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Quality of contraceptive counseling short scale: Turkish validity and reliability study

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Abstract

This study aimed to evaluate the validity and reliability of the Turkish version of the 10-item Quality of Contraceptive Counseling Scale. This cross-sectional methodological study was conducted at a training and research hospital in Turkey with 125 women who received contraceptive counseling, including 100 participants for the main validation analyses and 25 for test–retest reliability. The scale was adapted through forward–backward translation, expert review, and cultural adaptation. Construct, criterion, and discriminant validity, internal consistency, and temporal stability were assessed. The Turkish version demonstrated a unidimensional structure with acceptable model fit, high internal consistency, and excellent test–retest reliability. Significant associations with patient satisfaction supported criterion validity, while discriminant validity analyses showed that the scale distinguished between groups with different perceptions of counseling quality. The findings support its use as a valid and reliable tool in clinical practice and research. *(Afr J Reprod Health 2026; 30 [20]: 71-82).*

Keywords : Contraception, Counseling, Validity and Reliability, Scale Development, Family Planning Services

Résumé

Cette étude visait à évaluer la validité et la fidélité de la version turque de l'échelle en 10 items mesurant la qualité du conseil en matière de contraception (« Quality of Contraceptive Counseling Scale »). Cette étude méthodologique transversale a été menée dans un centre hospitalier universitaire en Turquie auprès de 125 femmes ayant bénéficié d'un conseil en contraception ; 100 participantes ont été incluses dans les analyses de validation principales, et 25 ont participé à l'évaluation de la fidélité test-retest. L'échelle a été adaptée par le biais d'un processus de traduction-rétrotraduction, d'une évaluation par des experts et d'une adaptation culturelle. La validité de construit, la validité de critère et la validité discriminante, ainsi que la cohérence interne et la stabilité temporelle, ont été examinées. La version turque a révélé une structure unidimensionnelle avec un ajustement au modèle acceptable, une cohérence interne élevée et une excellente fidélité test-retest. Des associations significatives avec la satisfaction des patientes ont confirmé la validité de critère, tandis que les analyses de validité discriminante ont montré que l'échelle permettait de distinguer des groupes ayant des perceptions différentes de la qualité du conseil. Ces résultats soutiennent son utilisation en tant qu'outil valide et fiable dans la pratique clinique et la recherche. *(Afr J Reprod Health 2026; 30 [20]: 71-82).*

Mots-clés: Contraception, conseil, validité et fidélité, élaboration d'échelles, services de planification familiale

Introduction

Contraception was formally recognized as a fundamental component of reproductive health at the 1994 International Conference on Population and Development in Cairo, where it was framed within the broader context of human rights.[1] In this context, the quality of contraceptive counseling was emphasized, and access to high-quality counseling was acknowledged as an essential component of reproductive health services. Effective counseling is based on six key components: voluntary and informed method choice, adequate information, provider competence, interpersonal communication, continuity of care, and appropriate provider engagement.[2] High-quality counseling enhances contraceptive uptake and continuation and encourages individuals to seek support when they are dissatisfied with a method.[3] The overall quality of counseling directly affects client

satisfaction and the likelihood of future service use,[4] and is influenced by access to preferred methods, clear education, respectful communication, satisfaction with the chosen method, and provider competence.[5]

Evaluating the quality of healthcare services, including contraceptive services, has become increasingly important. However, defining quality in contraceptive counseling is complex because it depends on individual preferences regarding fertility intentions, method choice, and contraceptive use. Therefore, assessment criteria should reflect individuals' personal contraceptive experiences. Numerous international studies have sought to define counseling quality and develop standardized tools for its evaluation. These efforts aim to ensure access to effective contraceptive methods, emphasize method efficacy, and support the delivery of high-quality services that respect reproductive autonomy.[6]

Several instruments have been developed internationally to assess contraceptive counseling quality, such as the ORTHO Birth Control Satisfaction Tool and the Person-Centered Contraceptive Counseling Scale.[7] However, no validated instrument is currently available for evaluating contraceptive counseling quality in Turkey. Studies conducted in this context often use general satisfaction tools, such as the Outpatient Satisfaction Scale, which do not fully capture the specific characteristics of contraceptive counseling. Contraceptive counseling is not merely a clinical service; rather, it involves multidimensional processes, including information exchange, communication quality, shared decision-making, and respect for individual autonomy. Within this framework, the Quality of Contraceptive Counseling Scale (QCC-26), developed by Holt *et al.* (2019), includes 26 items across three dimensions: information exchange, interpersonal relationship, and disrespect and abuse. Originally developed in Spanish, the scale has been adapted in countries such as Mexico, Ethiopia, and India.[8] Subsequently, a shortened version, the QCC-10, was developed to improve usability without compromising psychometric quality.[9]

