafing among college students was low, while the level of nomophobia was in the moderate category. Statistical analysis showed significant differences in the level of nomophobia based on gender and duration of daily mobile phone use. However, no statistically significant differences were found in other variables tested. Purnomo & Azhari (2024) showed that most studies reported significant decreases in academic anxiety after MBSR intervention, as well as improvements in academic performance and psychological well-being.

This study focuses on Muslim Generation Z as the research subjects, considering that this group grew up in a highly integrated digital era, where smartphones and social media have become an integral part of their daily lives. Generation Z, consisting of individuals born between 1997 and 2012, lives in a highly digitally connected society, including in Muslim communities that are active on social media. The selection of the research subjects was based on the high level of social media usage among them, as well as the potential psychological impacts caused by smartphone dependence, such as nomophobia. Although nomophobia has been widely explored in various studies, the exploration of boredom intolerance among Generation Z, especially in Muslim communities, has received relatively little attention. Therefore, this study aims to fill this gap by examining how this generation's inability to tolerate boredom is related to the level of natural nomophobia, thereby providing a more comprehensive understanding of this phenomenon in the Muslim social and cultural context.

METHODS

Research Design

This research used a quantitative approach with a correlational design. The

correlational design was chosen to determine whether there was a relationship and how close the relationship was between the variable nomophobia (X) and boredom intolerance (Y). The participants in this study were Generation Z Muslim students (18-24) who actively use social media. The sampling technique applied purposive sampling with inclusion criteria: 1) Active students in higher education, 2) Muslim, 3) Aged 18-24 years old, and 4) Actively using social media for at least 2 hours per day. Based on the number of available participants of 47 people, taking into account the effect size, which is classified as moderate (0.5), the significance level of 95% ($\alpha = 0.05$), and the statistical power of 80% ($1-\beta = 0.8$), the sample size required for analysis based on the G-power calculation is appropriate. In the context of this study, the recommended sample size based on the G-power calculation indicates that the number of available participants, namely 47 people, has met the sample size requirements needed to achieve adequate statistical power (80%) and the commonly used significance level (95%). Thus, the existing number of participants can be used for data analysis and hypothesis testing with a statistically acceptable level of confidence.

Data Collection Tools

Nomophobia Scale The nomophobia scale used is the Nomophobia Questionnaire (NMP-Q) developed by Yildirim & Correia (2015). This scale consists of 20 items with 4 dimensions: inability to communicate, loss of connectivity, inability to access information, and giving up comfort. Examples of items in this scale are "I feel anxious when my smartphone battery runs out" and "I feel panic when my smartphone cannot connect to the internet." The NMP-Q scale has demonstrated good validity and reliability. The validity test results showed item validity coefficients ranging from 0.61 to 0.82, while the reliability test resulted in a Cronbach's Alpha coefficient of 0.95 (Yildirim & Correia, 2015). Therefore, this scale is reliable for measuring the level of nomophobia in participants.

Data Analysis

The boredom intolerance scale used is the Boredom Proneness Scale (BPS) developed by Farmer and Sundberg (1986). This scale consists of 28 items with 7 dimensions: external stimulation, internal stimulation, perception of time, affect, social, constraint, and challenge. Examples of items in this scale are "I often feel that time passes slowly" and "I find it difficult to stay still without doing activities." The BPS scale has demonstrated adequate validity and reliability. The validity test results show item validity coefficients ranging from 0.42 to 0.76, while the reliability test resulted in a Cronbach's Alpha coefficient of 0.79 (Farmer & Sundberg, 1986). Thus, this scale can be used to measure the level of boredom intolerance in participants. The use of the nomophobia scale (NMP-Q) and boredom intolerance scale (BPS), which have been tested for validity and reliability is expected to produce accurate and reliable data in describing the relationship between nomophobia and boredom intolerance in Generation Z Muslim students. In addition, the process of adaptation and verification of the

instrument will also improve the quality of measurement in the Indonesian cultural context. The research data were analyzed using simple linear regression to determine the correlation between the independent and dependent variables. Statistical calculations were performed using IBM SPSS Statistics software version 22.

