



## **THE RELATIONSHIP BETWEEN INTERNET USE PATTERNS, NOMOPHOBIA, AND FOMO WITH THE INCIDENCE OF MENTAL DISORDERS IN ADOLESCENTS AND COLLEGE STUDENTS : A SCOPING REVIEW**

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### **Abstract**

*The rapid growth of digital technology has significantly reshaped adolescents' lifestyles and mental well-being. Excessive internet use, coupled with nomophobia and Fear of Missing Out (FoMO), has been linked to higher psychological distress among teenagers. This scoping review aims to map the relationship between internet use patterns, nomophobia, and FoMO with mental health outcomes in adolescents. Literature searches were conducted through PubMed, ScienceDirect, EBSCO Medline, and Google Scholar using the Joanna Briggs Institute (JBI) PCC framework and PRISMA guidelines for the period 2015–2025. Ten eligible studies were analyzed. Findings indicate that FoMO consistently predicts nomophobia and digital anxiety. Intensive and entertainment-oriented internet use increases stress and depression risk, while academic-oriented use has a protective effect. Nomophobia emerges as a multidimensional phenomenon influenced by emotional, behavioral, and contextual factors. It is concluded that FoMO and nomophobia are significant contributors to adolescent mental disorders. Nursing interventions should focus on digital self-regulation, FoMO reduction, and digital literacy education to promote psychological well-being among adolescents.*

**Keywords :** Internet Use, Nomophobia, Fear Of Missing Out, FoMO, Mental Health, Adolescents

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## INTRODUCTION

The development of digital technology over the past decade has impacted various aspects of human life, especially among adolescents. Initially a means of information, the internet has now become an integral part of social activities, education, and entertainment. The increasingly widespread use of the internet has brought significant benefits for ease of communication and access to information, but at the same time, it has created new challenges for adolescent mental health (Lovyana & Indahwati, 2025). Recent studies have shown that excessive internet use is associated with an increased risk of psychological disorders such as anxiety, stress, depression, and social isolation (Nurwahyuni, 2018).

Globally, the phenomenon of internet addiction, particularly among adolescents, has become a major concern for mental health researchers. Suryani et al., (2020) found that internet addiction in adolescents can have negative impacts, such as triggering obsessive-compulsive behavior, depression, anxiety, and hostility towards the real world. Addiction can also cause adolescents to experience fatigue, sleep disturbances, decreased academic performance, and also increase the risk of juvenile delinquency. Furthermore, the *Fear of Missing Out* (FOMO), or the fear of being left behind in social information, is also increasingly prominent among adolescents who use social media intensively (Akbar et al., 2018). FOMO encourages compulsive behavior to continuously monitor peer activity in cyberspace, which in the long term can result in social stress, emotional exhaustion, and decreased mental well-being (Bloemen & De Coninck, 2020).

Cross-national research also confirms that the duration and intensity of internet use are negatively correlated with adolescents' emotional balance. Lovyana & Indahwati (2025) found that adolescents who spend more than four hours per day online are twice as likely to experience depressive symptoms as those with moderate use. Furthermore, a study by Pahruroji et al. (2023) emphasized that it's not just the length of time online that matters, but also the quality of digital interactions that determine the impact on mental health. Internet use for social and expressive purposes tends to yield immediate gratification but can lead to behavioral addiction and emotional dependence.

In the Asian context, research by Ernawati et al. (2025) shows that adolescents in developing countries have a higher tendency towards digital addictive behavior than adolescents in developed countries, mainly due to a lack of parental control and limited digital literacy. These research findings are consistent with the findings of Fitri et al. (2024) who identified a relationship between

the intensity of social media use, FOMO, and increased social anxiety in high school adolescents. This phenomenon confirms that the psychological well-being of adolescents in the digital era is greatly influenced by the fast-paced and stressful online social dynamics.

