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Psychometric Evaluation of the Nomophobia Questionnaire Among Iranian Adolescents

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ABSTRACT

Objective: This study aimed to evaluate the psychometric properties of the Nomophobia Questionnaire among Iranian adolescents.

Methods and Materials: This descriptive-correlational psychometric study was conducted among high school students in western Tehran during the 2024–2025 academic year. A total of 225 adolescents were selected using cluster sampling. Data were collected using the Nomophobia Questionnaire, the General Health Questionnaire, the Rosenberg Self-Esteem Scale, and the Adolescent Cyber Psychological Pathology Questionnaire. Content validity was assessed using the content validity ratio and content validity index. Construct validity was examined through confirmatory factor analysis, and criterion-related validity was assessed through correlations with external measures. Reliability was evaluated using Cronbach's alpha and split-half reliability. Statistical analyses were performed using SPSS 27 and AMOS.

Findings: The findings indicated that the Nomophobia Questionnaire had satisfactory psychometric properties in Iranian adolescents. Internal consistency was acceptable (Cronbach's alpha = 0.849), and split-half reliability supported score consistency. Content validity indices were favorable for all items. Item-total correlations were significant for all retained items. Confirmatory factor analysis supported the structural validity of the measure after removal of items with weak loadings, and model fit indices indicated good fit, including CFI = 0.981, TLI = 0.966, GFI = 0.972, and RMSEA = 0.07. In addition, the questionnaire showed evidence of convergent and discriminant validity.

Conclusion: The Nomophobia Questionnaire demonstrated acceptable validity and reliability among Iranian adolescents and can be used as a suitable instrument for assessing nomophobia in this population.

Keywords: Adolescent, Psychometrics, Surveys and Questionnaires, Cell Phone Use, Anxiety.

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Introduction

Nomophobia, defined as the fear or anxiety stemming from not having access to a mobile phone or digital communications, is a major psychological issue in the contemporary era and has become particularly widespread among adolescents (Alizadeh et al., 2021). Given the increased use of smartphones and rising dependence on communication technologies, examining this phenomenon across different societies—including Iranian adolescents—has special importance. Nomophobia affects not only mental health but can also carry negative social, academic, and behavioral consequences (Reisi & Moghimian, 2025).

As noted above, nomophobia refers to intense fear or anxiety when an individual is separated from, or unable to access, their mobile phone, a problem that has become pervasive in recent decades with the expansion of smartphones and social networks (Notara et al., 2021). In practice it reflects psychological dependence on the phone; affected individuals may experience strong stress and worry even during brief periods of unavailability. One of its most common signs is repeatedly checking the phone for messages, calls, or notifications, a behavior that often reduces concentration at work, in study, or during daily activities (Rodríguez-García et al., 2020). Some affected individuals struggle to make eye contact in family or peer gatherings and constantly hold their phones. Lack of internet access, a dead battery, or even forgetting the phone at home can intensify anxiety and restlessness. Studies indicate that nomophobia is especially common among adolescents and young adults because of their strong reliance on social networks and digital communication (Tucó et al., 2023). The condition can also impair sleep quality, as individuals spend extended time on the phone before bedtime, leading to insomnia and chronic fatigue. Nomophobia may contribute to depression, loneliness, and reduced quality of real-world relationships because individuals prefer spending time with their phones rather than interacting with those around them. In some cases, this dependence is associated with physical problems such as headaches, dry eyes, and neck and shoulder pain (León-Mejía et al., 2021). Treatment typically involves strategies such as limiting phone use, practicing mindfulness exercises, and psychological counseling. Raising awareness about the negative effects of excessive mobile-phone

dependence—especially among adolescents—can be preventive. Parents and teachers can help reduce symptom severity by providing guidance and creating phone-free environments. Although modern technology has made life easier, nomophobia illustrates how excessive phone use can threaten mental health (Humood et al., 2021). Striking a balance between the digital and real worlds, managing time spent on smart devices, and emphasizing genuine human interaction are key to reducing this condition. Nomophobia is not only a warning against overuse of phones; it also shows how psychological dependence on technology can negatively affect multiple domains of life. With appropriate treatment, education, and healthy limits on phone use, affected individuals can improve their quality of life and reduce anxiety related to being away from the phone. Ultimately, recognizing and addressing this condition is part of each person's responsibility in today's technology-saturated world so that digital life becomes a tool for growth and human connection rather than a threat (Arigo et al., 2025).

