

Turkish Adaptation of Social Media Questionnaire for Nursing Training

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Background and Purpose: The use of social media in education has many effects such as rapid dissemination of information, crowdsourced information sharing, learning, and social interaction. In the study, it was aimed to determine the validity and reliability of the Social Media Questionnaire for Nursing Training (SMQNT), which can be used to determine the effect of social media in nursing education. **Methods:** The data of this methodological study were obtained from 262 nursing students. Confirmatory factor analysis (CFA) was used to determine the scale's factor structure, while Cronbach's alpha (α) coefficient, test-retest method, and split-half reliability method were used for reliability. **Results:** In line with the results of the CFA, it was determined that the scale had 13 items and a three-factor structure as "attitudes," "use," and "contrast information." Similar to the original scale, a three-factor establishment was approved. SMQNT Cronbach's α coefficient was found to be 0.87, while Cronbach's α coefficient was found to be 0.658 for the "F1" factor, 0.760 for the "F2" factor, and 0.688 for the "F3" factor. **Conclusions:** As a result of this study, the Turkish form of SMQNT was a valid and reliable measurement instrument.

Keywords: validity; reliability; nursing education; social media; media in education

The necessity of closely monitoring technological developments and keeping up with technology is one of the necessities brought about by today's information age (Yıldırım, 2014).

For this reason, the use of information technologies and the internet is increasing rapidly today (<http://www.internetworldstats.com/stats.htm>). The internet, which is used for different purposes such as accessing online information resources, entertainment, participating in any education, and communication, has become a network that has been adopted and used in many parts of the world (Houlden & Veletsianos, 2019). There are over 5 billion internet users in the world today. This corresponds to approximately 66% of the world's population (<http://www.internetworldstats.com/stats.htm>). Through the internet, people can access social networking sites, watch the videos they want, make all kinds of shopping transactions, and even carry out many official transactions (Van Deursen et al., 2016). In many parts of the world, the internet affects the social structure in many ways, from family and friendship relationships to the consumption habits of individuals, and changes the lifestyles of the society (Tarcan, 2005).

One of the areas where the internet is used intensively today is social media (Van Deursen et al., 2016). Social media is the technology that enables the easy and efficient sharing of ideas through virtual communication. In today's conditions, social media is a platform where information is gathered for learning and research purposes, and less time is spent communicating (AlFaris et al., 2018). Social media has different platforms such as Facebook, Twitter, YouTube, and Instagram (Briciu & Briciu, 2021). It has become one of the effective tools used by individuals and institutions in the field of health thanks to its structure that enables both interpersonal and mass communication (Tosyalı & Sutcu, 2016). Nurses who serve healthy and sick individuals benefit

from the internet and information technologies a great extent while fulfilling these functions. Social media offers important opportunities for nurses to communicate with their colleagues and to follow developments in healthcare (Cobaner & Isik, 2014).

In a study conducted among nurses, it was found that nurses mostly shared their personal hobbies and interests and used social media to follow the agenda. Due to the increasing use of social media, it is stated that the appropriate use of it should be included in the nursing education process (Demiray & Burnaz, 2019). The use of social media, together with current teaching methods and techniques, has contributed to the development of education and not being limited to closed environments (Supardi et al., 2021). When social media is used for its intended purpose in the field of education, it facilitates the support of learning, students to generate ideas by increasing their participation in the lesson, the exchange of resources, and a clear understanding of concepts. It also benefits both students and lecturers by enabling peer collaboration, enhancing professional development and academic research (Hamadi et al., 2021; Lau et al., 2019). The use of social media in education has both advantages and disadvantages. Among the most important advantages of using social media in education are obtaining more information on different subjects, making education more interesting, and developing creativity and research skills. However, its disadvantages include preventing students from studying, causing addiction, and wasting too much time (Rajeh et al., 2021). It has been stated that nursing students use social media to communicate with others and to have fun, promote learning, find social support, share experiences as nursing students, and find job opportunities (Alharbi et al., 2021).

In studies conducted in our country on the use of social media in the education of nursing students (Çelik & Diker, 2021; Karadas et al., 2021; Tunç-Aksan & Akbay, 2019), no scales were found on the use of a specific social media for nursing education. Nursing students can use social media in their educational life, especially in facilitating the learning of skill-oriented information. The reason why nursing students use social media to optimize their professional development should be considered. Social media can be used to ensure the development of professional identity, help easy learning, and support the transition to practice. This study aims to conduct a validity and reliability study for the Turkish form of the SMQNT, developed to facilitate undergraduate nursing students' learning during their education and contribute to national literature.