In the Indonesian context, several qualitative studies have demonstrated the significant impact of excessive internet use on adolescents' psychosocial well-being. Rakhmawati et al. (2021), through a phenomenological study of nine male adolescents in West Java, found that internet addiction in adolescents arises from internal factors such as loneliness, boredom, and the need for distraction, as well as external factors such as peer influence and lack of family interaction. These impacts include sleep disturbances, fatigue, decreased academic performance, social isolation, and negative emotions such as anger and anxiety. Interestingly, the adolescents in this study expressed feelings of "incompleteness" when without their phones, reflecting symptoms of both *nomophobia* and *FOMO*.

Another study by Suryani et al. (2020) in the *Nurse Media Journal of Nursing* also identified six themes in adolescents' experiences with internet addiction: considering internet use more important than school, being "too lazy to move" (*mager*), physical disorders due to excessive internet use, difficulty interacting socially in the real world, and emotional outbursts due to an inability to control themselves. Reported physical impacts included headaches, visual disturbances, and insomnia, while psychological impacts included anger, mild depression, and feelings of isolation. These results suggest that internet addiction not only reduces academic performance but also disrupts adolescents' emotional balance and interpersonal relationships.

Furthermore, Suryani et al. (2021) examined the experiences of adolescent girls during online learning during the COVID-19 pandemic. They found that continuous internet use for learning and entertainment led to physical fatigue (eye strain, muscle pain, sleep disturbances), as well as Psychological impacts include boredom, decreased concentration, and emotional dependence on social media. Adolescent girls are also more easily influenced by online content and experience social pressure due to self-comparison with peers on social media, which exacerbates *FOMO symptoms* and reduces mental health.

A comparative examination of these three studies reveals that both male and female adolescents exhibit similar symptoms related to uncontrolled internet use. Both experience psychological and social disturbances due to the urge to constantly be online. However, there are differences in the primary triggers: in male

adolescents, this urge is more influenced by the need for entertainment and escape from boredom (Rakhmawati et al., 2021), while in female adolescents, emotional factors and the search for social validation are more dominant (Suryani et al., 2021). This suggests that gender influences how internet usage patterns impact adolescent mental health.

Although numerous studies have addressed *internet addiction* in adolescents, there remains a gap in understanding the relationship between simultaneous internet usage patterns, nomophobia, and FOMO (Fomo-like feelings) and the incidence of mental disorders . Most studies isolate these variables and fail to comprehensively explain how they interact and exacerbate adolescents' psychological well-being (Hidayatul et al., 2024) . Intensive internet usage patterns, however, have the potential to foster nomophobia and FOMO, both of which subsequently increase the risk of mental disorders such as anxiety and depression.

Based on these conditions, a comprehensive mapping of the relationship between internet usage patterns, nomophobia, and FoMO, as well as mental disorders in adolescents, is needed. This scoping review is expected to broaden theoretical understanding and provide practical contributions to the development of adolescent mental health nursing interventions in the digital era, particularly in the Indonesian context, which has sociocultural characteristics of high online connectivity.

The aim of this study was to identify and analyze the relationship between internet usage patterns, nomophobia, and FoMO with the incidence of mental disorders in adolescents through a scoping review approach.

## METHOD

The data search process in this scoping review follows the methodological framework proposed by Arksey and O'Malley and adheres to the updated PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analysis Extension for Scoping Reviews) guidelines. The review process consists of 4 main stages: (1) Data Search Method; (2) Determining Inclusion and Exclusion Criteria; (3) Developing a Search Strategy; (4) Data analysis method, synthesizing and reporting the results in a PRISMA-ScR.

### 1) Data Search Method

The data search for this scoping review was conducted through scientific article searches in several major databases and journal search engines, namely PubMed, ScienceDirect, EBSCO Medline, and Google Scholar. These databases and journal search engines were selected because they have extensive, verified scientific literature coverage and are relevant to the fields of nursing,

psychology, and digital behavior. This search aimed to obtain empirical evidence regarding the relationship between internet usage patterns, nomophobia, and FOMO (Fomo) with the emergence of mental disorders in adolescents. This data search method was carried out using English and Indonesian keywords, which were compiled based on the PCC (*Population, Concept, Context*) framework from the Joanna Briggs Institute (JBI, 2020). The population in this study were adolescents aged between 10 - 19 years old. According to WHO, both boys and girls, who actively use the internet and are involved in digital activities such as social media, online games, and smartphone use. This population was chosen because this age group is the most active internet user and the most vulnerable to mental disorders due to excessive internet use behavior, nomophobia, and the FOMO (Fear of Missing Out) phenomenon.