To the best of our knowledge, this is the first study to adapt the QCC-10 into Turkish and evaluate its psychometric properties in the Turkish context. This study aims to examine whether the Turkish version maintains the validity, reliability, and factor structure of the original scale. A validated Turkish version of the QCC-10 may contribute to both national and international literature by enabling the standardized assessment of contraceptive counseling quality in Turkey. In addition, it may support clinical practice by providing healthcare professionals and researchers with a brief, practical, and culturally appropriate tool for evaluating and improving contraceptive counseling services.

Objective

This study aimed to evaluate the validity and reliability of the Turkish version of the QCC-10 for assessing the quality of contraceptive counseling.

Method

Study design

This study was designed as a cross-sectional methodological study.

Participants and participation environment

The study sample consisted of women who attended the family planning outpatient clinic of a training and research hospital in Turkey between September 20, 2024, and January 31, 2025, to receive contraceptive counseling. Since the primary objective of this study was to evaluate the validity and reliability of the 10-item Quality of Contraceptive Counseling Scale (QCC-10), the sample size was determined based on methodological recommendations for scale validation studies. According to Rummel's recommendation, the subject-to-variable ratio should range from 4:1 to 7:1.[10] As the QCC-10 consists of 10 items, a minimum sample size of 40–70 participants was considered acceptable according to this criterion. In the present study, the main validation analyses were conducted with 100 participants, corresponding to 10 participants per item, which exceeded the recommended minimum ratio. In addition, test–retest reliability was assessed in a subgroup of 25 participants to evaluate the temporal stability of the scale.

Data collection process

All participants were informed about the aim and scope of the study, and written informed consent was obtained prior to participation. Data were collected by the researcher through face-to-face interviews conducted in a private room within the outpatient clinic under appropriate physical conditions. Each interview lasted approximately 15 minutes. The study population consisted of women who had received contraceptive counseling. The QCC-10 was translated into Turkish and culturally adapted in accordance with established methodological guidelines. The inclusion criteria were being 18 years of age or older, being proficient in Turkish, having received contraceptive counseling services, and voluntarily agreeing to participate in the study.

Data collection tools

Participant introduction form

The data collection form was developed based on the relevant literature and included 13 items assessing participants' sociodemographic and reproductive characteristics, including number of births, menopausal status, presence of immunosuppressive conditions, history of sexually transmitted infections, previously used contraceptive methods, timing of contraceptive counseling, and duration of current contraceptive method use.[8]

Quality Of contraceptive counseling short scale-10 (QCC-10)

The QCC-10 is the short version of the Quality of Contraceptive Counseling Scale. Although previous QCC versions have included 22 to 26 items across different countries, the QCC-10 was developed as a 10-item short form that retains content from the three original domains: information exchange, interpersonal relationship, and disrespect and abuse. The first eight items are rated on a 4-point Likert scale ranging from "completely agree" (4) to "completely disagree" (1). The final two items are negatively worded and reverse-scored, with response options coded as follows: "yes" = 1, "yes, with doubts" = 2, "no, with doubts" = 3, and "no" = 4. The composite QCC-10 score is calculated as the mean of all item responses, with higher scores indicating higher perceived quality of contraceptive counseling.[9] In the present study, the Turkish version demonstrated high internal consistency, with a Cronbach's alpha coefficient of 0.973.

Satisfaction short assessment form (SAPS)

The Patient Satisfaction Assessment Short Form (SAPS) is a self-report instrument developed by Hawthorne et al. to assess treatment satisfaction in clinical settings. The Turkish version, adapted by Temeloğlu Şen and Sertel Berk, has a unidimensional structure and consists of seven items. Although the items have different response anchors, each item is scored on a 5-point scale ranging from 0 to 4, and only item 6 is reverse-coded. The total score ranges from 0 to 28, with higher scores indicating greater dissatisfaction rather than greater satisfaction. Scores of 0–10 indicate "very satisfied," 11–18 "satisfied," 19–26 "dissatisfied," and 27–28 "very dissatisfied." The Turkish version demonstrated good internal consistency, with a Cronbach's alpha coefficient of 0.85.[11]

Statistical analysis

The study was conducted in accordance with the International Test Commission (ITC) Guidelines for Translating and Adapting Tests. Within this framework, the scale underwent forward–backward translation, content validity assessment, and pilot testing.[12] In addition, the evaluation and reporting of the psychometric properties were guided by the COSMIN framework for studies on the measurement properties of patient-reported outcome measures.[13] Reliability was assessed using Cronbach's alpha coefficient, test–retest analysis, and the intraclass correlation coefficient (ICC), while construct validity was examined using confirmatory factor analysis (CFA).