RESULT AND DISCUSSION

Result

In this study, hypothesized statistics were calculated using two scales. Descriptive statistics provide a summary of the two scales measured in the study, namely the Boredom Proneness Scale and the NMPQ Scale, with each involving 65 participants. For the Boredom Proneness Scale, scores ranged from 57 to 98, with a mean of 81.42 and a standard deviation of 8.777. This indicates that, on average, participants tend to have fairly high levels of boredom, with a sizable spread of scores around the mean. The distribution of scores on this scale is slightly skewed to the left, with a skewness value of -0.309 and has a kurtosis of -0.196, indicating a slightly flatter than normal distribution of scores. On the NMPQ Scale, scores ranged from 65 to 99, with a mean of 80.38 and a standard deviation of 7.818. This indicates that, on average, participants scored quite high on this scale, with a slightly smaller spread of scores compared to the Boredom Proneness Scale. The distribution of scores on this scale is slightly skewed to the right, with a skewness value of 0.160 and has a kurtosis of -0.352, which also indicates a flatter distribution of scores compared to a normal distribution. The results of the normality test using unstandardized residuals show that the Kolmogorov-Smirnov value is normally distributed. The number of samples analyzed was 65, with a mean residual of 0 and a standard deviation of 6.335. The largest difference value between the data distribution and the theoretical normal distribution was found to be 0.065 in the positive direction and -0.051 in the negative direction. The Kolmogorov-Smirnov test statistic obtained was 0.065. The p-value for this test is 0.200, which is greater than the significance level ($p>0.05$). The F value of 2.131 with a significance value (Sig.) of 0.020 indicates that there is a significant difference between the groups being compared, which indicates that there is a relationship between the NMPQ and the Boredom Proneness Scale. The deviation from the linearity component shows a Sum of Squares of 435.797 with 17 degrees of freedom, resulting in a Mean Square of 25.635. The F value of 0.553 with a significance value of 0.908 indicates that the deviation from linearity is not significant. This means that the deviation from the linear relationship is not significant, and the relationship between the NMPQ and Boredom Proneness Scale is linear.

The hypotheses were tested using simple linear regression analysis. The first hypothesis (H_1) stated that nomophobia correlates with Boredom Intelligence. The second hypothesis (H_2) states that nomophobia is not correlated with Boredom Intelligence.

Table 1. Simple Linear Regression Test Results

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	37.898	7.447		5.089	.000
	Boredom Proness Scale	.522	.091	.586	5.738	.000

a. Dependent Variable: NMPQ Scale

The regression model shows that there is a significant relationship between the Boredom Proneness Scale and the NMPQ Scale. The constant value of 37.898 indicates that when the Boredom Proneness Scale is zero, the predicted value for the NMPQ Scale is 37.898. The unstandardized regression coefficient of 0.522 indicates that each one-unit increase in the Boredom Proneness Scale will increase the value of the NMPQ Scale by 0.522 units.

The standardized Beta value of 0.586 indicates a moderately strong positive relationship between the two variables. The t-statistics for both coefficients are significant, with a p-value (Sig.) of 0.000, indicating that the regression coefficients are statistically significant. Overall, this regression model shows that the Boredom Proneness Scale is a significant and positive predictor of the NMPQ Scale, with a moderately strong relationship between the two variables. The hypothesis has a positive correlation with the conclusion that the first hypothesis (H1) states that nomophobia correlates with Boredom Intolerance.

Discussion

The purpose of this study is to hypothesize the level of nomophobia among Generation Z Muslim students who use social media and analyze the relationship between nomophobia and boredom intolerance. The first hypothesis (H1) states that nomophobia correlates with boredom intolerance. The second hypothesis (H2) states that nomophobia is not correlated with boredom intolerance. The results of the linear regression test support the first hypothesis (H1), which shows that nomophobia correlates with boredom intolerance. The research data obtained in this study are consistent with and support previous findings. With the dependent variable in this study, namely boredom intolerance, previous research by Struk et al. (2017) conducted a comprehensive study on boredom proneness and its relationship with boredom tolerance. They developed the Short Boredom Proneness Scale (SBPS), which allows for a more efficient measurement of boredom tendencies. Their results showed that individuals with low boredom tolerance not only experience boredom more often but also exhibit different behavioral patterns: a) High impulsivity: They tend to act mindlessly in an attempt to avoid feeling bored. b) Sensation seeking: There is a tendency to seek intense external stimulation to fill the perceived void. c) Lack of mindfulness: These individuals often struggle to focus on the present moment, which contributes to feelings of boredom. d) Decreased life satisfaction: The inability to

tolerate boredom correlates with lower levels of life satisfaction. The implications of these findings suggest the importance of developing strategies to improve boredom tolerance as part of broader psychological interventions.

The findings presented in this study are relevant to the study by Westgate & Wilson (2018), which provides a new perspective on the sources of boredom through the Model of Attention and Meaning (MAC). They identify two main types of boredom: a) Boredom due to lack of stimulation: Occurs when the environment does not provide enough stimuli to maintain attention. b) Boredom due to lack of meaning: Occurs when activities or situations are perceived as meaningless or not aligned with one's values and goals. Their findings suggest that individuals with low boredom tolerance are more prone to both types of boredom. Tam et al. (2021) explain and extend the understanding of the relationship between boredom tolerance, technology use, and psychological well-being. Their key findings include a) A negative correlation between boredom tolerance and excessive smartphone use. b) Individuals with low boredom tolerance are more likely to use social media as a "distraction" from feelings of boredom. c) Smartphone use driven by the inability to tolerate boredom correlates with higher levels of anxiety and depression. d) Those with high boredom tolerance tend to have more adaptive coping strategies, such as seeking out meaningful activities or engaging in self-reflection.

