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Nomophobia in Adolescents: A Comprehensive Literature Review Based on Albert Bandura's Social Cognitive Theory

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Abstract: This study examines the phenomenon of nomophobia (no mobile phone phobia) in Indonesian adolescents, linking it with Albert Bandura's social cognitive theory of personality. Nomophobia is defined as anxiety or discomfort caused by the inability to access a smartphone. Indonesia has a high prevalence of internet users, particularly among adolescents, which potentially increases the risk of nomophobia. This research employs a comprehensive literature review method to explore the relationship between internal factors, such as self-efficacy and self-regulation as explained in Bandura's theory, and the level of nomophobia in adolescents. Data were collected from various academic sources and analysed using both qualitative and quantitative approaches. The results indicate that the level of nomophobia among Indonesian adolescents is significant, negatively impacting their psychological, social, and academic aspects. Bandura's social cognitive theory explains how the interaction between environment, behavior, and personal factors such as self-efficacy and self-regulation contributes to the level of nomophobia. This understanding is crucial for developing effective intervention strategies and policies to reduce the negative impact of nomophobia and enhance adolescent well-being in the digital era.

Keywords: nomophobia, adolescents, social cognitive theory, literature review

1   INTRODUCTION

Indonesia ranks fourth in the world and third in Asia for the number of internet users as of mid-2022 (Asosiasi Penyedia Jasa Internet Indonesia[APJII], 2022). The number of internet users in Indonesia continues to increase by 15.5%, or about 2.7 million new users, from January 2020 to January 2021 (Hootsuite & We are social, 2021). The largest proportion of internet users in Indonesia falls in the adult category at 25.7%, while adolescents aged 13-18 years account for 9.6% (APJII, 2022). Another study found that the increase in internet users among adolescents was 19.3%, higher than that of adults at 14.4% (Siste , et al., 2020). This rise is attributed to the physical distancing policy during the COVID-19 pandemic, which required adolescents to spend most of their time at home, thereby increasing their internet usage.

Internet users rely on the media used to access the internet. Adolescents aged 13-18 years have the highest internet penetration rate at 99.2%, with 90.6% using smartphones and only 9.4% using non-smartphones (APJII, 2022). This suggests that Indonesian society, particularly adolescents, cannot be separated from smartphone use. The increasing use of smartphones undoubtedly leads to certain consequences. Smartphone addiction tends to occur more among adolescents than adults, as adolescents are more proactive when introduced to new media, making them more susceptible to issues arising from its use (Kwon et al., 2013). Adolescents quickly understand new technology, and smartphones have become a symbol in today's technological culture (Villar et al., 2017). However, excessive internet use can be detrimental if not time-bound, making adolescents more vulnerable to nomophobia (Fadhilah et al., 2021).

Nomophobia (no mobile phone phobia) is a problematic use of mobile phones. It is defined as the inability to manage mobile phone use, involving negative consequences in daily life (Billieux, 2012). Nomophobia is the anxiety or discomfort caused by being out of smartphone contact and is considered a modern phobia resulting from the interaction between individuals and new technologies, particularly smartphones (Yildirim & Correia, 2015). It is more accurately classified as a situational phobia (Yildirim, 2014). Diagnostic criteria for nomophobia include always carrying a charger, keeping the smartphone on 24 hours a day, and constantly checking messages and calls (Enez, 2021).

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Nomophobia in adolescents is a global phenomenon. A study in South Korea found that the level of smartphone addiction or nomophobia was higher than internet addiction (Kim, 2013). In India, research involving 200 students showed that 39.5% were nomophobic and 27% were at risk of nomophobia (Pavithra et al., 2015). Research on nomophobia in Indonesia is similar to that in other countries. In Padang, a study of 147 high school students found that 70 students (47.6%) had moderate nomophobia and 67 students (45.6%) had severe nomophobia (Rahayuningrum & Sary, 2019). In Bandung, 45 students (14.5%) out of 310 samples had moderate nomophobia, and 133 students (42.9%) had severe nomophobia. These data indicate a significant prevalence of nomophobia among Indonesian adolescents (Riyanti et al., 2021), mostly at moderate to severe levels.

Nomophobia can occur due to various internal, external, and situational factors. Personality is one of the internal factors, along with sensation seeking, self-esteem, and self-control (Yunanto, 2010). In the context of nomophobia among adolescents, personality theory can help identify factors contributing to the anxiety experienced by adolescents when separated from their mobile devices. Personality is divided into several theories or schools, each with its characteristics in studying a particular phenomenon. One such theory is the social cognitive personality theory proposed by Albert Bandura, which is part of behaviorism (Feist & Feist, 2009).