Data were analyzed using SPSS version 22.0 and AMOS statistical software. The normality of the scale items was evaluated by examining skewness and kurtosis values. Based on recommendations in the literature, skewness and kurtosis values within ±1.5 or ±2.0 are considered indicative of an acceptable normal distribution.[14,15]

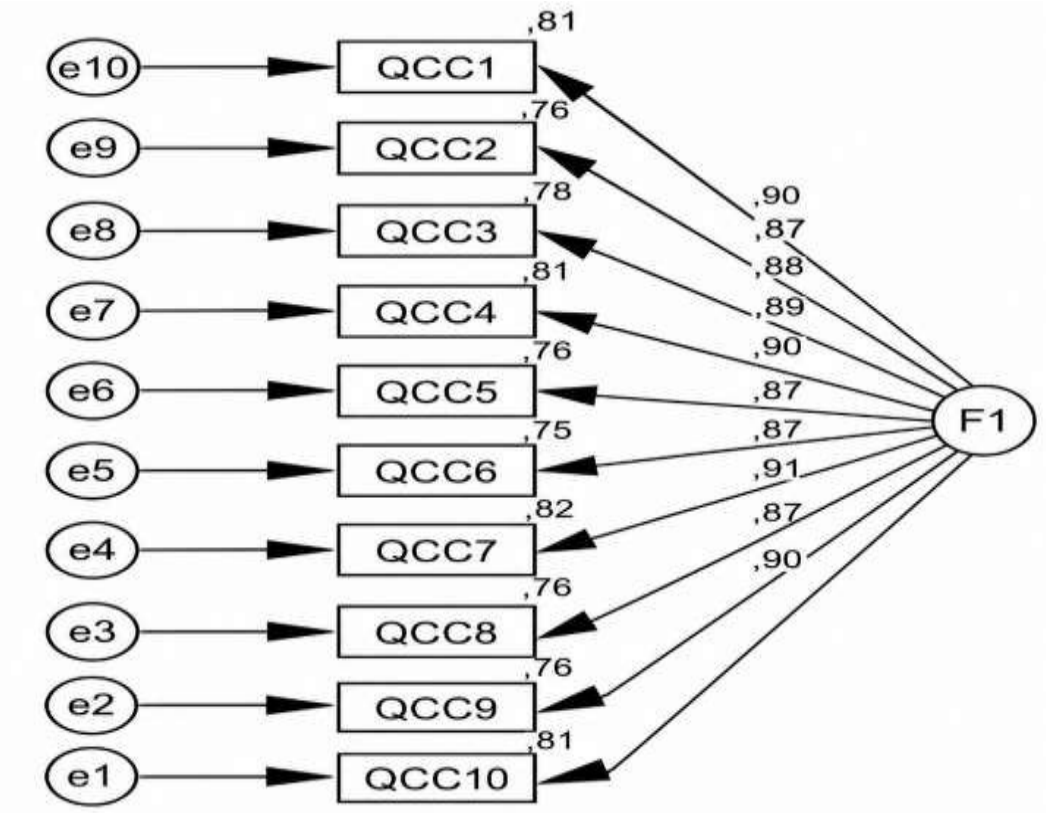

Figure 1: Confirmatory factor analysis diagram

Accordingly, the scale items in this study were found to be normally distributed. Construct validity was assessed using CFA. Reliability was evaluated using Cronbach's alpha coefficient, test–retest analysis, and ICC. Item analysis was performed, and internal consistency was calculated. To assess item discrimination, independent samples t-tests were conducted between the lower and upper 27% groups based on total scale scores.