In this context, the Nomophobia Questionnaire is one of the validated tools designed to assess this psychological condition. It comprises a set of items that evaluate various dimensions of nomophobia, including anxiety due to lack of access to a mobile phone, fear of losing social connections, and excessive dependence on technology (Park, 2025). Examining the psychometric properties of this questionnaire among Iranian adolescents can provide valuable information regarding its validity and reliability and lay the groundwork for further studies on the prevention and treatment of this condition (Altnel et al., 2024).

Multiple factors can influence the severity of nomophobia in adolescents. These include individual characteristics such as age, gender, educational level, and extent of mobile-phone use (Vagka et al., 2024). Social and cultural factors—such as the roles of family, peers, and the educational environment in shaping technology-related behaviors—may also play a pivotal role in the onset or exacerbation of this condition. Identifying such contributing factors can inform effective strategies to reduce adolescents' dependence on mobile phones and to promote their mental health (Pour Yazdi & Hashemiyeh, 2024).

Accordingly, the primary aim of this study is to evaluate the psychometric properties of the

Nomophobia Questionnaire in Iranian adolescents and to identify factors that influence the severity of this condition. The findings can assist mental-health professionals, school counselors, and parents in implementing appropriate strategies to prevent the negative consequences of nomophobia and to develop effective educational and therapeutic programs.

Methods and Materials

This study was a descriptive–correlational investigation conducted within a test validation and psychometric framework. The statistical population comprised all high-school students (secondary level) in western Tehran during the 2024–2025 academic year. The minimum recommended sample size for factor analysis is 200. Following Kline (2018), an allocation of 5 to 15 participants per estimated parameter was considered; therefore, for a 10-item instrument the final sample size was set at 225 students.

Given the large number of schools and their geographical dispersion, cluster sampling was used. Western Tehran was divided into several zones; from the schools within these zones, several schools were randomly selected. In the second stage, several classes were randomly chosen from each selected school, representing different secondary grade levels; all students in those classes were included. This approach helped ensure that the final sample was as representative as possible of the target population in terms of gender, grade level, and other demographic characteristics.

Inclusion criteria were: enrollment in secondary school in Tehran Province in 2024–2025, age between 13 and 18 years, absence of disruptive psychological or medical problems, parents not in the legal divorce process, no grade repetition and no disciplinary problems. Exclusion criteria were insufficient time to participate, incomplete questionnaires, and receiving psychological treatment during the study period.

Instruments

Nomophobia Questionnaire: This questionnaire was developed by Caba-Machado et al. (2024). It originally contains 20 items rated on a 7-point Likert scale from 0 (strongly disagree) to 6 (strongly agree), yielding a total score from 0 to 120. It assesses four dimensions: not being able to access information (4 items; discomfort due

to losing immediate access to information via a smartphone), giving up comfort (5 items; reduced comfort/peace of mind related to monitoring battery status, network coverage, and phone credit), not being able to communicate (6 items; concern over losing the ability for immediate communication), and losing connection (5 items; feelings related to being permanently disconnected). In Caba-Machado et al. (2024) study, exploratory and confirmatory factor analyses led to removing 10 items with low loadings, leaving a 10-item version. Cronbach's alphas for the sample were 0.95 and 0.96 for T1 and T2, respectively. Reliability coefficients by dimension at T1 and T2 were: not being able to access information 0.84 and 0.88; giving up comfort 0.81 and 0.86; not being able to communicate 0.92 and 0.95; losing connection 0.86 and 0.90.