Article searches in the Pubmed database were carried out using a combination of keywords and Boolean Operators (AND, OR) as follows:

*("internet use"[Title/Abstract] OR "internet usage"[Title/Abstract] OR "problematic internet use"[Title/Abstract] OR "smartphone use"[Title/Abstract] OR "social media use"[Title/Abstract] OR "online behavior"[Title/Abstract]) AND ("nomophobia"[Title/Abstract] OR "mobile phone addiction"[Title/Abstract] OR "fear of being without a mobile phone"[Title/Abstract]) AND ("FOMO"[Title/Abstract] OR "fear of missing out"[Title/Abstract]) AND ("mental health"[Title/Abstract] OR "psychological distress"[Title/Abstract] OR "depression"[Title/Abstract] OR "anxiety"[Title/Abstract] OR "stress"[Title/Abstract] OR "mental disorder"[Title/Abstract]) AND ("adolescent"[Title/Abstract] OR "teenager"[Title/Abstract] OR "youth"[Title/Abstract] OR "young people"[Title/Abstract]).*

The combination of keywords in the search for articles in the *Science Direct database* uses almost similar syntax in Title - Abstract - Keyword, namely: *(relationship OR association OR correlation) AND ("internet use" OR "internet usage" OR "internet addiction" OR "smartphone use" OR "social media use") AND ("nomophobia" OR "mobile phone addiction") AND ("FOMO" OR "fear of missing out") AND ("mental disorder" OR "mental illness" OR "psychological disorder" OR "mental health problem") AND ("adolescent" OR "teenager" OR "youth" OR "young people")*

Meanwhile, the keywords used in searching for articles in the EBSCO Medline data base are as follows: *(TI "internet use" OR TI "internet*

usage" OR TI "internet addiction" OR TI "smartphone use" OR AB "internet use" OR AB "internet usage" OR AB "internet addiction" OR AB "smartphone use") AND (TI nomophobia OR AB nomophobia) AND (TI "fear of missing out" OR AB "fear of missing out" OR TI FOMO OR AB FOMO) AND (TI "mental disorder" OR TI "mental illness" OR TI "mental health" OR TI "psychological distress" OR AB "mental disorder" OR AB "mental illness" OR AB "mental health" OR AB "psychological distress") AND (TI adolescent OR TI teenager OR TI teenager OR TI youth OR AB adolescent OR AB teenager OR AB teenager OR AB youth)

The search was also conducted in the Google Scholar database. The combination of keywords used was in Indonesian, namely: "Relationship between Internet Use" AND "Nomophobia" AND "Fomo" AND "Mental Disorders" AND "Teenagers".

The article search process was conducted by limiting the publication period to the last 10 years (2015–2025) to ensure that the literature used is relevant to the latest developments in internet usage behavior and the dynamics of adolescent mental health in the digital era. The selected articles were open access publications, written in English or Indonesian, and included empirical research results using either quantitative, qualitative, or mixed methods approaches that discussed the relationship between internet usage patterns, nomophobia, and FOMO with the incidence of mental disorders in adolescents.

All articles obtained from major databases and journal search engines (PubMed, ScienceDirect, EBSCO Medline, and Google Scholar) were compiled, then duplicates were removed using a reference manager application such as *Mendeley*. The article selection stage was carried out based on the relevance of the title, abstract, and full content to the focus of the research study, namely identifying and mapping the relationship between the intensity and pattern of internet use, the tendency of nomophobia and FOMO, with the emergence of mental disorders in the adolescent population.

Articles that met the inclusion and exclusion criteria were then further analyzed to evaluate their thematic suitability for the scoping review objectives. The collected data was then mapped into a table of study results and visualized using a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart to illustrate the systematic process of identifying, screening, selecting, and including articles in this study.