Test-retest

To assess test–retest reliability, the scale was administered twice to 25 participants. The test–retest procedure was conducted during the participants' follow-up period, and the second administration was performed three days after the initial administration to minimize possible loss to follow-up. Although this interval was relatively short, the order of the items in the second administration was rearranged to reduce potential recall bias.[16]

Ethics approval and consent to participate

The ethical approval of the study was obtained from the Clinical Research Ethics Committee of Health Sciences University Taksim Training and Research Hospital with the decision dated 18.09.2024 and numbered 7. All participants were informed about the purpose and procedures of the study, and written informed consent was obtained from those who voluntarily agreed to participate.

Results

The mean age of the participants was 35.07 ± 10.82 years. Regarding educational status, 43.0% of the participants had completed primary school, 28.0% had completed high school, and 29.0% had a bachelor's degree or higher. The majority of participants were married (97.0%). In terms of lifestyle characteristics, 32.0% reported smoking and 15.0% reported alcohol consumption. Only 2.0% of the participants were postmenopausal. In

addition, 82.0% reported that they had recently received family planning counseling.

Linguistic validity

In the initial phase, the linguistic validity of the scale was evaluated. The original English version was translated into Turkish by a bilingual translator. The research team reviewed the translated version to ensure semantic equivalence and cultural appropriateness, and revisions were made where necessary. The Turkish version was then back-translated into English by an independent bilingual translator who was unfamiliar with the study content. Translation consistency and semantic equivalence between the original and Turkish versions were carefully examined throughout the process.

Content validity (CVI)

To assess the content validity of the Quality of Contraceptive Counseling Short Scale (QCC-10), expert opinions were obtained from 10 academicians with expertise in relevant fields. Each expert was asked to evaluate the extent to which each item represented the intended construct using a three-point rating scale: "completely appropriate," "partially appropriate," and "not appropriate." The evaluations were conducted using the Davis technique, a widely used method for assessing content validity. In this method, the content validity index (CVI) is calculated for each item based on the proportion of agreement among experts, providing a quantitative assessment of item relevance.[17]

According to Davis, a minimum agreement level of 80% among expert panel members is considered sufficient to establish content validity. Items with a content validity index (CVI) value of ≥0.80 are classified as "appropriate," those with values between 0.70 and 0.79 as "requiring revision," and those with values <0.70 as "inappropriate" and subject to removal.[17] Similarly, the literature supports a threshold of 0.80 as the acceptable lower limit for content validity.[18]

In this study, expert evaluations indicated that all items had CVI values above the acceptable threshold of 0.80. Therefore, no items were excluded from the scale. These findings suggest that the items had adequate content representativeness and that the content validity of the scale was confirmed.

Construct validity

Confirmatory factor analysis (CFA) was conducted to evaluate whether the hypothesized one-factor structure of the QCC-10 was supported by the observed data.

Confirmatory factor analysis (CFA)

The construct validity of the QCC-10 was assessed using CFA to evaluate whether the hypothesized one-factor structure was supported by the data.

Structural equation modeling was used to examine whether the unidimensional structure of the QCC-10 was supported by the data. Model fit was evaluated using commonly accepted indices, including χ^2, CFI, GFI, NFI, IFI, TLI, RMSEA, and RMR. The confirmatory factor analysis results demonstrated an acceptable model fit, with χ^2 = 59.511, df = 35, and χ^2/df = 1.700. The χ^2/df value was within the acceptable range, indicating good model fit.

Additional fit indices further supported the adequacy of the model: Comparative Fit Index (CFI) = 0.979, Goodness of Fit Index (GFI) = 0.897, Normed Fit Index (NFI) = 0.951, Incremental Fit Index (IFI) = 0.979, and Tucker–Lewis Index (TLI) = 0.973. These values were within or very close to commonly accepted thresholds, indicating an acceptable to good model fit. Most fit indices exceeded the recommended threshold of 0.90, while the GFI value was very close to this threshold, indicating an overall acceptable to good model fit. In addition, the RMSEA (Root Mean Square Error of Approximation) and RMR (Root Mean Square Residual) values were 0.074 and 0.028, respectively, both of which were within acceptable limits. Taken together, these findings support the unidimensional structure of the QCC-10 and provide evidence for the construct validity of the Turkish version of the scale (Table 1).