General Health Questionnaire (GHQ): The GHQ was first developed by Goldberg et al. (1997). The original form has 60 items, with 30-, 28-, and 12-item short forms widely used. Prior work (e.g., Mari & Williams, 1985; Shamsunder et al., 1986) indicates good validity and utility for all forms, with the 12-item form performing comparably to the 60-item form. The present study used the 28-item form comprising four 7-item subscales: somatic symptoms/general health (Items 1–7), anxiety (8–14), social dysfunction (15–21), and depression (22–28). Items have four response options. Two scoring methods are common: the traditional method (0-0-1-1; maximum 28) and the Likert method (0-1-2-3; maximum 84); most studies use Likert scoring. If scores are not reverse-coded, higher scores reflect better mental health. Reported reliabilities include split-half $\alpha=0.95$ Goldberg et al. (1997), internal consistency $\alpha=0.93$ among Hong Kong students (Chan, 1985), and test–retest $r=0.90$ over eight months among cardiac patients (Robinson et al., 1986). In Iran, Taghavi reported reliabilities of 0.93 (retest), 0.70 (split-half), and 0.90 (Cronbach's α), and concurrent validity with the Middlesex Hospital Questionnaire (MHQ) of 0.55.

Rosenberg Self-Esteem Scale: Developed by Rosenberg (1965), this 10-item scale measures positive and negative feelings about the self. Reported correlations with the Satisfaction with Life Scale were $r=0.43$ in adolescents and $r=0.54$ in a student sample (Greenberger et al., 2003). In Iranian samples, Mohammadi (2005) reported $\alpha=0.69$ and split-half $r=0.68$ among Shiraz University students, with test–

retest reliabilities of 0.77 (one week), 0.73 (two weeks), and 0.78 (three weeks). Rezaei Niaraki & Rahimi (2013) reported $\alpha=0.71$ among 120 high-school students in Jiroft.

Checklist of Psychological Pathology of Adolescents in Cyberspace: Developed by Adibnia et al. (2022), this 62-item scale is rated on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). Content and face validity were confirmed. Exploratory factor analysis yielded 10 factors explaining 78.43% of the variance; confirmatory factor indices indicated good fit. Reliability was $\alpha=0.98$ and test-retest $r=0.82$, indicating suitable validity and reliability for assessing psychological harms among adolescents in cyberspace.

Procedure

With permission from the instrument developers, the nomophobia questionnaire was translated using forward-backward translation. First, it was translated into Persian, then independently translated by two PhD-level psychologists. Next, a PhD in English—who had not read the original article—back-translated it into English. Finally, psychology experts compared the original and translated versions to ensure semantic equivalence. Content validity was evaluated by eight psychology faculty members, who judged whether items measure the intended construct and adequately cover the domain.

For data collection, the researcher coordinated with school administrators, entered the schools, and

explained the study purpose and completion procedures. The nomophobia questionnaire was distributed to students, who completed it individually and confidentially to enhance accuracy and honesty. Researchers were available to clarify any questions. Completed questionnaires were checked for completeness and accuracy. These steps ensured a systematic, standardized, and reliable data-collection process.

Analysis

Descriptive statistics (means, standard deviations) were computed. Psychometric evaluation included correlation matrices and confirmatory factor analysis (CFA). SPSS 27 and AMOS were used to conduct CFA and to examine model-fit indices.

Findings and Results

The data of 225 adolescents were analyzed. As shown in Table 1, the mean score of nomophobia was 39.70 (SD = 12.65), indicating a moderate level of nomophobia in the study sample. The mean scores of cyber pathology, self-esteem, and general health were 143.57 (SD = 37.82), 26.60 (SD = 4.53), and 39.46 (SD = 12.72), respectively. The greatest variability was observed in cyber pathology, whereas self-esteem showed the lowest dispersion.