MATERIALS AND METHODS

Study Design and Sample Size

This study is a methodological study conducted to adopt the "SMQNT" in Turkish. The study was conducted with the second-, third-, and fourth-year nursing students of a state university in Erzurum between November 2021 and January 2022. There are 900 students in their second, third, and fourth year. It is stated in the literature that in scale adaptation studies, the sample size should be at least 5 times and at most 10 times the number of items in the scale (Aksu et al., 2017; Karakoc & Donmez, 2014; Kurnaz & Yigit, 2010). The original SMQNT has 13 items. Therefore, the sample size was predicted as 65 at least or 130 at most. Data were collected from 262 nursing students who agreed to participate in the study by face-to-face interview method.

Data Collection Tools

The data in the study were collected by using the "Personal Information Form" and the "SMQNT."

Personal Information Form

This form includes four questions on gender, age, year of study, and social media use of individuals.

Social Media Questionnaire for Nursing Training

This scale Jiménez-Rodríguez et al. (2021) developed to determine social media use in nursing education consists of 13 items (Jiménez-Rodríguez et al., 2021). The scale is a 5-point Likert type scale (1 as totally disagree to 5 agree). The scale consists of three factors. The first factor is the "use" of social media in nursing education, the second factor is "attitude," and the third factor is "contrast information." High scores on the scale show that social media use is high in nursing education.

In the study conducted by Jiménez-Rodríguez et al. (2021), Cronbach's α value was reported as 0.84, while in the present study, Cronbach's α value was found to be 0.87.

Language Validity

The original scale was translated into Turkish by two independent language experts. The two translations were first evaluated by the researchers, and the Turkish version was structured (Secer, 2020). After translation, a single document was created with the expressions in scale items. This form was reviewed by three Turkish language experts, one scale development expert, and five nursing field experts. The suitability of scale items,

Turkish language validity, and cultural relevance were checked, and revisions were made. As a result of the modifications, scale items were collected in one single form and back-translated into the original language by a language expert. The original scale and the translated form were checked. It was determined that the Turkish form was similar to the English form.

In order to provide scope equivalency of the scale, language equivalency of which was guaranteed, the opinions of a group of experts composed of 12 experts on management science were appealed. The experts were informed about the study, and they evaluated the clarity of the items in the scale in terms of both English and Turkish languages, whether the items were related to the concept to be measured and their cultural conformity. The content validity index (CVI) and Davis method were used to collect expert opinions. According to this method, a score between 1 and 4 (1, not appropriate; 2, item needs to be made appropriate; 3, appropriate but changes are required; 4, very appropriate) was applied for each item. As a result of the opinions obtained, the CVI of the entire scale was found to be 0.91. The criterion value for CVI is accepted to be 0.08. According to these results, the scope validity of SMQNT has been provided.

Pilot Study

In scale adaptation studies, the pilot study should reach a sample of around 30, the internal consistency value of the scale should be ≥ 0.70 , and it should be checked whether the item–total correlation value is below 0.30 (Secer, 2020). The pilot study was conducted with 30 nursing students (Çapık et al., 2018). It showed that the questions were understandable. Data obtained in the pilot study were not included in the study data. The scale was administered after the pilot study without making any revisions.

Main Study

Consents of 262 nursing students were obtained, and data were collected by face-to-face interview method. The test–retest method was used to measure the stability of the scale. In the literature, it is recommended to repeat the test between 15 and 30 days (Secer, 2020). In the study, test–retest was conducted between 15 and 30 days.