Examination of the standardized factor loadings showed that all items had statistically significant coefficients ranging from 0.865 to 0.907. The confirmatory factor analysis results indicated that each item of the QCC-10 loaded significantly onto a single underlying factor. The high

Table 1: Fit Indices of the confirmatory factor analysis (CFA)

Compliance Indices	Compliance Values	Limit Values
$\chi 2$	59,511 35	
$\chi 2$/df (CMIN/DF)	1.700	$0 \leq \chi 2/df \leq 5$
CFI	0.979	$0.80 \leq CFI \leq 1.00$
GFI	0.897	$0.80 \leq GFI \leq 0.95$
NFI	0.951	$0.90 \leq NFI \leq 0.95$
IFI	0.979	$0.80 \leq IFI \leq 1.00$
TLI	0.973	$0.80 \leq TLI \leq 1.00$
RMSEA	0.074	$0.05 \leq RMSEA \leq 0.08$
RMR	0.028	$0.05 \leq RMR \leq 0.08$

Table 2: Factor loadings and statistical indicators of QCC-10 Items

Items and Factors			B	Std.β	S.Error	C.R.	p
QCC10	<---	F1	1.000	0.901			
QCC9	<---	F1	0.969	0.873	0.073	13.246	P<0.001
QCC8	<---	F1	1.007	0.907	0.069	14.619	P<0.001
QCC7	<---	F1	0.960	0.865	0.074	12.978	P<0.001
QCC6	<---	F1	0.966	0.870	0.073	13.150	P<0.001
QCC5	<---	F1	1.001	0.902	0.070	14.373	P<0.001
QCC4	<---	F1	0.983	0.885	0.072	13.722	P<0.001
QCC3	<---	F1	0.978	0.881	0.072	13.555	P<0.001
QCC2	<---	F1	0.965	0.870	0.073	13.136	P<0.001
QCC1	<---	F1	0.998	0.899	0.070	14.252	P<0.001

Table 3: Item-Total Correlations and Cronbach's Alpha Coefficients for the QCC-10 Scale

/	Item-Total Correlation (Corrected)	If deleted Cronbach's Alpha
QCC1	0.887	0.970
QCC2	0.856	0.971
QCC3	0.866	0.970
QCC4	0.874	0.970
QCC5	0.887	0.970
QCC6	0.857	0.971
QCC7	0.852	0.971
QCC8	0.894	0.969
QCC9	0.860	0.971
QCC10	0.886	0.970

standardized factor loadings suggest that all items contributed strongly to the measurement of contraceptive counseling quality. Specifically, item QCC8 had the highest factor loading (0.907), whereas item QCC7 had the lowest factor loading (0.865). All item loadings were statistically significant at the $p < 0.001$ level, with t-values, also referred to as critical ratios (C.R.), ranging from 12.978 to 14.619. These findings indicate that each item contributed meaningfully and significantly to the overall factor structure, providing further evidence for the unidimensionality of the scale. Thus, the QCC-10 demonstrated adequate factor loadings to represent the construct of contraceptive counseling quality, supporting the construct validity of the Turkish version of the scale (Table 2).

Reliability analysis

Cronbach's alpha coefficient was calculated to assess the internal consistency of the QCC-10. The Cronbach's alpha value was 0.973, indicating excellent internal consistency. This finding suggests that the items are highly interrelated and measure the same underlying construct. However, given the very high alpha coefficient, the possibility of item redundancy should also be considered when interpreting the internal consistency results.

In addition, item–total correlations and Cronbach's alpha values if each item was deleted were examined. The item–total correlations ranged from 0.852 to 0.894, indicating that each item was strongly associated with the overall construct measured by the scale. Moreover, no substantial increase in Cronbach's alpha was observed when any individual item was removed, suggesting that all items contributed positively to the internal consistency of the scale.

These findings indicate that the QCC-10 has high internal consistency and that its items function coherently in measuring contraceptive counseling quality. However, given the high inter-item associations, the possibility of item similarity should be considered when interpreting the internal consistency findings (Table 3).

