

ORIGINAL PAPER ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

Cross-validation of the “sexting motivation questionnaire” in the modern Greek context

OBJECTIVE To validate the Sexting Motivations Questionnaire (SMQ) in the Greek context. Although a similar attempt has been made before, the researchers believed that there were methodological errors and decided to repeat the process. **METHOD** A total of 459 adults (198 males and 290 females), aged 18–30 years ($M=19.86$; standard deviation [SD]=1.29) participated in the process. More specifically, 178 comprised the sample for Exploratory factor analysis, while the remaining 281 were included in the Confirmatory factor analysis. **RESULTS** Based on the new analyses that were conducted due to concerns about the validity of earlier findings, the results showed alignment with those of the initial creators of the questionnaire. **CONCLUSIONS** The findings primarily indicated the structural validity of the questionnaire, thereby substantiating its appropriateness for utilization in surveys conducted in Greece.

ARCHIVES OF HELLENIC MEDICINE 2026, 43(5):640–645
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2026, 43(5):640–645

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Επιβεβαίωση της εγκυρότητας
του ερωτηματολογίου κινήτρων
για sexting στο σύγχρονο
ελληνικό κοινωνικό πλαίσιο

Περίληψη στο τέλος του άρθρου

Key words

Adult population
Definition
Measurement
Sexting
Validation

Submitted 14.5.2025

Accepted 7.6.2025

In line with prevailing trends in contemporary social evolution and advancements in the digital world, online sexual interaction has similarly undergone significant transformation.^{1,2} A particularly noteworthy development within this context is the emergence of the term sexting,³ a portmanteau of “sex” and “texting”.⁴ Popularly understood, sexting refers to the sending, receiving, or sharing of sexually explicit messages, images, or videos via electronic media.³ Over the past decade, various definitions have been proposed to delineate the concept of sexting.^{5–7} The most prevalent defines it as the sharing of sexual images, videos, or messages through digital means.⁸ However, discrepancies remain due to the lack of consensus regarding the specific behaviors to include (e.g., sending, receiving, forwarding) and the formats of media (e.g., text, image, video).³

While adolescents and young adults are the most frequent participants in sexting due to their developmental

stage and desire for peer acceptance, older adults are also engaging in sexting.⁹ This shift is driven by widespread digital communication and a broader cultural acceptance of expressing sexuality through electronic media.¹⁰ Nevertheless, research on sexting among older populations remains limited compared to the more extensive body of work focused on youth.¹¹

According to existing literature, attitudes towards sexting are shaped by a variety of factors, including the broader context of sexuality, the desire to strengthen intimate relationships, social pressures from peers or partners, body image enhancement, and identity formation. Sexual motives are particularly prominent, encompassing flirtation, the initiation of sexual activity, attraction and arousal of the recipient, and its use as foreplay. Sexting may also function as a tool for coercion or exploitation, where sexual content is exchanged for material goods, services, or monetary gain.

These complex and sometimes contradictory motivations underscore the need for further research to better understand the diverse drivers of sexting behavior, especially among young people.¹² In the early 2010s, research began framing sexting as a deviant behavior, emphasizing its potential harms, especially when it involves minors.^{13–16} Media narratives have often depicted sexting as a dangerous or taboo practice, primarily due to the illegal distribution of explicit content involving individuals under 18 – a criminal offense in most countries. Non-consensual sharing of sensitive content has led to devastating consequences, including suicides, highlighting the serious risks associated with misuse.⁸ To investigate public attitudes and behaviors related to sexting, researchers have developed and employed a range of questionnaires. Notable among these are: (a) The Sexting Motivations Questionnaire (SMQ),¹² (b) the Frequency of Sexting Questionnaire,¹⁷ (c) the Sexting Behaviour Questionnaire (SBQ),⁹ (d) the Sexpectancies Questionnaire (SQ),¹⁸ and (e) the Sexting Questionnaire.¹⁹ Study has also applied the Theory of Planned Behavior to assess sexting intentions.²⁰

In Greece, research on sexting remains relatively sparse.^{21–27} Among the limited number of studies, several measurement tools have been employed, including: (a) The Greek Sexting Behaviors Scale (G-SBS),²² (b) the Greek version of the Sexting Motivations Questionnaire (SMQ),¹² and (c) the Sex and Tech questionnaire.²⁸ A closer examination of the SMQ revealed significant methodological errors in the validation attempt by Galanis et al, using Greek data. Given the scarcity of literature and reliable measurement tools in the Greek context, the present study aimed to re-validate the SMQ, beginning the validation process anew.