Bandura's ideas also developed from Miller and Dollard's concept of imitative learning (Bandura A. , 1962). Social cognitive theory emphasizes that most human learning occurs in a social environment. By observing others, individuals acquire knowledge, rules, skills, strategies, beliefs, and attitudes (Dale, 2012).. Bandura developed his theory to discuss how individuals have control over their lives through self-regulation of their thoughts and actions.

According to Bandura, mastering complex skills and knowledge depends not only on attention, retention, motor reproduction, and motivation processes but also on elements derived from the learners themselves, namely "sense of self-efficacy" and "self-regulatory system" (Bandura A. , 1986). Self-efficacy is the learner's belief that they can master knowledge and skills according to applicable standards. Self-regulation refers to 1) cognitive structures that provide behavioral and learning outcomes references, and 2) cognitive sub-processes that perceive, evaluate, and regulate behavior. In learning, self-regulation determines the learner's "goal setting" and "self-evaluation" and motivates high learning achievement (Bandura A. , 1977)..

Social cognitive personality theory can explain various psychological phenomena, including nomophobia. Nomophobia has been studied and updated since the term was first coined by the United Kingdom Post Office in 2008 (Securenvoy, 2012). However, comprehensive discussions on nomophobia based on social cognitive personality theory have not yet been conducted. Through a comprehensive literature review, this study aims to delve deeper into how social cognitive personality theory can explain variations in nomophobia levels among adolescents. Additionally, this review will explore the practical implications of this understanding in developing interventions and policies to reduce the negative impact of nomophobia on adolescent well-being.

Based on the above discussion, nomophobia is more prevalent among adolescents than adults, with high prevalence in various countries, including Indonesia. Internal factors such as personality, sensation seeking, self-esteem, and self-control contribute to nomophobia. Albert Bandura's social cognitive personality theory, emphasizing learning through observation and self-regulation, can be used to understand this phenomenon. Although nomophobia has been extensively studied, comprehensive reviews based on social cognitive personality theory are still rare. This research is expected to provide insights for psychologists, educators, and policymakers to develop effective strategies to address this issue and improve adolescent well-being in the digital era.

2   MATERIALS AND METHODS

This paper is a comprehensive literature review (Onwuegbuzie & Frels, 2016). A comprehensive literature review involves a thorough examination of various information sources relevant to the research topic, aiming to identify, analyze, and synthesize existing information comprehensively (Williams, 2018). In contrast, a literature review generally provides a summary and analysis of relevant literature but in a more limited scope. This research aims to explore how personality theories can explain variations in nomophobia levels among adolescents. This study will also explore the practical implications of this understanding in developing interventions and policies to reduce the negative impact of nomophobia on adolescent well-being.

Material

A comprehensive literature review can be conducted by collecting data sources, including research articles, non-traditional sources such as visual media, observations, internet documents, online blogs, and secondary data (Williams, 2018).. The data sources for this study consist of various types of literature discussing nomophobia in adolescents and social cognitive personality theory, such as vicarious experiences, reciprocal determinism, and self-esteem. The literature used includes journal articles, books, proceedings papers, or research reports. The data sources do not include mass media writings or websites.

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Procedure

The steps for conducting a comprehensive literature review are as follows (Williams, 2018):

1. Identify data sources relevant to the research topic.
2. Conduct a rigorous review of research articles that meet the established criteria.
3. Categorize research articles based on qualitative, quantitative, and mixed-methods research.
4. Use non-traditional sources such as visual media, observations, internet documents, online blogs, and secondary data.
5. Analyze and synthesize information using qualitative and quantitative approaches.
6. Present the comprehensive literature review using the AVOW method: acting, visualizing, oral, and writing.

In this study, the researchers conducted a random literature search through online sources such as Google, Google Scholar, and several other websites. The researchers also used various keywords to obtain relevant topics focusing on nomophobia in adolescents using qualitative, quantitative, or mixed-methods research. The data sources in this study do not include mass media writings or websites. The researchers then analyzed the data using a qualitative approach and presented the review in written form.

Data Analysis

The data analysis method in a comprehensive literature review involves using qualitative and quantitative approaches and synthesising both methods (Williams, 2018).. In this research, each publication found was carefully reviewed. For each publication found, the researchers conducted a brief review of the title, abstract, key sections of the body, and conclusion to evaluate its relevance to the research topic, which is nomophobia in adolescents based on social cognitive theory. Irrelevant publications were eliminated at this stage, while selected publications were further analyzed. The researchers then conducted a thorough review of the selected publications. The findings were chronologically and thematically organized for ease of understanding.