Criterion validity

To assess the criterion validity of the QCC-10, Pearson correlation analysis was conducted using the total SAPS score as an external measure of patient satisfaction with healthcare services. The analysis revealed a statistically significant negative correlation between the QCC-10 and SAPS total

Table 4: Validity and Reliability Analyses of the QCC-10 Scale: Correlation with SAPS, comparison of lowest and highest 27% groups, and test–retest reliability results

Z	**Bottom 27% (n=27)**		**Upper 27% (n=27)**		**t**		**sd**	**P**	
Groups									
	Mean	**SD**	**Mean**	**SD**					
QCC	3.137	0.174	3.915	0.120	-19.158		52	0.000	
Test-Retest Reliability Results of the QCC-10 Scale (Means, ICC, and p-values)	**Test**		**Retest**		**N**	**t**	**P**	**ICC**	**P**
	Mean	**SD**	**Mean**	**SD**					
QCC	3.524	0.459	3.496	0.477	25	1.319	0.200	**0.979**	**0.000**
Correlation Analysis Between Total QCC-10 Score and SAPS Score	SAPS Total		r				QCC		
			P				-0.559**		
							0.000		

scores (r = –0.559, p < 0.001). This inverse relationship was expected given the scoring directions of the two instruments: higher scores on the QCC-10 indicate higher perceived quality of contraceptive counseling, whereas higher scores on the SAPS indicate greater dissatisfaction with healthcare services. This indicates that higher perceived contraceptive counseling quality is associated with lower dissatisfaction with general healthcare services.

This finding indicates a significant and consistent relationship between the QCC-10 and an established external measure, thereby supporting the criterion validity of the scale (Table 4).

Discriminative power

To evaluate item discrimination in the QCC-10, participants were divided into lower and upper 27% groups based on their total scale scores, and the mean scores of these groups were compared. An independent samples t-test was conducted to determine whether the difference between the groups was statistically significant. The analysis revealed a statistically significant difference in total QCC-10 scores between the lower and upper 27% groups ($t(52) = –19.158$, $p < 0.001$). The mean score was 3.137 in the lower 27% group and 3.915 in the upper 27% group, indicating that the scale effectively discriminated between participants with low and high perceived counseling quality (Table 4).The significantly higher scores in the upper group indicate that the QCC-10 can effectively differentiate individuals according to their perceived quality of contraceptive counseling. This finding supports the item discrimination capacity of the scale and provides additional evidence for its psychometric adequacy as a measurement instrument (Table 4).

Test-retest

Test–retest reliability analysis was conducted to assess the temporal stability of the QCC-10. For this purpose, the scale was re-administered to the same participants after a specified interval, and the relationship between the two sets of scores was examined. A paired samples t-test was first performed to determine whether there was a statistically significant difference between the test and retest scores. In addition, ICC was calculated to evaluate the consistency of individual responses over time. The results are presented in Table 4.

The paired samples t-test revealed no statistically significant difference between the test and retest mean scores ($t(24) = 1.319$, $p = 0.200$), indicating that the scale maintained score stability over the short interval examined. Furthermore, the ICC was 0.979 and statistically significant ($p < 0.001$). This high ICC value indicates that the QCC-10 produced consistent results across repeated administrations, demonstrating excellent test–retest reliability. Overall, the findings suggest that the QCC-10 is a stable and reliable instrument for

assessing the quality of contraceptive counseling over time (Table 4).

Discussion

In this study, the Quality of Contraceptive Counseling (QCC) scale developed by Holt et al. (2022) was adapted into Turkish, and its psychometric properties were evaluated.[8] To date, no previous Turkish validity and reliability study of the scale has been conducted. During the adaptation process, the methodology recommended by the World Health Organization was followed to minimize linguistic and cultural discrepancies.[19] Content validity was assessed based on expert evaluations of item relevance, and a high level of agreement was achieved among the expert panel. All items had CVI values above the acceptable threshold of 0.80, indicating adequate content validity; therefore, no item was excluded from the scale. This finding is consistent with the literature, which considers a CVI value above 0.80 to be acceptable.[20]

Construct validity refers to the extent to which a measurement instrument accurately reflects the theoretical construct it is intended to assess.[21] In the original development of the QCC-10, exploratory factor analysis (EFA) was performed, and the scale was found to have a unidimensional structure consisting of 10 items. In the present study, the Turkish version was expected to retain the same theoretically established one-factor structure as the original scale. Therefore, EFA was not conducted. Accordingly, preliminary analyses typically used for EFA, such as the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity, were not performed. Instead, construct validity was assessed using confirmatory factor analysis (CFA), which is appropriate for testing whether a predefined factor structure is supported by the observed data. CFA also provides evidence regarding the relationships between observed variables and the latent factor, as well as the overall fit of the hypothesized model to the data.[22]

The fit indices obtained from the CFA, including CFI = 0.979, TLI = 0.973, and RMSEA = 0.074, indicated that the unidimensional structure of the scale showed an acceptable fit to the observed data. Most fit indices exceeded the recommended threshold of 0.90, while the GFI value (0.897) was very close to this threshold, suggesting an overall acceptable to good model fit. These findings support the construct validity of the Turkish version of the QCC-10 and indicate that the original unidimensional structure was largely retained.