## 2) Determining Inclusion and Exclusion Criteria

The inclusion criteria in the data search method used are as follows:

1. The article discusses the relationship or influence between internet usage patterns, nomophobia, or FOMO with the incidence of mental disorders (e.g. anxiety, depression, stress, or sleep disorders) in adolescents.
2. The study's respondents were adolescents (10-19 years old). A wider age range is still acceptable if the article presents analysis or findings relevant to the characteristics of digital behavior, nomophobia, or FOMO in the adolescent age group.
3. Articles were published between 2015–2025, to ensure data relevance and currency.
4. Articles are written in English or Indonesian.
5. The type of publication is an empirical research article (quantitative, qualitative, or mixed methods), not an editorial or opinion.
6. Articles can be accessed in full (full text) through the databases used (PubMed, ScienceDirect, EBSCO, and Google Scholar).

The exclusion criteria used in data search are as follows:

1. The respondents were not adolescents (e.g., children, adults, or seniors). Or the article did not clearly state the age range of the participants. Studies involving respondents outside these age limits were excluded unless the analysis remained relevant to digital behavior, nomophobia, or FOMO in adolescents and young adults.
2. The article discusses internet usage patterns, nomophobia, or FOMO without linking them to mental health aspects.
3. The article is a previous literature review, systematic review, scoping review, or meta-analysis.
4. Articles are not available in full text or are abstract only.
5. Articles that have not undergone a peer-review process (e.g., institutional reports, unreviewed proceedings, or grey literature).

## 3) Search Strategy

To ensure that the literature search process is carried out systematically and in a targeted manner, the search strategy in this scoping review is structured based on the PCC (Population, Concept, Context) framework as follows:

Table 1. Search Strategy

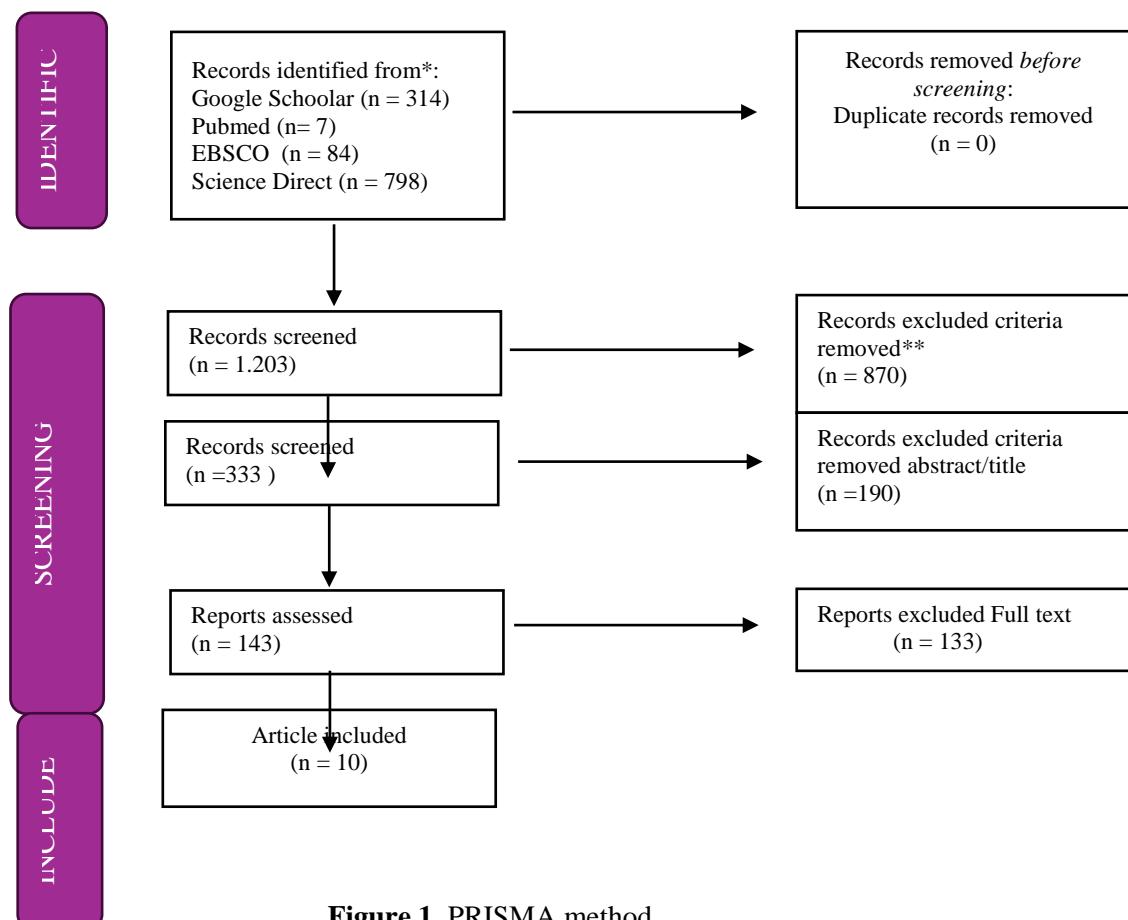
Component	Keywords in English	Keywords in Indonesian
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Component	Keywords in English	Keywords in Indonesian
<b>P (Population)</b>	“Adolescent” OR “Teenager” OR “Youth”	“Teenager” OR “Students” OR “Pupils”
<b>C (Concept)</b>	“Internet Use Pattern” OR “Nomophobia” OR “Fear of Missing Out” OR “FOMO” OR “Social Media Addiction”	“Internet usage patterns” OR “Nomophobia” OR “Fear of missing out on information” OR “FOMO” OR “Social media addiction”
<b>C (Context)</b>	“Mental Disorder” AND “Adolescent Mental Health” AND “Digital Era” AND “Social Media Use”	“Mental disorders” AND “Teenager mental health” AND “Digital era” AND “Social media use”