Statistical Analysis

The data were analyzed with the SPSS 22 package program and AMOS. The data were evaluated with arithmetic mean, standard deviation, percentage, and min–max values. The Kaiser–Meyer–Olkin (KMO) test was conducted to assess the adequacy of the data set for factor analysis, while Bartlett’s sphericity test was performed to determine whether there is a significant correlation among the variables. The goodness-of-fit statistics were examined to determine whether the model analyzed with CFA was validated by the available data set. As the Chi-square (χ^2) value is highly sensitive to sample size, it is recommended to base the evaluation of model fit on the value obtained by dividing χ^2 by its degrees of freedom. In addition to χ^2/df , the following fit indices were used to test model fit: root mean square error of approximation (RMSEA), standardized root mean square residual (S-RMR), normed fit index (NFI), comparative fit index (CFI), goodness-of-fit index (GFI), parsimony goodness-of-fit index (PGFI), adjustment goodness-of-fit index (AGFI), parsimony normed fit index (PNFI), root mean square residual (RMR), Tucker–Lewis index (TLI), and incremental fit index (IFI). These indices collectively offer insights into the adequacy of the model in representing the underlying structure of the data. The internal consistency of the scale was tested using Cronbach’s α and split-half reliability analysis.

PATH diagram was used to graphically illustrate the relationships and interactions between variables in the study. The internal consistency of the scale was tested using Cronbach’s α .

Ethical Considerations

First, the required permissions were taken to use the questionnaire. This study was approved by the Erzurum Teknik University of Health Sciences Ethics Committee (Decision No: 01), and the Atatürk University Nursing Faculty provided institutional permission to conduct the study. The students who participated were informed about the study, and their consent was taken after telling them that participation was based on voluntariness. The participants were informed that their names and data would not be shared.

RESULTS

Sociodemographic Characteristics

It was found that 74.9% of the students who participated in the study were female, 48.5% were in their second year, and 88.2% were between the ages of 19 and 22 (Table 1).

Results Regarding Validity

Before CFA was applied to the questionnaire, KMO and Barlett's sphericity test were performed to check the suitability of the sample size and the suitability of the data set for analysis. KMO value was found to be 0.893. Barlett's sphericity test was significant ($\chi^2 = 1226,401$; $p = .001$). When the literature was reviewed, it was concluded that the sample size and data set were suitable for analysis (Cobaner & Isik, 2014; Demiray & Burnaz, 2019; Hamadi et al., 2021; Lau et al., 2019; Rajeh et al., 2021).

Construct Validity

Before construct validity, the KMO value was calculated, and Barlett's sphericity test was performed to determine the suitability of the data set. The KMO value obtained for this study was 0.893, and the Barlett's sphericity test was 0.000; in line with these values, it was determined that the data set was suitable for factor analysis. CFA was conducted to test the scale's construct validity using the AMOS 23.0 statistical program. The original scale has a three-factor structure. For this reason, the maximum likelihood estimation technique was used in factor analysis since a form with known factors was tested in this study.

The first-level three-factor structure of the SMQNT, which consisted of three factors and 13 items, was tested with CFA (Figure 1). The maximum likelihood calculation method was used in analyses since the data were normally distributed (Tavakol & Wetzel, 2020). When modification indices of the items were examined, a high level of covariance was found between items I_1 and I_3 and items I_1 and I_2 and modified by combining the error terms of these three items. The information regarding the fit indices obtained from CFA is shown in Table 2. Fair values were evaluated using multiple reference values (Aksu et al., 2017; Byrne, 2013; Kline, 2014).

Results Regarding Reliability

Internal Consistency (Cronbach's α) Coefficients. The Cronbach's α coefficient was calculated to determine the reliability analyses of the 13 items in the finalized scale. Cronbach's α value was found to be 0.760 for the "F2" factor, 0.688 for the "F3" factor, and 0.658 for the "F1" factor, while it was found to be 0.778 for the whole scale. These values show that the scale is reliable (Tavsancil, 2018). The normal range of Cronbach's α coefficients is between 0.00 and + 1.00, and higher values reflect a higher internal consistency (Polit & Beck, 2004).

Split-Half Reliability Coefficient. As a result of the split-half reliability analysis regarding the final form of the 13-item scale, it can be said that the Spearman-Brown correlation value ($r = .875$) and Guttman split-half coefficient value ($r = .870$) of the scale are sufficient (Secer, 2020). Split-half Cronbach's α reliability coefficients are 0.785 and 0.778. Split-half Cronbach's α results show that the scale is reliable (Secer, 2020).

Test-Retest Reliability. Pearson moment correlation analysis was conducted to determine the scale's test-retest reliability. Correlation values of the relationship between pre-test and post-test measurement results were significant at $r = .850$ and $p < .001$. It can be seen that the pre-test and post-test measurement results of the scale, which were conducted with an interval of 15 days, were similar. This result showed that SMQNT had high test-retest reliability.