Table 1

Descriptive Statistics of the Study Variables

Variable	Minimum	Maximum	Mean	SD	Variance
Cyber Pathology	66	265	143.57	37.82	1430.88
Self-Esteem	12	36	26.60	4.53	20.55
Nomophobia	12	70	39.70	12.65	16.07
General Health	11	74	39.46	12.72	188.38

Before conducting the main psychometric analyses, the assumptions of parametric testing were examined. The ratios of skewness and kurtosis to their standard errors were within the acceptable range of ± 2 for all items, indicating approximate normality. In addition, no missing data or significant outliers were identified. Therefore, the data were considered suitable for parametric analyses.

As presented in Table 2, the internal consistency of the Nomophobia Questionnaire was satisfactory. Cronbach's alpha for the total scale was 0.849, and the standardized alpha was 0.850. The split-half correlation was also significant ($r = 0.614$, $p = 0.001$), supporting the reliability of the instrument.

Table 2

Reliability Indices of the Nomophobia Questionnaire Index

Index	Value
Cronbach's Alpha	0.849
Standardized Alpha	0.850
Number of Items	10
Split-Half Correlation	0.614**
p	0.001

The item-level reliability findings are summarized in Table 3. Corrected item-total correlations ranged from 0.359 to 0.695, indicating that all items contributed adequately to the total score. Moreover, the “alpha if item

deleted” coefficients showed no meaningful improvement in the overall alpha value if any item was removed. Therefore, based on reliability evidence, no item needed to be deleted at this stage.

Table 3

Item Analysis and Reliability if Item Deleted

Item	Mean if Deleted	Variance if Deleted	Corrected Item–Total Correlation	Squared Multiple Correlation	Alpha if Deleted
n1	35.4933	139.939	0.359	0.404	0.851
n2	35.4222	139.325	0.419	0.495	0.845
n3	34.9200	139.020	0.402	0.423	0.847
n4	35.6311	129.814	0.572	0.438	0.832
n5	36.6711	129.463	0.639	0.561	0.827
n6	35.8400	127.278	0.695	0.604	0.822
n7	35.5867	127.592	0.652	0.537	0.825
n8	36.9511	134.770	0.466	0.413	0.842
n9	35.6667	123.054	0.695	0.541	0.820
n10	35.1378	128.084	0.590	0.398	0.831

Evidence for content validity is reported in Table 4. All items achieved acceptable content validity ratio (CVR) and content validity index (CVI) values. CVR values ranged from 0.83 to 0.93, and CVI values ranged from

0.87 to 0.96. These results indicate that the experts considered all items relevant and representative of the nomophobia construct.

Table 4

Content Validity of the Nomophobia Questionnaire

Item	CVR	CVI	Experts	Status
n1	0.90	0.92	8	Accepted
n2	0.88	0.90	8	Accepted
n3	0.85	0.89	8	Accepted
n4	0.83	0.88	8	Accepted
n5	0.88	0.91	8	Accepted
n6	0.90	0.94	8	Accepted
n7	0.90	0.96	8	Accepted
n8	0.83	0.87	8	Accepted
n9	0.87	0.92	8	Accepted
n10	0.93	0.95	8	Accepted

Criterion-related validity is shown in Table 5. Nomophobia had a significant positive correlation with

cyber pathology ($r = 0.210, p < 0.05$), supporting convergent validity. In contrast, its correlations with

self-esteem ($r = 0.030$) and general health ($r = 0.003$) were not statistically significant, providing evidence for discriminant validity.

Table 5

Correlations of Nomophobia with External Variables

Variable	Correlation with Nomophobia	p
Self-Esteem	0.030	0.659
Cyber Pathology	0.210**	< 0.05
General Health	0.003	0.958

As presented in Table 6, all items were significantly correlated with the total nomophobia score at the 0.01 level. The item-total correlations ranged from 0.488 to 0.767, indicating that all retained items were

Table 6

Correlations of Items with Total Score

Item	r	p
n1	0.488**	P<0.01
n2	0.532**	P<0.01
n3	0.521**	P<0.01
n4	0.674**	P<0.01
n5	0.722**	P<0.01
n6	0.767**	P<0.01
n7	0.736**	P<0.01
n8	0.584**	P<0.01
n9	0.736**	P<0.01
n10	0.736**	P<0.01

meaningfully associated with the overall construct. The strongest associations were observed for items n5, n6, n7, n9, and n10.