3   RESULTS

Based on the research conducted, the author found 42 publications related to Albert Bandura's personality theory and nomophobia, using keywords such as nomophobia, no-mobile phone phobia, mobile phone dependency, adolescents, high school student, student, Albert Bandura behaviour theory and social-cognitive theory within the period to 2023. Among these, 37 publications were journal articles, 6 were book chapters, and 2 was a book. Of these publications, 26 were empirical research studies, 3 were review articles, 6 were book chapters, and 2 was a book.

This review can be divided into sections that comprehensively describe nomophobia in adolescents and its relation to Albert Bandura's social-cognitive theory. The first section examines nomophobia and its development in adolescents. The second section reviews Albert Bandura's social-cognitive theory and the specific terms used in his personality theory. In the final section, the author provides an overview of nomophobia in adolescents based on Bandura's social-cognitive theory.

Nomophobia

Nomophobia is an abbreviation for no-mobile-phone-phobia and is considered a disorder of the modern world (Durak, 2019) (Yildirim, 2014). The term nomophobia was first used in 2008 by the UK Post Office in a study to identify mobile phone users' anxieties. A total of 2,163 users participated in this study, which found that 53% of mobile phone users tended to feel anxious when they could not use their mobile phones (Enez, 2021). Subsequently, several researchers have defined nomophobia. Initially, it was defined as "showing discomfort or anxiety when out of contact with a mobile phone or computer and fearing being unable to communicate technologically, away from the phone, or disconnected from the Web" (King et al., 2010).

Nomophobia is defined as discomfort, stress, or anxiety caused by the absence of a mobile phone or other virtual communication devices in individuals who frequently use these devices (Yildirim, 2014). The term nomophobe is used to define a person suffering from nomophobia, and nomophobic describes the characteristics and behavioral patterns associated with nomophobia (Yildirim, 2014). Specifically, mobile internet use drives behavior control due to notifications. Therefore, smartphones may cause individuals to exhibit greater habitual control behaviors, which can lead to symptoms of nomophobia (Turner et al., 2008), indicating that nomophobia should be considered in relation to smartphones (Park et al, 2013; Yildirim, 2014). Thus, this book discusses nomophobia related to smartphones.

Nomophobia encompasses four dimensions (Yildirim, 2014). The first dimension, not being able to communicate, refers to the sudden loss of communication with people and the inability to use services that allow for quick and easy communication. This dimension is related to the feeling of not being able to contact or be contacted by others immediately. The second dimension, losing connectedness, refers to the feeling of losing connectivity or internet signal on a smartphone and being unable to connect with their social identity, typically updated on social media. This dimension is associated with the behavior of constantly checking smartphone notifications, viewed as a way to ensure connectivity. Receiving notifications means they are still connected to the internet and network (Yildirim, 2014).

The third dimension, not being able to access information, refers to the inability to access information. This dimension reflects the discomfort when losing access to information through a smartphone, unable to retrieve or search

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for information. When the smartphone cannot be used, the flow of information received is disrupted, causing feelings of panic and anxiety. The fourth dimension, giving up convenience, refers to the loss of convenience provided by the smartphone, reflecting the desire to utilize that convenience. This dimension indicates peace of mind when the smartphone is on and nearby (Yildirim, 2014).

Factors contributing to mobile phone addiction include internal, situational, social, and external factors (Yunanto, 2010). Internal factors include high sensation seeking, low self-esteem, high extraversion, and low self-control. Situational factors include stress, sadness, loneliness, anxiety, academic boredom, and leisure boredom. Social factors involve high mandatory behavior and connected presence, driven by the need to interact with others. Lastly, external factors are related to high media exposure to mobile phones and their various facilities.

Overview of Nomophobia in Adolescents

Nomophobia in adolescents has been studied in several research works. Smartphone dependence can cause anxiety, worry, and fear when away from the phone, known as the nomophobia phenomenon (Hanika, 2015). Nomophobia experienced by adolescents is measured using various tools that assess the severity of nomophobia, resulting in categories or levels of severity. Research indicates that the tendency of nomophobia among adolescents falls into the severe nomophobia tendency category, with a percentage of 53.5% (Syazaid, et al., 2022). This is consistent with other studies showing that smartphone use among adolescents affects the level of nomophobia, with adolescents exhibiting moderate levels of nomophobia (Kirac, 2019).

High levels of nomophobia during adolescence negatively impact psychological, social, and academic aspects. Research on adolescents' feelings about the absence of smartphones revealed that participants equate being away from their smartphones with losing an important person and losing their identity (Onal, 2019). Socially, nomophobia can lead to a lack of direct communication, increased apathy towards surrounding conditions, individualism, or the feeling of not needing real-life connections (Sahin & Bulbuloglu, 2021). Academically, nomophobia can cause attention deficits (Kirac, 2019), adjustment issues in social and professional areas (Sachdeva et al., 2018), and deteriorating intellectual thinking skills (Sahin & Bulbuloglu, 2021).

