

# Nomophobia (NO MOBILE PHONE phOBIA): a narrative review

## Abstract

Nomophobia, an acronym for no mobile phone phobia, is increasingly prevalent throughout the world, especially in young adults. It has ranged from 17% to 99% in different studies from different countries as a function of different age groups and variable severity of nomophobia. Although the term was coined in 2008, most of the research has been published since 2019. Most of the studies have focused on prevalence data and risk factors. The risk factors have included being female, excessive smartphone use, depression, anxiety and insomnia. The negative effects are similar to the predictors/risk factors including depression, anxiety and insomnia. However, very few studies are focused on negative effects. Further, no research could be found in this recent literature on potential underlying biological mechanisms or interventions.

**Keywords:** nomophobia, mobile phone, phobia

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## Tiffany Field

University of Miami/ Miller School of Medicine and Fielding Graduate University, USA

**Correspondence:** Tiffany Field, PhD, University of Miami/Miller School of Medicine and Fielding Graduate University, USA, Email [tfield@med.miami.edu](mailto:tfield@med.miami.edu), [TField@fielding.edu](mailto:TField@fielding.edu)

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## Introduction

Nomophobia, also known as no mobile phone phobia, has been researched over the past five years. This narrative review summarizes 31 papers on nomophobia that were derived from a search on PubMed and PsycINFO entering the terms nomophobia and the years 2019-2024. Exclusion criteria for this review included papers on proposed protocols, case studies, and non-English language papers. The publications can be categorized as the prevalence, predictors/risk factors and negative effects of nomophobia. This review is accordingly divided into sections that correspond to those categories. Although some papers can be grouped in more than one category, 16 papers appeared on the prevalence of nomophobia, 22 papers on predictors/risk factors for nomophobia, and 6 papers on negative effects of nomophobia. These sections are followed by a discussion on the methodological limitations of this literature.

## Prevalence of nomophobia

More than a third of the studies that have appeared in the recent literature on nomophobia are focused on prevalence data. In many of those studies, predictors/risk factors for nomophobia are also assessed. The prevalence of nomophobia has varied widely from 13% to 99% in different studies from different countries (Table 1). Some of the authors have reported total prevalence data while others have presented rates for the prevalence of moderate or severe nomophobia. Still others have reported rates that range from mild or moderate to severe. When total prevalence is given, the rates are relatively high, as would be expected. The prevalences for moderate nomophobia also tend to be high. In contrast, when ranges are given, the prevalence of mild nomophobia tends to be low.

**Table 1** Prevalence of nomophobia (and first authors)

Prevalence	First authors
Total prevalence	
Turkey-70%	Giveli
India-69%	Balamarugan
Jordan-51%	Alwari
Greece-57-60%	Vagka
Severe nomophobia	
Jordan-21%	Jahrami
Bahrain-22%	Jahrami
Range of severity	
Pakistan- mild-11%, moderate-49%, severe-41%	Faroq
Bangladesh-mild-9%, moderate-56%, severe-35%	Al-Manum

For examples of total prevalence rates being high, 70% has been reported for Turkey,<sup>1</sup> 69% for India,<sup>2</sup> and 51% for Jordan.<sup>3</sup> Moderate prevalence rates have been reported for young adults in Greece by the same research group for different size samples. For example, 60% prevalence was noted for a sample of 1060 young adults from Greece.<sup>4</sup> When the sample size increased to 1408 young adults, the prevalence rate remained approximately the same at 57%.<sup>5</sup> A research group from Saudi Arabia also reported moderate prevalence at 48%.<sup>6</sup>

Examples of low prevalence rates for severe nomophobia come from two countries. In Jordan severe nomophobia was reported for 21% of young adults.<sup>7</sup> A similarly low prevalence of 22% was reported by the same research group for severe nomophobia in young adults in Bahrain.<sup>7</sup>