#### 4) Data Analysis Method

The data analysis method in this scoping review uses the PRISMA ( *Preferred Reporting*

*Items for Systematic Reviews and Meta-Analysis* ) method. The following is PRISMA in the literature.



**Figure 1.** PRISMA method

## RESULTS AND DISCUSSION

### Research result

The following table presents the research results.

Table 2. Research Results

No	Title / Name / Year	Research purposes	Research methods	Population / Sample	Research result	Conclusion
1	Acute Nomophobia and Its Psychological Correlates in Adolescents (Al Maghaireh et al., 2025)	Analyzing the impact of nomophobia on adolescents and its relationship with stress, loneliness and depression.	Mixed methods explanatory sequential: cross sectional phenomenology	180 students for quantitative; 30 students with high nomophobia levels for interviews	76.7% had high nomophobia. Stress and loneliness were significant, but depression was not. Four themes emerged: compulsive use, emotional issues, health issues, and	Nomophobia significantly impacts emotional and social health; interventions are needed for healthy digital literacy.

No	Title / Name / Year	Research purposes	Research methods	Population / Sample	Research result	Conclusion
2	Internet Use Behavior and Adolescent Mental Health (Du & Fan, 2024)	Assessing the influence of internet usage behavior on adolescent mental health and the mediating role of academic expectations & parental support	Quantitative cross-sectional; linear regression & mediation model (PISA 2018 data)	336,600 PISA students (grades 7–13)	behavioral issues. Internet use has a significant positive effect on mental health ( $\beta=0.039$ $p<0.01$ ). Two significant mediators: parental support & self-education expectations	Healthy internet use can actually improve mental health, especially in low-income families.
3	Patterns of Internet Use and Mental Health of High School Students in Istria County Croatia (Bilajac, 2015)	Identifying internet usage patterns and their relationship to mental health indicators	Quantitative cross-sectional; EFA, correlation, canonical correlation	1,539 high school students aged 14–19 years	Problematic use related to aggression and addictive substances (more in males). Online harassment related to depression, loneliness, and social anxiety (more in females). Academic internet related to conscientiousness.	The Internet has a dual effect: it can be protective & it can be risky; the impact depends on usage patterns.
4	The Mediating Role of Social Media Usage Habits in the Relationship Between FoMO and Nomophobia (Okur S et.al, 2022)	To determine whether social media usage habits mediate the relationship between FoMO and nomophobia.	Quantitative – relational screening model; Pearson, hierarchical regression, bootstrapping	457 adult participants (18–70 years)	FoMO was significantly related to nomophobia ( $r=.52$ ). Social media usage habits partially mediated this ( $\beta$ indirect .09; CI [.04–.15]).	The higher FoMO can increase social media usage habits and increase nomophobia.
5	Nomophobia: An Individual's Growing Fear of Being without a Smartphone A Systematic Literature Review (Rodr & Moreno-guerrero, 2020)	Reviewing scientific literature on nomophobia, including previous research objectives, methodological design, variables, samples, and measurement instruments.	Systematic Literature Review follows PRISMA guidelines, using Scopus and Web of Science databases.	The initial 142 articles were selected to 42 articles that met the criteria. The previous research population was predominantly adolescents and college students.	Nomophobia is still in the exploratory phase, with quantitative-descriptive studies predominating. Nomophobia impacts mental health, self-esteem, anxiety, stress, academic performance, and social relationships. The most widely used instrument is the NMP-Q.	Nomophobia is a growing public health problem, particularly among adolescents and college students. Preventive and educational intervention strategies are needed.