DISCUSSION

This study aimed to conduct a validity and reliability study of the "SMQNT" by the Turkish language and culture. In scale adaptation studies, the construct validity of the measurement tool is evaluated after language validity. Construct validity is the ability of the measurement tool to measure the relevant concept. Factor analysis is one of the most used approaches to assess construct validity. The two primary purposes of factor analysis are to reduce the number of variables (factor reduction) and to classify the variables (Alpar, 2013; DeVellis, 2016). However, it is stated that CFA should be performed directly instead of exploratory factor analysis during the process of adapting a measurement tool (Secer, 2020). This is because CFA allows testing an existing or constructed model. As a result of the CFA, a three-factor structure similar to the original scale was obtained without deleting any items, and model fits were confirmed. Reliability analyses were conducted after CFA, and the scale's Cronbach's α value was found to be 0.870. Split-half and test-retest reliability analysis results also showed that the scale had sufficient reliability. These results showed that the scale is valid and reliable.

With the keywords "nursing education" and "social media," national literature was reviewed with Türkiye Ölçme Araçları Dizini (TOAD) and Google Scholar, and 39 scales were found. Most of these scales were on social media addiction. On the other hand, there are scales regarding social media use in different age groups (children, adolescents, adults, etc.). There are also scales in the literature, such as "social media burnout," "social media competency," and "social media fear." There is a "Social Media Learning Scale" that includes

TABLE 1. Demographic Characteristics of the Students Who Participated in the Study

CHARACTERISTICS	N	%
Gender		
Female	196	74.8
Male	66	25.2
Year of study		
Second year	127	48.5
Third year	31	11.8
Fourth year	104	39.7
Age		
19–22	131	88.2
≥23	31	11.8

items on how to use social media (Ekşi & Aslan, 2023). When all these scales are examined, it is seen that their intended use is different. As seen in the literature, social media seems to have many scales developed for health, marketing, shopping, family life, etc. When the content of these developed scales is examined, it is noteworthy that there is no emphasis on using social media for educational purposes. Nowadays, social media forms an important part of education. For this reason, this scale has a unique value in revealing the importance of social media use in education and filling the gap in this field. For this reason, no similarity was found between the factors of the scale that was the subject of the study. This shows the originality of the scale.

CONCLUSION

SMQNT was adapted to the Turkish society in this study. According to the results obtained, it was found that the three-factor and 13-item structure in the original scale was suitable for the Turkish culture. The first factor is the “use” of social media in nursing education, the second factor is “attitude,” and the third factor is “contrast information.” The first factor includes five items, the second factor includes six items, and the third factor includes two items.

According to the results obtained in the study, SMQNT was found to be a valid and reliable measurement tool for the Turkish society. The scale is an efficient and economical measurement tool because of the small number of items and the short expressions.

Practical Implications

This research is relevant to nursing research, practice, and education by providing a validated tool that can be used to understand, assess, and potentially shape the integration of social media in these domains. The findings offer practical insights that can influence policies, enhance educational practices, and empower nursing professionals to leverage social media for continuous learning and professional growth.

Relevance to Nursing Research

This research holds significance for nursing research as it delves into adapting and validating the SMQNT in the Turkish context. It contributes to the growing body of literature exploring the impact of social media on nursing education. The study provides a structured and validated tool for researchers to investigate the nuances of social media usage among nursing students, allowing for more in-depth and standardized research in this evolving field.

Relevance to Nursing Practice

The findings of this study have direct implications for nursing practice. Recognizing social media as an engaging and informative approach to learning, the validated SMQNT can be applied by nurses in their ongoing education and professional development. Nursing practitioners can self-assess their social media usage patterns, attitudes,