A range of prevalence has been reported within countries. Typically, the prevalence of mild nomophobia has been low, the prevalence of moderate nomophobia has been high and the prevalence of severe nomophobia has been moderate. For example, in Pakistan mild nomophobia was noted in 11% of young adults, moderate nomophobia in 49% and severe nomophobia in 41%.<sup>8</sup> Similarly, in Bangladesh 9% prevalence has been reported for mild nomophobia, 56% for moderate and 35% for severe.<sup>9</sup> And in Lebanon, 48% prevalence has been noted for moderate nomophobia and 16% for severe nomophobia.<sup>10</sup>

In review papers that include data on mild, moderate and severe

prevalence, the numbers are very similar. For example, in a review of 52 studies from 20 non-western countries, the prevalence was 20% for mild nomophobia, 50% for moderate nomophobia and 20% for severe nomophobia.<sup>11</sup> Similarly, in a review of 28 studies from eight countries, the prevalence for mild nomophobia was 24%, the rate for moderate nomophobia was 56% and 17% were classified as severe.<sup>12</sup> When dozens of studies have been reviewed, the authors have typically given the low and high prevalence rates. For example, in a systematic review on 40 articles, the prevalence ranged from 15% to 99.7%.<sup>13</sup> In a review on 108 studies, the prevalence ranged from 13% to 79%.<sup>14</sup>

### Predictors/ risk factors for nomophobia

Approximately half of the recent literature on nomophobia has focused on predictors/risk factors (Table 2). Demographic risk factors include being female, being single or divorced and being students from non-western countries. Excessive phone use has frequently been studied as a predictor variable/risk factor including excessive smartphone use and related variables including fear of missing out (FOMO), rumination and compulsions. Personality variables that have been risk factors for nomophobia include solitude-seeking, reward-dependency, irritability, narcissism and neuroticism. Finally, psychological problems that are predictors include anxiety, depression, and insomnia.

**Table 2** Predictors/risk factors for nomophobia (and first authors)

Predictors/ risk factors	First authors
<b>Demographic variables</b>	
Female gender	Moreno-Guerrero, Naser, Leon-Mejia, Lagka
Single/divorced	Alwati
Students from non-western countries	Jahrami
<b>Social media use</b>	
Excessive smart phone use	Guveli, Kagka
Smart phone addiction	Al-Mamun
Excessive use mobile devices	Sheilkh
Fear of missing out	Ceobano
<b>Personality risk factors</b>	
Solitude-seeking	Lu
Reward-dependency	Olivencia-Carrion
Irritability	Rama
Narcissism	Mattei
Neuroticism	Dib
<b>Psychological factors</b>	
Stress, anxiety and depression	Abdali
Anxiety	Nader, Bhattacharya
Depression	Sheikh, Guveli
Insomnia	Jahrami

### Demographic risk factors

Demographic risk factors for nomophobia have included being female, single or divorced or being students in non-Western countries. The risk factor of being female has appeared in four studies in this recent literature on nomophobia. In a paper entitled “Do age, gender and poor diet influence the prevalence of nomophobia among younger people?”, students between 12 and 20 years-old (N=1743) were surveyed.<sup>15</sup> The data suggested that nomophobia occurred **more frequently in females**, but no age or diet effects were noted.

An additional predictor that emerged from the data analysis was the inability to communicate and contact others immediately. That predictor was not surprising as it would be an immediate effect of losing a mobile phone.

In a study on university students in five Arab countries in the Middle East including Jordan, Lebanon, Egypt, Bahrain and Saudi Arabia, nomophobia was also referred to as mobile phone dependence.<sup>16</sup> In this sample, nomophobia was more prevalent in females as well as individuals experiencing anxiety.

In the review on 108 studies already mentioned, females and young people were at greater risk for nomophobia.<sup>14</sup> In a paper entitled “Prevalence and factors related to nomophobia: Arising issues among young adults”, 18 to 20-year-old students from Greece were surveyed [N= 1408]. In this sample, 57% were noted to have moderate nomophobia. The prevalence was greater in females and in non-working students. Not surprisingly, forty-six percent of those who had nomophobia also had poor academic performance. This probably related to being mobile phone dependent and spending excessive time on the phone instead of academics.