Several studies indicate that severe and moderate levels of nomophobia are common among adolescents. Smartphone dependence and limited access to the phone can cause significant anxiety and fear. Studies also show that high levels of nomophobia during adolescence have negative impacts on psychological, social, and academic aspects.

Social-Cognitive Theory

Social learning theory extends traditional behavioral learning theory. The focal point of this learning is vicarious experiences. Although humans can and have learned much from direct experiences, they learn more from observing others' behaviors (Ahmadi, 2004). Albert Bandura's social-cognitive theory (Bandura A. , 1986) posits that to adequately explain behavior, one must consider an essential phenomenon ignored by the behaviorism paradigm: humans have the ability to think and regulate their behavior. Bandura believes that observation allows humans to learn without directly engaging in the behavior. Humans learn by observing others' behaviors. Vicarious learning involves learning through observing others (Bandura A. , 1986).

Another important assumption in Albert Bandura's social learning theory is reciprocal determinism. This perspective posits that sensory input does not immediately produce behavior without the conscious contribution of humans. This system asserts that human actions result from the interaction of three variables: environment, behavior, and person (Lesilolo, 2018).

Bandura later expanded this concept to include self-value and self-efficacy. Self-efficacy is a cognitive factor playing a crucial role in Bandura's learning theory. Self-efficacy is the belief that one can master situations and produce positive behaviors. It involves the belief in one's ability to organize and execute actions required to manage future situations (Lesilolo, 2018).

The level of self-efficacy combines with responsive and non-responsive environments to yield four predictive variables (Bandura A. , 1977):
1. High self-efficacy and a responsive environment likely result in success.
2. Low self-efficacy and a responsive environment may lead to depression when individuals observe others successfully completing tasks they find difficult.
3. High self-efficacy in an unresponsive environment leads individuals to strive to change their environment, possibly through protests, social activism, or even violence. If all efforts fail, they may give up, seek alternatives, or find a more responsive environment.
4. Low self-efficacy and an unresponsive environment result in apathy, quick surrender, and a sense of helplessness.

Bandura (Bandura A. , 1986) posits that humans possess cognitive abilities that contribute to motivation, affection, and action processes. He also discusses self-regulation, explaining that self-regulation is the ability to control oneself by managing the environment, creating cognitive support, and establishing consequences for their behavior (Alwisol, 2006). Self-regulation includes goal achievement and avoiding environmental disruptions and emotional impulses that hinder development (Lawrence et al., 2010). Self-regulation is part of the person component in reciprocal determinism, where the person regulates themselves, resulting in behavior, impacting environmental changes, and so on (Omrod, 2009).

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Nomophobia in the Perspective of Social-Cognitive Theory

Social-cognitive theory can explain nomophobia by understanding reciprocal determinism, the roles of self-efficacy and self-regulation, the social foundation in thought and action, and the interaction between personality traits and behavior (Li et al., 2023). Nomophobia is defined as discomfort, stress, or anxiety caused by the absence of a mobile phone or other virtual communication devices in frequent users (Yildirim, 2014). It is a sustainable behavior caused by over-dependence on smartphone users with internet access (Soleyman et al., 2023).

The phenomenon of nomophobia can be explained through reciprocal determinism, involving 3 components: the current adolescent environment is closely linked to smartphone use for learning, information sharing, and communication, relating to behavior. In nomophobia, this refers to the importance of social media and digital games in shaping attitudes and behaviors towards smartphone use (Youn, 2019).

In the person component, self-efficacy plays a crucial role. Nomophobia comprises four dimensions: not being able to communicate, losing connectedness, not being able to access information, and giving up convenience (Yildirim, 2014). These dimensions arise from interactions between high or low self-efficacy and an unresponsive environment. This means believing in one's ability to manage without a smartphone or find alternative ways to meet social needs (Thomas, 2022).

Self-regulation, or the ability to control oneself, also affects nomophobia. Individuals with low self-control cannot effectively manage smartphone use, causing discomfort, fear, and anxiety when away from their phones. Individuals with high self-management can limit smartphone use to essential needs, reducing nomophobia. Conversely, those with low self-management tend to overuse their phones, leading to nomophobia (Widyastuti & Mulyana, 2019).