6	The nature of nomophobia and its associations with contents of smartphone use and fear of missing out: A network perspective (Wen et al., 2023)	Explaining the characteristics of nomophobia and analyzing the relationship between nomophobia and smartphone usage content and Fear of Missing Out (FoMO) at the item level using a network analysis	Quantitative – Cross-sectional using Network Analysis (GLASSO + LASSO). Analysis was performed at the item level to identify central nodes and bridge nodes between	2,376 college students in China (mean age 19.52 years; 73.7% female; recruitment via convenience sampling and online survey).	Nomophobia (NMP-Q China), FoMO scale, and 4 smartphone usage contents (SNS, entertainment, learning, games).	The most central nodes in the nomophobia network are the fear of being unreachable and the urge to check notifications.

No	Title / Name / Year	Research purposes	Research methods	Population / Sample	Research result	Conclusion
7.	Fear of Missing Out with Nomophobia Tendency in College Students (Rahmi & Sukarta, 2020)	approach. To determine whether there is a relationship between fear of missing out (FoMO) and nomophobia tendencies in psychology students at Bhayangkara University, Greater Jakarta.	variables. Quantitative – Correlational using correlation test analysis via SPSS version 25.	Population: Psychology students from the 2019 intake of Bhayangkara University (232 people). Sample: 147 students (aged 18–21 years; mostly female). Sampling technique: Purposive Sampling.	There is a strong positive relationship between FoMO and nomophobia with a correlation value of $R = 0.664$ ; $p = 0.000$ ( $p < 0.05$ ). The higher the FoMO, the higher the nomophobia. The majority of subjects had both FoMO and nomophobia in the high category.	FoMO is a significant predictor of nomophobia in college students. The more an individual fears missing out on information and social activities, the more likely they are to feel anxious and uncomfortable when away from their smartphone. Education on smartphone management and self-control is needed to reduce the risk of nomophobia.
8	Exploring the Influence of the Patterns of Mobile Internet Use on University Students' Nomophobia Levels (Gezgin, 2017)	Examining the influence of mobile internet usage patterns (length of ownership, daily usage duration, and monthly quota) on the level of <i>nomophobia</i> in college students.	Quantitative, <i>relational survey study</i> ; Analysis: One-way ANOVA, simple and multiple regression using SPSS 23.	645 students from 28 universities in Türkiye (429 females, 216 males; ages 18–35 years).	-There is no significant difference between length of smartphone ownership and levels of nomophobia. -Nomophobia is higher in students who check their phones more frequently. -The variable of length of daily mobile internet use has the greatest influence on levels of nomophobia.	Excessive mobile internet use, especially long daily durations, is a major predictor of increased <i>nomophobia</i> in college students.
9	Relationship of Problematic Internet Use, Fear of Missing Out, Loneliness and Nomophobia among Filipino Nursing Students (Hoseña et al., 2024)	To determine the relationship between <i>problematic internet use</i> (PIU), <i>fear of missing out</i> (FOMO), loneliness, and <i>nomophobia</i> in nursing students.	Quantitative, <i>descriptive correlational design</i> ; Analysis: Pearson's r correlation, frequency distribution, mean, SD.	117 nursing students (aged 18–22 years) in several universities in Metro Manila, Philippines; <i>purposive sampling technique</i> .	- PIU is significantly related to FOMO ( $r=0.223$ , $p=0.015$ ) and <i>loneliness</i> ( $r=0.289$ , $p=0.002$ ). - FOMO has a significant negative relationship with <i>nomophobia</i> ( $r=-0.233$ , $p=0.011$ ). - There is no significant relationship between <i>loneliness</i> and <i>nomophobia</i> .	Despite low levels of FOMO and loneliness, <i>nomophobia</i> remains high among nursing students. The relationship between online behavior, FOMO, and nomophobia warrants attention to prevent digital distractions.
10	Impact of FOMO on	Analyzing the influence of fear	Quantitative, <i>cross-sectional</i>	300 students aged 18–26	- FOMO is positively	FOMO is a significant