The greater prevalence of nomophobia in females may relate to being more phone dependent because of being more social or turning to the phone more frequently because of social anxiety. Research on gender differences has suggested that even as early as toddlerhood, females are more socially interactive. Social anxiety literature also suggests that females have more social anxiety. Being more social might be expected to lead to less social anxiety because of greater experience being social. But being more social also involves greater opportunity and experiences that might lead to greater social anxiety.

**Being single** was also a risk factor for nomophobia in two Middle Eastern countries, including Jordan and Saudi Arabia.<sup>3</sup> These authors of research on the general population in those countries reported a nomophobia prevalence rate of 51%. The prevalence was greater in single adults. Divorced adults (who were also single) had a 46% greater risk of experiencing nomophobia. The risk was also greater for the less than 30-year-old group. Surprisingly, females in this sample had 16% less risk for nomophobia than males. These results are inconsistent with the data presented earlier from several studies suggesting that nomophobia was more prevalent in females. These mixed results may relate to the earlier studies sampling adolescents and university students versus this study on the general population.

Being university **students from non-western countries** has also been a risk factor for being nomophobic according to a systematic review and meta-analysis of 52 studies from 20 countries (N= 47,399).<sup>11</sup> In this sample, 20% had mild nomophobia, 50% moderate nomophobia and 20% severe nomophobia. Surprisingly, most of the recent literature on nomophobia has derived from non-western countries.

### Social media risk factors

Several social media risk factors have been identified as contributors to nomophobia. They include excessive smartphone use and the related variables of fear of missing out (FOMO), rumination and compulsions. In a study on **excessive smart phone use**, a factor analysis on the 20 items of the Nomophobia Scale yielded 4 subscales.<sup>1</sup> The subscales are: 1) not being able to communicate, 2) losing connectedness, 3) not being able to access information; and 4) giving up convenience. In this study from Turkey, 70% had mild, moderate or severe nomophobia (N=376, Mean age = 32). The risk factors were not only having a social media account and declaring smart phone dependency but also using smart phones excessively and having several users in the family. As in many other studies on nomophobia, depression and stress were risk factors in this sample. However, nomophobia, surprisingly, was not affected by gender, age, education level, employment, economic, or marital status.

The prevalence of nomophobia was also related to **excessive smart phone use** in a sample of Greek adults (N= 1408).<sup>17</sup> In a study on university students from Bangladesh (N= 585), mild nomophobia was noted in 9% of the sample, moderate nomophobia in 56% and severe

in 35%.<sup>9</sup> The predictors were **smart phone addiction**, Facebook addiction, insomnia, and depression.

**Excessive use of mobile devices** was also reported in a study from Saudi Arabia (N= 1022).<sup>6</sup> In this sample, the total prevalence of nomophobia was 97%. Sixty-two percent of the sample spent more than four hours per day on mobile devices, 47% were depressed and 37% experienced insomnia. The risk of nomophobia was greater in those with depression, those who spent more hours on mobile devices, and those with irritable bowel syndrome.

Related risk factors were reported in a study entitled “Glimpse on 21st century new phobias: a predictive model of nomophobia”.<sup>18</sup> In this sample (N=194 university students), **fear of missing out (FOMO)**, non-pathological **compulsions and rumination** predicted 34% of the variance in nomophobia.

### Personality risk factors

Several different personality factors have been noted as predictors of nomophobia. They include solitude-seeking, reward-dependency, irritability, narcissism, and neuroticism. Only one paper appeared on each of these personality factors.

In a paper entitled “Nomophobia and relationships with latent classes of solitude” (N=678 adults), **solitude-seeking** predicted nomophobia.<sup>19</sup> Related risk factors were loneliness, social avoidance, and eccentricity.