Factor analysis is generally interpreted based on several criteria, including the magnitude and statistical significance of factor loadings and the theoretical consistency of the factor structure. Although there is no universally accepted cut-off value, factor loadings above 0.30 are commonly considered acceptable in the literature, whereas items with loadings below 0.30 are often recommended for removal.[22] Loadings between 0.30 and 0.59 are generally interpreted as moderate, while loadings of 0.60 and above are considered high.[23] In the present study, the standardized factor loadings of all items ranged from 0.865 to 0.907, and all estimated loadings were statistically significant at the $p < 0.001$ level. Since all items had high factor loadings and none fell below the recommended threshold, no item was excluded from the scale.

Previous adaptation studies of the QCC-10 have reported some variation in factor loadings across items and cultural contexts.9 In the present study, although minor differences were observed among item loadings, all items demonstrated strong associations with the latent factor. Therefore, all items were retained, as they represent essential aspects of contraceptive counseling quality, including both positive and negative counseling experiences.

Another important consideration in factor analysis is whether the items are theoretically and statistically consistent with the expected factor structure of the scale. In the original development of the QCC-10, exploratory factor analysis (EFA) identified a unidimensional structure, which was subsequently supported by confirmatory factor analysis (CFA). This unidimensional structure was also retained in the Indian and Ethiopian adaptations.[9] In the current study, the Turkish version was expected to preserve the theoretically established one-factor structure of the original scale; therefore, EFA was not conducted. Instead, CFA was used to test whether the predefined unidimensional structure was supported by the

Turkish data. However, because EFA was not performed, cross-loadings and alternative factor structures could not be examined. This should be considered when interpreting the construct validity findings.

Criterion validity refers to the extent to which a measurement instrument correlates with an external criterion measure.[24] In the original validation study of the QCC-10, criterion validity was assessed by examining the correlations between QCC-10 scores and external indicators, such as client satisfaction and intention to use contraceptive methods. The significant positive associations reported in that study supported the scale's ability to reflect constructs related to counseling quality.[9] Although the SAPS is not a counseling-specific instrument, it assesses patients' satisfaction with their interactions with the healthcare team and can be applied across different patient groups.[11] Therefore, it was considered an appropriate related external criterion in the present study. Criterion validity was evaluated using Pearson correlation analysis between the total QCC-10 score and the total SAPS score. The analysis revealed a statistically significant negative correlation between the two scales ($r = –0.559$, $p < 0.001$). This inverse relationship was consistent with the scoring structures of the instruments: higher scores on the QCC-10 indicate higher perceived counseling quality, whereas higher scores on the SAPS indicate greater dissatisfaction with healthcare services. The significant correlation in the expected direction between the QCC-10 and an established external measure supports the criterion validity of the Turkish version of the scale.

The discrimination index reflects an item's ability to distinguish between individuals with high and low levels of the trait being measured. It indicates the extent to which individual item scores are consistent with total scale scores. One of the most frequently used methods for evaluating group-based discrimination in item analysis is the Henryson method. According to this approach, participants are divided into upper and lower groups based on their total scale scores; the top 27% constitute the upper group, whereas the bottom 27% constitute the lower group. This method uses approximately 54% of the sample and is considered suitable for small to medium-sized samples.[25] In the original validation study of the QCC-10, discrimination was assessed by comparing scores among individuals with different contraceptive counseling experiences, and significant differences were observed between groups, indicating adequate discriminative capacity.[9] In the current study, item discrimination was evaluated using the Henryson method. The analysis revealed that the upper group had significantly higher QCC-10 scores than the lower group ($t(52) = –19.158$, $p < 0.001$), indicating that the scale effectively discriminated between individuals with different levels of perceived contraceptive counseling quality.

This statistically significant difference indicates that the QCC-10 can effectively distinguish individuals according to their perceived quality of contraceptive counseling and that its items are sensitive to variations in the construct being measured. Internal consistency was also examined to assess the degree of interrelatedness among the items. The Cronbach's alpha coefficient of the Turkish QCC-10 was 0.973, and all corrected item–total correlations were above 0.85. Although these findings indicate very strong internal consistency, such high values may also suggest potential item redundancy rather than improved reliability alone.[26] Therefore, the internal consistency findings should be interpreted with caution. Since the present study aimed to adapt the original short form into Turkish rather than to redevelop the instrument, all original items were retained to preserve conceptual coverage and comparability with previous studies. Future studies with larger and more diverse samples are recommended to further examine possible item redundancy using additional psychometric indicators.