Structural validity was assessed using confirmatory factor analysis. As shown in Table 7, items n1 to n3 had weak factor loadings below 0.30 and were therefore removed from the model. The remaining items had significant factor loadings, with standardized estimates

Table 7

Confirmatory Factor Analysis Results for the Final Model

Item	Path	Unstandardized Estimate	Standardized Estimate	S.E.	t	P
n10	<--- nomo	1.000	0.627	—	—	—
n9	<--- nomo	1.140	0.702	0.132	8.618	P<0.001
n8	<--- nomo	0.820	0.541	0.119	6.899	P<0.001
n7	<--- nomo	1.151	0.768	0.125	9.202	P<0.001
n6	<--- nomo	1.194	0.831	0.123	9.679	P<0.001
n5	<--- nomo	1.070	0.746	0.119	9.009	P<0.001
n4	<--- nomo	1.041	0.672	0.125	8.336	P<0.001

ranging from 0.541 to 0.831 and all t values exceeding 1.96. These findings indicate that the retained items were strong indicators of the latent nomophobia construct.

Finally, the model fit indices reported in Table 8 demonstrated that the final measurement model had a good fit to the data. The values of CFI = 0.981, TLI = 0.966, GFI = 0.972, AGFI = 0.934, and RMSEA = 0.07 all fell within acceptable ranges. In addition, the chi-square to

degrees of freedom ratio was 2.085, supporting the adequacy of the model. Overall, the results shown in Table 8 confirm the structural validity of the Nomophobia Questionnaire in Iranian adolescents.

Table 8*Model Fit Indices of the Final CFA Model*

Index	Value	Acceptable Threshold
χ^2	25.022	—
CMIN/DF	2.085	< 2 (acceptable up to 3)
GFI	0.972	> 0.90
AGFI	0.934	> 0.90
IFI	0.981	≈ 1
NFI	0.964	> 0.90
RFI	0.937	> 0.90
TLI	0.966	> 0.90
CFI	0.981	> 0.90
RMSEA	0.07	< 0.08
PRATIO	0.571	> 0.50
PNFI	0.551	> 0.50
PCFI	0.560	> 0.50
F0	0.058	≈ 0
PCLOSE	0.179	> 0.05

Overall, the findings indicate that the Nomophobia Questionnaire demonstrated satisfactory internal consistency, acceptable content validity, evidence of criterion-related validity, and strong structural validity in Iranian adolescents. These results support its use as a reliable and valid measure for assessing nomophobia in this population.

Discussion and Conclusion

The results of this study showed that the Nomophobia Questionnaire possesses appropriate validity among Iranian adolescents. These findings are consistent with prior studies by (Sayyah et al., 2022; Rashno & Syahmansouri, 2025; Reisi & Moghimian, 2025; Alizadeh et al., 2021; Rashno & Syahmansouri, 2025; Park, 2025; Pour Yazdi & Hashemiyeh, 2024), and (Amiri & Taghinejad, 2022).

This result can be explained by noting that nomophobia—defined as the fear of being without a mobile phone or not having access to it—has emerged as a contemporary psychological concern in the technological era. The issue is particularly salient among adolescents due to their strong reliance on smartphones and widespread use of social media. Assessing nomophobia requires measurement tools that are both valid and reliable. The Nomophobia Questionnaire aims to evaluate the degree of dependence and anxiety individuals experience when separated from their phone or its functions.

A key factor in establishing validity is cultural adaptation to the target population. Cultural values and

social norms shape how people use mobile phones and how dependent they become. Thus, using the Nomophobia Questionnaire in Iran requires alignment with Iranian sociocultural features. Given the specific cultural, social, and educational context of Iranian adolescents, family, school, and broader social environments play a significant role in shaping mobile-use habits.