More specifically, the aim of the present study was to cross-validate the SMQ within the context of modern Greek. Although the questionnaire had previously been validated in Greek, this new validation effort was undertaken due to methodological flaws and omissions identified in the initial validation study.

MATERIAL AND METHOD

Participants

The sample comprised 459 adults, 198 males (41%) and 290 females (59%), with an age range of 18–30 years (mean [M]=19.86; standard deviation [SD]=1.29). Of these, 178 individuals constituted the sample for Exploratory factor analysis (EFA), and 281 the sample for Confirmatory factor analysis (CFA).

Instruments

To fulfil the objectives of the survey, the Greek version of the

“Sexting Motivation Questionnaire”²⁴ was utilised. However, it was decided by the authors to undertake the validation procedure afresh, due to methodological errors or omissions.

The first omission pertains to the original Greek publication,²⁴ which states that the initial questionnaire¹² consists of 13 items distributed across three factors. However, the complete set of these 13 items is explicitly listed only on page 663 and in table 1, where Spearman correlation coefficients are reported. Although the items appear again on page 665 and in table 2, no clear reference or context is provided. The second omission involves the lack of explanation regarding the composition of the three factors, as originally defined in the initial study.¹² Nowhere in the Greek study is there an account of how the original factor structure has been maintained or altered. The third omission concerns the discrepancy in both the numerical and qualitative composition of the factors between the original and Greek versions. In the original questionnaire,¹² the structure comprises: (a) Sexual purposes: 5 items, (b) instrumental/aggravated reasons: 5 items, and (c) body image reinforcement: 3 items. In contrast, the Greek adaptation²⁴ reports: (a) Sexual purposes: 4 items, (b) instrumental/aggravated reasons: 3 items, and (c) body image reinforcement: 4 items.

Despite these substantial modifications, the Greek study fails to acknowledge or justify the redistribution of items across the three factors. Moreover, two items from the original questionnaire – “*because I am forced by someone*” and “*to hurt or damage someone*” – are entirely omitted in the Greek version, with no explanation offered regarding their exclusion or potential reassignment.

Statistical analysis

During the questionnaire construction process, the internal consistency of the three factors was satisfactory, with Cronbach's alpha values of 0.84, 0.87 and 0.89, respectively, for the first factor (sexual goals), second factor (personal reasons), and third factor (body image enhancement). In the Greek validation of the questionnaire,²⁴ the corresponding values were 0.89, 0.71 and 0.93, and the whole questionnaire was 0.96.

Process

The questionnaire was translated from Italian into Greek using the back-to-back translation method,²⁹ by a pair of professional translators. The translators were able to reach a consensus throughout the process. The text was subsequently provided to two other translators to translate it back into Italian. Once more, there was no discrepancy between the two translators, and thus the questionnaire was administered to twenty individuals to ascertain its comprehension. No questions or ambiguities were reported.

The questionnaire was shared in the form of an electronic link via the internet on modern social media. Prior to completing the questionnaire, it was made clear to participants that their participation was voluntary, and that no personal information would be collected. It was further clarified that the data collected would

Table 1. Characteristics of exploratory factor analysis. M: Mean, SD: Standard deviation.

Item Sometimes I send texts...	Factors and factors' loading		
	Sexual purposes	Instrumental/aggravated reasons	Body image reinforcement
To increase passion in my dating relationship	0.903		
To increase intimacy in my dating relationship	0.881		
To feel sexually aroused	0.901		
To feel wanted	0.889		
For flirting or hooking up	0.908		
To obtain small favors from people		0.746	
In exchange for money or gifts		0.797	
Because I am forced by someone		0.796	
In exchange for something I need		0.767	
To hurt or damage someone		0.868	
To test whether I am attractive enough			0.858
To verify whether my body is okay			0.890
To test whether I am sexually attractive			0.894
Total variance 72.25%			
Eigenvalues	4.24	2.86	2.29
Variance (%)	32.61	22.00	17.64
Cronbach's alpha	0.92	0.82	0.86
M	2.62	1.15	0.97
SD	0.93	0.35	0.45

Table 2. Factors' composite reliability and average variance extracted.