Test–retest reliability is used to evaluate whether a measurement instrument yields consistent results when administered at different time points and helps identify intra-individual response variability. This approach is commonly used to estimate measurement error and assess the temporal stability of an instrument.[27] Notably, test–retest analysis was not included in the original validation study of the QCC-10. In the present study, test ($M = 3.524$, $SD = 0.459$) and retest ($M = 3.496$, $SD = 0.477$) scores were compared to examine the scale's consistency over time. A paired samples t-test revealed no statistically significant

difference between the two measurements ($t(24) = 1.319$, $p = 0.200$), indicating that the scale produced stable scores over the short interval examined. Furthermore, the intraclass correlation coefficient (ICC), calculated to assess test–retest reliability, was 0.979 and statistically significant ($p < 0.001$). According to established guidelines, ICC values below 0.50 indicate poor reliability, values between 0.50 and 0.74 indicate moderate reliability, values between 0.75 and 0.89 indicate good reliability, and values of 0.90 or higher indicate excellent reliability.[27–28-29-30] Within this framework, the ICC value obtained in this study indicates that the QCC-10 demonstrated excellent test–retest reliability.

The findings of this study suggest that the Turkish version of the QCC-10 is a valid and reliable instrument for assessing the quality of contraceptive counseling received by women. As this is the first validation study of the QCC-10 in Turkey, future studies are recommended to re-examine its psychometric properties in samples with different sizes and sociodemographic characteristics. Further validation across diverse populations and clinical settings would strengthen the generalizability of the scale. Integrating the QCC-10 into clinical practice may facilitate the routine monitoring of contraceptive counseling quality and help identify areas requiring improvement in service delivery. Enhancing the quality of counseling services may, in turn, contribute to increased uptake and continued use of contraceptive methods. In line with these findings, healthcare professionals' knowledge and counseling skills should be strengthened, and contraceptive counseling services should be evaluated using comprehensive and standardized approaches.

Limitations of the study

This study has several limitations that should be considered when interpreting the findings. First, although the sample size met commonly used subject-to-item ratio recommendations for scale adaptation studies, it may still be considered relatively limited for confirmatory factor analysis. Therefore, the model fit indices and high factor loadings should be interpreted with caution. Second, the study was conducted in a single center among women receiving contraceptive counseling in a specific clinical setting, which may limit the generalizability of the findings to other populations and healthcare contexts. Third, although test–retest reliability yielded excellent results, the three-day interval between administrations was relatively short and may not have fully eliminated the possibility of recall bias. Finally, criterion validity was assessed using a general patient satisfaction measure rather than a counseling-specific external criterion. Therefore, the observed association should be interpreted as evidence based on a related external construct rather than as evidence derived from a direct gold-standard measure. Future studies should evaluate the Turkish QCC-10 in larger, more diverse, and multicenter samples to provide stronger evidence regarding the stability, generalizability, and reproducibility of the scale's psychometric properties.

Conclusion

The findings of this study indicate that the Turkish version of the QCC-10 is a valid and reliable instrument for evaluating the quality of contraceptive counseling among women receiving counseling services. As the first Turkish adaptation of the QCC-10, this study addresses an important gap in the national literature and provides a basis for future cross-cultural comparisons of contraceptive counseling quality. However, further studies with larger and more diverse samples are recommended to re-evaluate the psychometric properties and generalizability of the scale. The use of the QCC-10 in clinical practice may support the routine assessment of counseling quality, help identify individuals' expectations and needs, and guide quality improvement efforts in reproductive healthcare services. Strengthening healthcare professionals' communication and counseling skills may further contribute to the delivery of more individualized, holistic, and patient-centered contraceptive counseling.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Conflict of interests

The authors declare that they have no competing interests.

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Authors' contributions

Gülnihal ARTUĞ CANSIZLAR contributed to the conception, design, data collection, analysis, and drafting of the manuscript. Kerime Derya BEYDAĞ provided supervision, contributed to the methodological design, interpretation of the data, and critical revision of the manuscript. Both authors read and approved the final version of the manuscript.

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