No	Title / Name / Year	Research purposes	Research methods	Population / Sample	Research result	Conclusion
	Nomophobia and Internet Addiction (Muzzammil & Malik, 2025)	of missing out (FOMO) on <i>nomophobia</i> and internet addiction in university students.	survey ; Pearson correlation analysis and linear regression using SPSS.	years from universities in Rawalpindi and Islamabad, Pakistan; <i>simple random sampling technique</i> .	correlated with <i>nomophobia</i> ( $r=0.37^{**}$ ) and <i>internet addiction</i> ( $r=0.30^{**}$ ). - FOMO significantly predicts <i>nomophobia</i> ( $R^2=0.14$ ). - There is no significant difference in FOMO between genders, but <i>nomophobia</i> and <i>internet addiction</i> are higher in men.	factor contributing to the rise of <i>nomophobia</i> and internet addiction among young college students. Interventions such as <i>digital detox</i> and <i>mindfulness</i> are needed to reduce digital dependency.

## Discussion

The phenomena of nomophobia, internet use, and Fear of Missing Out (FoMO) are three constructs that are closely interrelated in the dynamics of mental well-being of adolescents and college students in the digital era. Findings from research by Al Maghaireh et al., (2025) show that nomophobia cannot be understood solely as a technical fear of losing a smartphone, but as a multidimensional psychological phenomenon directly related to stress, loneliness, and internal emotional disturbances. Adolescents with high levels of nomophobia experience compulsive checking, negative emotional experiences, impaired health functioning, and avoidance behavior, thus indicating that nomophobia has a phenomenological structure equivalent to modern forms of social anxiety. The findings of this study are reinforced by the fact that smartphones in the context of adolescents are no longer just a communication tool, but are the essence of identity, validation, and social connection. In other words, the aspect of anxiety that arises is not "without a cellphone," but "without access and connection."

However, the relationship between internet use and mental health is not always destructive. Research by Du & Fan (2024) actually found that internet use can function as a protective factor for mental health, especially when mediated by academic expectations and parental support. This condition reflects that the function of the internet in adolescents' lives is also influenced by the social context and the purpose of use. This is in line with the findings of research by Bilajac (2015), which confirmed that the internet has a dual effect: being a risk factor when used for aggression or addictive behavior (especially in boys) and being a protective factor when used for academic activities (which are related to conscientiousness). This pattern suggests that the internet does not have to be a source of mental

disorders if its use is oriented towards academic achievement, productivity, and learning.