Item	Factors' loading	Composite reliability	Average variance extracted
<i>Sexual purposes</i>			
Sometimes I send sexts to increase passion in my dating relationship	0.87		
Sometimes I send sexts to increase intimacy in my dating relationship	0.83		
Sometimes I send sexts to feel sexually aroused	0.86	0.929	0.723
Sometimes I send sexts to feel wanted	0.82		
Sometimes I send sexts for flirting or hooking up	0.87		
<i>Instrumental/aggravated reasons</i>			
Sometimes I send sexts to obtain small favors from people	0.68		
Sometimes I send sexts to obtain small favors from people	0.70		
Sometimes I send sexts in exchange for money or gifts	0.70	0.844	0.520
Sometimes I send sexts because I am forced by someone	0.75		
Sometimes I send sexts to hurt or damage someone	0.77		
<i>Body image reinforcement</i>			
Sometimes I send sexts to test whether I am attractive enough	0.79		
Sometimes I send sexts to verify whether my body is okay	0.85	0.890	0.731
Sometimes I send sexts to test whether I am sexually attractive	0.92		

be used solely for academic and research purposes. Responses were provided using a 5-point Likert-type scale where 1 (never) to 5 (very often).

RESULTS

Suitability of data and variables

Checking the suitability of the survey data for factorisation is the first stage of exploratory factor analysis. The indicators considered were the Kaiser-Meyer-Olkin (KMO) index and Bartlett's test of Sphericity (χ^2 , degree of freedom, and p). The values obtained for these indices (KMO=0.801, $\chi^2_{(78)}=1714.647$ and $p<0.001$) demonstrate the suitability of the data for factor analysis.

The Measure of Sampling Adequacy (MSA)³⁰ was considered to test the suitability of the variables for participation in the factor model. The value obtained for each variable by the index proved the suitability of all variables for participation in the factor model since the lowest value obtained variable (sometimes I send sexts in exchange for money or gifts) was 0.797 while the highest (sometimes I send sexts to feel sexually aroused) was 0.899. According to previous research,³¹ values between 0.80 and 0.90 are most appropriate, values between 0.60 and 0.70 are acceptable but not particularly reliable. Finally, values ≤ 0.50 should be deleted and not be included in further analysis since they are considered inappropriate for the factor model.

Exploratory factor analysis

Thirteen questions exploring the concept of sexting were included in the EFA using a principal component analysis solution with direct oblimin rotation. The analysis yielded three factors explaining a total of 72.25% of the total variance (tab. 1).

The first factor, "Sexual purposes", explained 32.61% of the total variance, is composed of five items and explores the reasons for "sexting". The second factor, "instrumental/aggravated reason", explained 22% of the total variance, is composed of five items, examines secondary reasons that prompt one to sexting and are not related to sexuality. Finally, the third factor, "body image reinforcement", is composed of three items, explained 17.64% of the total variance, and examines whether social body image reinforcement is the reason for sexting.

Reliability analysis

Cronbach's alpha was utilized to test the internal consistency of both the three factors and the questionnaire as a whole.

From the results presented in table 1, good internal consistency of the three factors as well as the questionnaire as one factor (0.81), is observed.

Confirmatory factor analysis

Suitability of data and variables

A CFA was performed on the 13 items of the Greek version of SMQ since, according to the statistical criterion measure of sampling adequacy, they showed values between 0.80 and 0.90 (0.802 is the lowest, and 0.911 is the highest). The method of estimating parameters is that of maximum likelihood. The hypothesized model consists of four latent variables, namely "sexual purposes", "instrumental/aggravated reasons" and "body image reinforcement".