The latest study on nomophobia during the Covid-19 pandemic also found that self-control is closely related to nomophobia. Factors such as where you live, duration of smartphone use, preferred study techniques, and gender can influence self-control, which in turn influences nomophobia. Individuals with high self-control are less likely to experience nomophobia, because they can regulate their smartphone use effectively (Setiawan & Heni, 2023). Research also shows that individuals with low self-control and high levels of loneliness are more likely to experience nomophobia, as they have difficulty regulating smartphone use and feel isolated without a cell phone (Zuhriyah, 2024).

Social cognitive theory suggests that personality traits influence behavior, which can be applied to nomophobia by examining how different personality traits may contribute to the development of nomophobia. For instance, individuals with high self-esteem and loneliness may be more susceptible to nomophobia (Li et al., 2023). Furthermore, the primary motivation for nomophobia is to fulfill the need for positive social communication (Li et al., 2023). Individuals with difficulties in interpersonal interactions might feel dissatisfied with their communication skills and seek compensation through excessive smartphone use. In summary, Bandura's social cognitive theory can help identify factors contributing to nomophobia and inform interventions to address this issue.

Through the lens of Bandura's social cognitive theory, nomophobia can be understood as the result of a complex interaction between environmental influences, cognitive factors, and learned behaviors. Effective interventions must consider all these elements to help individuals overcome dependency and anxiety related to phone use. In practice, psychological interventions such as cognitive-behavioral therapy can help individuals identify and alter irrational beliefs related to phone dependence and develop higher self-efficacy to manage situations without their phones.

4 DISCUSSIONS

An interesting aspect of the research is how Albert Bandura's social-cognitive theory is used to explain a modern phenomenon like nomophobia, which is related to smartphone dependency, particularly among adolescents. Connecting concepts such as reciprocal determinism, self-efficacy, and self-regulation from Bandura's theory to the dimensions of nomophobia offers a new perspective on how digital behavior can be influenced by the interaction between environment, cognition, and individual actions. Additionally, the use of the four dimensions of nomophobia—not being able to communicate, losing connectedness, not being able to access information, and giving up convenience—provides deep insights into various aspects of smartphone dependency and its impact on adolescents' psychological well-being. This approach not only demonstrates the relevance of classic personality theories in the context of modern technology but also paves the way for interventions that can help mitigate the negative impacts of nomophobia by leveraging strategies to enhance self-efficacy and self-regulation.

Strengths that this research draws on 42 publications, including journals, book chapters, and books, indicating that the researcher has conducted an extensive literature review. This provides a solid foundation for linking Albert Bandura's personality theory with the phenomenon of nomophobia. The review is divided into several sections, making it easier for readers to understand the relationship between nomophobia and Bandura's social-cognitive theory. This includes discussions on the development of nomophobia in adolescents and the key concepts in Bandura's theory. The use of Bandura's social-cognitive theory to explain nomophobia provides a robust framework for understanding how environmental, cognitive, and behavioral factors interact to create this phenomenon. The explanation of the four dimensions of nomophobia according to Yildirim (2014) helps to provide a clear picture of how different aspects of smartphone dependency can influence individual behavior and emotions.

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Limitation of this study that the study seems to focus on adolescents without considering other populations, such as adults or older age groups. This limits the generalizability of the findings to a broader population. Although the study conducts a comprehensive literature review, there may be a lack of recent empirical data directly linking Bandura's theory to nomophobia. Further research focusing on more specific empirical studies may be needed. While Bandura's social-cognitive theory is a powerful tool, the application of concepts such as self-efficacy and self-regulation to nomophobia remains general and may require further research to identify more relevant specific variables. The research may rely heavily on a few primary sources, which could limit the broader perspective needed to understand the phenomenon of nomophobia.

5 CONCLUSIONS

Overall, Bandura's social cognitive theory provides a strong foundation for identifying the factors contributing to nomophobia, namely discomfort or anxiety due to the absence of a phone, through the concept of reciprocal determinism, which encompasses the interaction between the environment, behavior, and cognitive factors. In this context, the widespread use of smartphones among adolescents as learning and communication tools influences their behavior. Self-efficacy, or the belief in one's ability to manage life without a smartphone, and self-regulation, or the ability to manage oneself, also play crucial roles. Individuals with low self-control are more prone to nomophobia due to their inability to regulate phone use. Additionally, factors such as residence, duration of phone use, and loneliness affect the level of nomophobia.

This theory also shows that personality traits, such as self-esteem and interpersonal communication skills, can contribute to the development of nomophobia. This understanding can help in designing effective interventions to address excessive smartphone use and its negative impacts, especially among adolescents. Effective interventions should consider all these elements, and cognitive-behavioral therapy can help individuals overcome dependence and anxiety related to phone use.

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