The strongest and most consistent link across the literature is the relationship between FoMO and nomophobia. Research conducted by Okur S et al., (2022) explains that FoMO triggers nomophobia not directly, but through the formation of repetitive social media habits. This behavioral mechanism shows that anxiety about missing out on information triggers high check frequency, which then strengthens emotional attachment to smartphones. This condition resonates strongly with the findings of Rahmi & Sukarta (2020) in their study, which showed a strong positive correlation between FoMO and nomophobia among Indonesian students, as well as research by Muzzammil & Malik (2025) which stated that FoMO significantly predicts nomophobia and internet addiction. Thus, from these three studies from different geographical contexts, it can be concluded that FoMO is a *universal predictor* of nomophobia.

In terms of psychological construct mechanisms, research conducted by Wen et al. (2023) shows that the central node causing nomophobia is not the device itself, but rather the fear of being unreachable and the compulsive urge to check notifications. This suggests that the core of nomophobia is *the fear of social disconnection*, not the fear of the smartphone's absence itself. In other words, nomophobia is a relational anxiety, not a technological one. Therefore, the smartphone in this context is not the source of the problem, but rather a "bridge" to a sense of connection in digital social networks. This is why nomophobia can persist without foreshadowing symptoms of other psychological disorders.

Some literature found does not produce a completely uniform pattern, such as in the study of Hoseña et al., (2024) who found that despite low FoMO and loneliness scores, nomophobia can remain high in Filipino nursing students. This

finding suggests that nomophobia does not always require high levels of internal anxiety to emerge, but can present as a form of *functional dependency*. Smartphones in this group became a vital tool for academic assignments, educational communication, accessing campus information, and organizing academic activities. This functional dependency confirms that nomophobia does not always indicate emotional dysfunction, but can emerge as an instrumental dependency that grows from academic digital adaptation patterns.

Based on the behavioral perspective found and demonstrated by Gezgin's (2017) research, the duration of daily use is a more significant predictor of nomophobia than the length of smartphone ownership. This means that nomophobia is not a phenomenon of "long-term exposure," but rather a phenomenon of "digital behavior intensity." The higher the frequency of checking, the stronger the network of connectivity anxiety is formed. This is the reason why many students who have only used smartphones for a few years can experience severe nomophobia, while individuals who have used smartphones for longer but rarely check notifications do not experience high levels of anxiety.

Research referring to the context of developing literature conducted by Rodríguez & Moreno-Guerrero (2020) successfully demonstrated that nomophobia remains at the descriptive stage, predominantly using a quantitative cross-sectional approach, and is very limited in longitudinal and interventional approaches. This means that, although the relationship between variables is well established (e.g., FoMO leads to nomophobia), research still stops at mapping the phenomenon, not testing the effectiveness of prevention or treatment strategies.

This discussion directly demonstrates that nomophobia in adolescents and college students is a phenomenon related to relational anxiety formed through the interaction of emotional factors (FoMO), behavioral factors (checking behavior and daily usage duration), and contextual factors (family support and internet usage goals). Smartphones have become more than just communication tools; they have become a medium for social connection, interpreted as a source of guaranteed connectedness. The combination of findings from ten journals shows that FoMO is the most consistent trigger for nomophobia, followed by intensive digital habits, and that academic internet use, in some models, can actually provide a protective effect.

## CONCLUSION

Based on the discussion of the 10 studies above, no research has simultaneously mapped all three variables internet usage patterns,

nomophobia, and FoMO in a comprehensive framework of their relationship to the incidence of mental disorders. Most existing studies examine only two variables at a time, for example, the relationship between FoMO and nomophobia, or internet use and mental health, without integrating all three variables as a single risk mechanism. However, findings from various articles analyzed in this scoping review indicate that these three aspects interact and form a series of psychological mechanisms that contribute to the emergence of anxiety, stress, depression, and emotional dysfunction in adolescents. The absence of research that simultaneously integrates these three factors creates a gap in understanding, particularly regarding how FoMO can trigger increased frequency of internet use, which then reinforces nomophobia and ultimately increases vulnerability to mental disorders. Thus, the comprehensive mapping conducted through this scoping review provides an initial understanding that these three variables do not stand alone but rather form a mutually reinforcing risk pattern that influences adolescent mental health in the digital era.

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