The results of the CFA demonstrated that the hypothesized model produced a significant χ^2/df ($281.75/62$)=4.54, $p=0.001$. The normed fit index, comparative fit index and goodness of fit index were found to be 0.90, 0.92, and 0.87, respectively. The root mean square error of approximation (RMSEA) was also considered to assess the degree of fit of the model. The RMSEA value for the hypothesized model was found to be 0.072, standardized root mean square residual=0.023.

Composite reliability and average variance extracted

All three factors showed a fairly good internal consistency as the composite reliability (CR) index values ranged from 0.844 (instrumental/aggravated reasons) to 0.929 (sexual purposes). In terms of discriminant and convergent validity, the average variance extracted index showed satisfactory values for the two factors, from 0.723 for sexual purposes to 0.731 for "body image reinforcement" (tab. 2). The instrumental/aggravated reasons factor, however, marginally managed to garner an acceptable value since only values of ≥ 0.50 are considered acceptable.³¹

DISCUSSION

The validation process involved two separate surveys. The first survey employed EFA to adapt the questionnaire to the Greek language. To assess the internal consistency of the identified factors, Cronbach's alpha was used. The second survey applied CFA using LISREL 8.80, along with calculations of CR and average variance extracted (AVE).

To determine the suitability of the variables for EFA, the measure of sampling adequacy (MSA) was examined. All

13 items showed acceptable value, with the lowest MSA being 0.797, confirming their appropriateness for inclusion. The items loaded onto three factors –sexual purposes, instrumental/aggravated reasons, and body image reinforcement– as originally proposed by the questionnaire’s developers,¹² collectively explaining 72.25% of the total variance.

The internal consistency of the three factors was deemed highly satisfactory, with all Cronbach’s alpha values exceeding 0.80. These findings are consistent with the original researchers,¹² who also reported high reliability coefficients for the same factors. Consequently, the Greek version of the SMQ can be considered both reliable and valid for use

in survey-based research. The second phase of the study sought to confirm the factor structure through CFA and to evaluate the instrument’s psychometric properties using CR and AVE. The results supported the structural validity of the questionnaire and further affirmed its appropriateness for use within Greek-speaking populations.

Limitations include the inability to control participants’ psychological state during questionnaire completion, which may have affected their responses. Additionally, social desirability bias, potentially stemming from adherence to conservative social norms, may have influenced participants to respond in a manner consistent with perceived societal expectations rather than their true attitudes or behaviors.

ΠΕΡΙΛΗΨΗ

Επιβεβαίωση της εγκυρότητας του ερωτηματολογίου κινήτρων για sexting στο σύγχρονο ελληνικό κοινωνικό πλαίσιο

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Αρχεία Ελληνικής Ιατρικής 2026, 43(5):640–645

ΣΚΟΠΟΣ Η εγκυροποίηση του ερωτηματολογίου Sexting Motivations Questionnaire (SMQ) στο ελληνικό πλαίσιο. Αν και είχε προηγηθεί παρόμοια προσπάθεια, οι ερευνητές θεώρησαν ότι υπήρχαν μεθοδολογικά σφάλματα και αποφάσισαν να επαναλάβουν τη διαδικασία. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Συνολικά συμμετείχαν 459 ενήλικες, 198 άνδρες και 290 γυναίκες, ηλικίας 18–30 ετών (M=19,86, τυπική απόκλιση [TA]=1.29). Πιο συγκεκριμένα, 178 συμμετέχοντες αποτέλεσαν το δείγμα για τη διερευνητική παραγοντική ανάλυση και 281 για την επιβεβαιωτική παραγοντική ανάλυση. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Με βάση τις νέες αναλύσεις που πραγματοποιήθηκαν λόγω αμφιβολιών για την εγκυρότητα προγενέστερων ευρημάτων, τα αποτελέσματα συμφώνησαν με εκείνα των αρχικών δημιουργών του ερωτηματολογίου. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Τα ευρήματα κατέδειξαν κυρίως τη δομική εγκυρότητα του ερωτηματολογίου, επιβεβαιώνοντας έτσι την καταλληλότητα χρήσης του στον ελληνικό χώρο.

Λέξεις ευρετηρίου: Ενήλικος πληθυσμός, Επικαιροποίηση, Μέτρηση, Ορισμός, Sexting

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