Validity can be examined through content validity, construct validity, and criterion validity. Content validity concerns whether the items cover all relevant aspects of nomophobia (e.g., anxiety about losing social contact or missing important information). Construct validity assesses whether the questionnaire truly measures the latent construct of nomophobia; factor analysis is typically used to test item–construct relations and the instrument’s structural coherence. Criterion validity can be evaluated by comparing questionnaire scores with external criteria (e.g., actual phone-use patterns or general anxiety levels).

Beyond validity, reliability must be considered. Reliability reflects the instrument’s stability and consistency over time. If the Nomophobia Questionnaire is reliable for Iranian adolescents, it should yield similar results under similar conditions at different time points. Although the questionnaire has shown dependable results in many countries, transferring it to the Iranian context requires careful evaluation to ensure cultural fit. Some items related to patterns of phone use or concerns about connectivity may be interpreted differently by Iranian adolescents.

Initial evidence indicates that the Nomophobia Questionnaire demonstrates acceptable validity among Iranian adolescents, suggesting it can accurately capture dependence on and anxiety about mobile phones. Nevertheless, broader and more comprehensive studies are needed for full confirmation. Ultimately, establishing solid validity has both scientific value and practical implications for designing educational and psychological programs aimed at reducing excessive mobile dependence among adolescents.

The results also showed that the Nomophobia Questionnaire has acceptable reliability among Iranian adolescents, aligning with findings by [Sayyah et al. \(2022\)](#); [Rashno & Syahmansouri \(2025\)](#); [Reisi & Moghimian \(2025\)](#); [Alizadeh et al., \(2021\)](#); [Rashno & Syahmansouri \(2025\)](#); [Park, \(2025\)](#); [Pour Yazdi & Hashemiyeh \(2024\)](#), and [Amiri & Taghinejad \(2022\)](#).

These reliability findings can be interpreted as follows: nomophobia—etymologically denoting “no-mobile-phone phobia”—captures a marked dependence on the mobile phone and anxiety arising from connectivity loss or inaccessibility. In Iran, where adolescents constitute a substantial share of mobile users, assessing this phenomenon is especially important. The Nomophobia Questionnaire is a standardized instrument for gauging mobile-related dependence and anxiety and has been widely used as a valid tool. Iranian studies have examined its functioning in local adolescent samples. Reliability—often tested via Cronbach’s alpha and item–total correlations—indicates the instrument consistently measures the construct without undue fluctuation. Good reliability means the tool can repeatedly and accurately assess nomophobia in Iranian adolescents—a group developmentally and socially vulnerable to technology-related dependencies.

Why is reliability crucial in the Iranian context? First, Iranian lifestyle and culture include strong family ties, increasing technology use, and unique social influences; these factors shape mobile-phone behaviors. Hence, psychological measures must capture these nuances to provide accurate results. Second, adolescence is a sensitive developmental period with rapid changes, making youth particularly prone to technology dependence; a reliable instrument enables precise identification and better prevention or intervention planning. Third, good reliability paves the way for large-scale national and cross-national research. Given Iran’s

sizeable youth population, robust measurement can illuminate the status of nomophobia and allow informative international comparisons.

Reliability, however, is only one facet; establishing validity—how well the tool measures the intended construct—is equally essential. When both reliability and validity are strong, the instrument becomes a trustworthy resource for researchers and practitioners. In sum, the Nomophobia Questionnaire’s reliability among Iranian adolescents not only supports its use for assessing nomophobia but also facilitates broader research on technology dependence and its mental-health consequences. This can inform interventions to reduce unhealthy dependence and promote adolescent mental well-being.

Limitations should be noted. The use of convenience sampling limits generalizability to all Iranian adolescents. The study was conducted only in Tehran Province; cultural, social, and economic conditions may affect results. Data were gathered via self-report measures, which are susceptible to social desirability and response biases. The cross-sectional design precludes conclusions about temporal stability or change in psychometric properties. Environmental and psychological factors—such as school and family context or concurrent use of other digital devices—were not controlled.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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