**Reward-dependency** was a significant predictor of nomophobia in a study that measured various temperamental characteristics (N=968, mean age =23 years old).<sup>20</sup> Surprisingly, only reward-dependency emerged as a risk factor for nomophobia.

In a national study from Lebanon, nomophobia was related to **irritable temperament**.<sup>10</sup> In this sample (N=1089), 48% had moderate nomophobia and 16% experienced severe nomophobia.

Nomophobia has also been a mediator variable in a study on **narcissism**, stress, social media addiction, and nomophobia.<sup>21</sup> The results of this research suggested that the relationship between narcissism and stress was mediated by social media addiction and nomophobia.

In another analysis of the Lebanese national study (N=2216 randomly selected residents), **neuroticism** was related to nomophobia.<sup>22</sup> In a linear regression analysis, the number of water pipes smoked per week and disinhibition were also predictor variables. The measurement of these predictor variables was unique to this study.

### Psychological problems as risk factors

At least 10 papers have focused on different psychological problems related to nomophobia including stress, anxiety, depression, and insomnia. In several studies these psychological problems were comorbid. It is unclear why these were selected as predictors/risk factors rather than negative effects of nomophobia. Given the cross-sectional nature of these studies, these variables are likely reciprocally related to nomophobia.

An example of the comorbidity of psychological problems related to nomophobia appeared in a study on adult students (N=537, mean age =26).<sup>23</sup> In this sample, **stress**, anxiety, and depression were comorbid with nomophobia. In a study already described on five Arab countries in the Middle East, **anxiety** was a predictor of nomophobia.<sup>24</sup>

Anxiety was also related to nomophobia in a study entitled “Nomophobia: NO MOBILE PHONE phOBIA”.<sup>25</sup> In this sample, social anxiety, social phobia, and panic disorder, as well as low self-esteem and extraversion were related to nomophobia. The authors also noted symptoms of anxiety, respiratory alterations, trembling, perspiration, agitation, disorientation, and tachycardia. Although these symptoms are often comorbid, physical symptoms have rarely been measured in nomophobia studies. A regression analysis would have helped determine the relative importance of these symptoms.

**Depression** has been a risk factor in several studies already described. In the study from Saudi Arabia, depression was reported for 47% of the general population (N= 1022).<sup>6</sup> The prevalence of depression (47%) was not as great as the prevalence of nomophobia (97%) in this sample, but it was greater than the prevalence of insomnia (37%).

Both stress and depression scores were risk factors for nomophobia in the sample from Turkey.<sup>1</sup> Depression was also a risk factor for nomophobia in the Bangladesh sample.<sup>9</sup>

**Insomnia** has been a risk factor in those samples that experienced stress, anxiety and depression. In studies that noted insomnia as the sole risk factor, anxiety and depression were not measured. For example, in a study entitled “Nomophobia is associated with insomnia but not age, sex, BMI or mobile screen size in young adults”, 27% were experiencing nomophobia and 14% had clinical insomnia (N=549).<sup>7</sup>

In a sample from Bahrain (N=654), severe nomophobia was noted in 22% of females and 19% of males and severe insomnia was reported for 16% of females and 12% for males.<sup>7</sup> The same research group reported a surge of nomophobia that occurred during a social media outage (N=2706, Mean age=34).<sup>26</sup> Although both baseline anxiety and insomnia were associated with nomophobia, only baseline insomnia predicted the nomophobia that occurred during the outage.

### Negative effects of nomophobia

The negative effects of nomophobia are the same as several of the negative risk factors (Table 3). They include stress, anxiety, depression, and insomnia, which are often comorbid. As just described, these have also been comorbid risk factors. Given that these are cross-sectional studies, it is not surprising that these variables have been viewed as risk factors by one set of researchers and they have been considered negative effects by other research groups. Additional negative effects reported in this literature on nomophobia include poor academic performance and thumb problems.