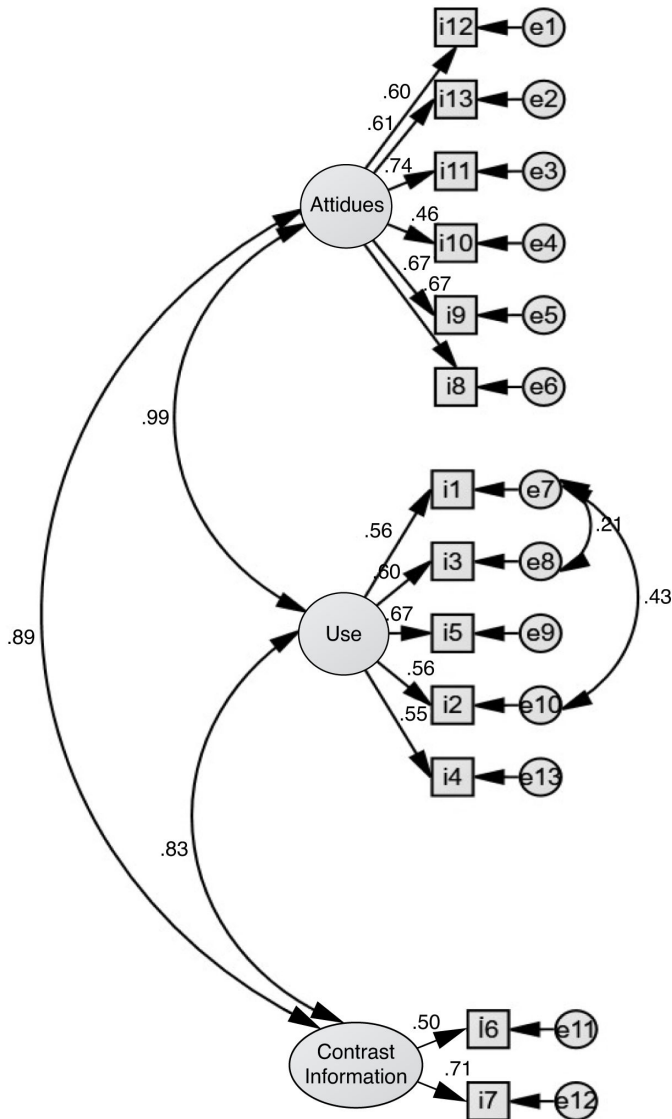


Figure 1. Social media questionnaire first-order three-factor CFA structure.

and information contrast, fostering a reflective practice that leverages the benefits of online platforms for continuous learning and staying updated with the latest advancements in healthcare.

Relevance to Nursing Education

In the realm of nursing education, the study's outcomes are particularly pertinent. The validated Turkish version of SMQNT offers educators a reliable instrument to assess and understand how nursing students utilize social media in their educational journey. This knowledge can guide curriculum development, instructional strategies, and the incorporation of social media into educational practices. Educators can tailor their approaches based on the insights gained from this tool, ensuring that social media is effectively integrated into nursing education to enhance student learning experiences.

Limitations and Strengths

The limitation of the study is that the scale is carried out only in nursing students in Turkey, and some of the methods used to evaluate the reliability of the scale (e.g., test-retest and halving reliability) change over time or give different results.

TABLE 2. CFA Goodness-of-Fit Indices and Normal Values

INDEX	NORMAL VALUE	ACCEPTABLE VALUE	MEASUREMENT	RESULT
χ^2 “p” value	$p > .05$	-	0.001	Perfect fit
χ^2/sd (CMIN/DF)	<2	<5	2,840	Perfect fit
GFI	>.95	>.90	0.908	Acceptable fit
AGFI	>.95	>.85	0.860	Acceptable fit
CFI	>.95	>.90	0.906	Acceptable fit
RMSEA	<.05	<.08	0.084	Acceptable fit
RMR	<.05	<.08	0.060	Perfect fit
SRMR	<.05	<.08	0.059	Acceptable fit
NFI	>.95	>.80	0.864	Acceptable fit
TLI	$0.95 < TLI < 1$	$0.90 < TLI < .94$	0.878	Poor fit
IFI	>.90	-	0.907	Perfect fit
PGFI	>.89	>.50	0.697	Acceptable fit
PNFI	>.89	>.50	0.664	Acceptable fit

Social media is a platform we use in many areas today. When we look at the literature, we come across many measurement tools regarding the use of social media. However, it is noteworthy that there are no scales for the use of social media in the field of education. The strength of this research is that this adapted scale easily enables the determination of nursing students’ use of social media to improve their knowledge and skills, especially in nursing education based on research and practice.

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Data availability. The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Authorship statement. All listed authors meet the authorship criteria and that all authors are in the agreement with the content of the manuscript.

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