Wolniewicz et al. (2020) further explored the relationship between boredom tolerance, digital media use, and mental health. Their key findings include: a) Low boredom tolerance is strongly correlated with Fear of Missing Out (FoMO) and depressive symptoms. b) FoMO and depressive symptoms act as mediators between low boredom tolerance and problematic smartphone use. c) Individuals with low boredom tolerance are more likely to develop a dependence on online notifications and interactions as a constant source of stimulation. d) Excessive smartphone use, driven by an inability to tolerate boredom, can lead to a negative cycle that exacerbates symptoms of anxiety and depression. In this study, the participants were Generation Z Muslims. The use of social media among the younger generation, including Muslim students, shows interesting and complex trends. A study conducted by Alhabash & Ma (2017) revealed that the motivations for using social media platforms vary. They found that Facebook is more often used to find information and entertainment, while Instagram is more utilized for self-expression and documentation. The study also revealed that college students, on average, spend more than 2 hours a day on social media, with Instagram being the most frequently accessed platform.

In a more specific context of Muslim youth, Baulch & Pramiyanti (2018) conducted an in-depth analysis of Instagram usage among "hijabers" in Indonesia. They found that this platform became an important arena for young Muslim women to construct and negotiate their identities as modern and fashionable Muslims. The study revealed that 78% of the 200 Instagram accounts analyzed actively blended elements of contemporary fashion with Islamic values

in their content. Meanwhile, a study by Hamid et al. (2016) focusing on international students' information-seeking behavior revealed the important role of social media. They found that 82% of international students surveyed relied on social media platforms to find information about the culture and academic life in their destination country. Facebook and YouTube were the main sources of information, with 76% and 68% of respondents using them, respectively. Slama 2017), in her study on digital Islamic practices in Indonesia, found that social media has become an important space for religious proselytization and discussion. An analysis of 1000 posts on various social media platforms showed that 58% of religious content shared by young users focused on moderate and contextual interpretations of Islam, while 27% tended to be more conservative.

In addition to nomophobia, there are a number of other factors that can influence boredom intolerance. One of them is impulsivity, which is often associated with the inability of individuals to stay focused on one task for a long time, thus accelerating the onset of boredom (Paasche et al., 2019). Individuals who have impulsive tendencies tend to seek external stimulation to avoid boredom, which can ultimately lead to unproductive behavior (Schiros & Antshel, 2024). The theory of sensation seeking is also relevant in this context, where individuals with a high need for stimulation are more susceptible to boredom when the environment does not provide adequate stimulation (Zuckerman, 1984). In addition, previous research has shown that a lack of mindfulness or full awareness of the present moment contributes to a person's inability to tolerate boredom. Less mindful individuals tend to feel dissatisfied with monotonous situations and try to find refuge through the use of smartphones or social media, which exacerbates the cycle of boredom.

CONCLUSIONS

This study identified a significant positive correlation between nomophobia and intolerance of boredom among Generation Z Muslim university students who use social media. Results showed that the higher the level of nomophobia, the lower the tolerance for boredom. This signifies that over-reliance on smartphones and social media may worsen individuals' ability to handle boredom, which in turn may affect their psychological well-being. These findings emphasize the importance of paying more attention to the use of technology among the younger generation and its impact on mental health.

For future researchers, several areas require further exploration. First, future research is recommended to expand the research sample to increase the external validity of the results. The use of a larger and more diverse sample from various social, economic, and cultural backgrounds may provide a more comprehensive picture of this phenomenon. Secondly, a qualitative approach should be considered to delve deeper into students' subjective experiences of nomophobia and boredom. Methods such as in-depth interviews or case studies can reveal nuances that cannot be captured through quantitative surveys alone.

In addition, future research could develop and test psychological interventions designed to reduce levels of nomophobia and increase tolerance for boredom. Interventions such as cognitive behavioral therapy or mindfulness training programs could be explored to see their effectiveness in addressing these issues. Social and cultural factors also need to be taken into account in future research. This study could be expanded to examine how social norms, peer influence, and cultural values influence the relationship between nomophobia and intolerance of boredom. For example, cultures that highly value social connectivity may have higher levels of nomophobia. This study explores the relationship between nomophobia and boredom intolerance in Muslim Generation Z college students who actively use social media. Through a quantitative method with a survey approach, this study revealed that there is a significant positive correlation between the level of nomophobia and boredom intolerance. The higher the level of nomophobia, the lower the tolerance for boredom. These results highlight the importance of interventions to reduce smartphone dependence and improve students' ability to tolerate boredom in order to enhance their psychological well-being. This study also emphasizes the need for further research to explore more deeply the cultural and social factors that may influence this relationship.

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