**Table 3** Negative effects of nomophobia (and first authors)

Negative effects	First authors
Stress, anxiety and depression	Gnardelis
Depression	Ghaemi
Insomnia	Jahrami
Thumb and upper extremity problems	Nader

The comorbidity of negative effects is illustrated by a sample from Greece (N=1408, Mean age=25).<sup>27</sup> Of those with high levels of nomophobia, 33% reported **stress**, 74% **anxiety** and 41% **depression**. Low self-esteem had a moderating (strengthening) effect on the relationship between nomophobia and the scores on the Depression, Anxiety and Stress Scale in this sample.

In a paper entitled “Digital depression: a new disease of the millennium”, **depression** was noted in 22% of young adults.<sup>28</sup> As a decrease occurred in social media use and nomophobia, depression also decreased. That decrease may have occurred before 2019 given

that social media use significantly increased and in-person interactions decreased during COVID-19.

In a cross-sectional study on nomophobia, **insomnia** and **chronotype** (N=444, mean age=34), nomophobia was related to insomnia and chronotype (eveningness).<sup>29</sup> Although directionality cannot be determined in this cross-sectional sample, it is not surprising that the stress of nomophobia may lead to insomnia and difficulty sleeping at night (eveningness).

Musculoskeletal problems have also resulted from nomophobia.<sup>24</sup> These have occurred in the upper extremity, especially in the thumb.<sup>24</sup> In this sample of Middle Eastern adults (N=5087), a 22% nomophobia rate was noted along with **thumb and upper extremity problems**. This would not be surprising as nomophobia is related to excessive mobile phone use which could lead to thumb problems.

### Methodological limitations of this literature

This literature has many limitations including that most of the publications have only appeared in the last few years even though the term was coined as early as 2008. Many of the studies have also been published by the same research groups using the same databases but conducting different data analyses on different variables and presenting different findings in different papers.

The samples are mostly young adults, as in the convenience samples of university students. Most of them also come from the Middle East with the exception of one study from China. None of the studies were conducted in the U.S. These limitations raise the question of generalizability of the data.

Most of the studies are focused on prevalence data and risk factors. And some are exclusively focused on prevalence data. Only a few studies could be found on negative effects of nomophobia and none appeared on underlying mechanisms or interventions for nomophobia. This limitation likely relates to the newness of this research.

All the studies are cross-sectional, suggesting that directionality cannot be determined. The research groups have elected to treat variables that are comorbid with nomophobia as either risk factors or negative effects of nomophobia. This arbitrary selection of variables as predictors or outcomes has resulted in the same variables being studied and presented as both risk factors and negative effects for nomophobia. Primary examples include the anxiety, depression, and insomnia variables.

Several researchers explored the relationship between excessive mobile phone use and nomophobia. However, only two studies measured fear of missing out (FOMO) and no studies appeared on phubbing (phone snubbing) even though those factors would also seem to be highly related to nomophobia and even predictive of nomophobia. In addition, no comparisons have been made between nomophobia and other phobias, although multiple phobias are often comorbid and prevalent in fearful individuals. None of the studies addressed fearfulness as a personality variable and only one study mentioned that social anxiety led to excessive mobile phone use. Excessive mobile phone use, in turn, has led to nomophobia.

The prevalence data have often been given for different degrees of severity of nomophobia, for example minimal, moderate and severe. However, different severity levels have not been compared for their likely differential effects. Only one study addressed the physical/physiological symptoms that accompany nomophobia, although physiological symptoms like agitation and respiratory alterations might be the most obvious symptoms for individuals to recognize that they are experiencing nomophobia.

## Conclusion

Despite these methodological limitations of this literature, the research has identified nomophobia as a prevalent problematic condition. The many studies on prevalence and risk factors combined have highlighted the relative absence of mechanism and intervention research and the need to identify high risk profiles for those who need intervention. Like any other phobia, nomophobia is a discomfiting, stressful condition that is being increasingly experienced as excessive mobile phone use becomes more prevalent.<sup>30,31</sup>

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## Conflicts of interest

Author declares that there are no conflicts of interest.

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