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Development, reliability, and validity of the nurses' conscientious objection attitude scale (COAS-N)

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Abstract

Background Conscientious objection poses ethical dilemmas frequently encountered by nurses, allowing them to prioritize personal beliefs in caregiving. However, it may also be viewed as a stance jeopardizing patients' healthcare access. There is no measurement tool to measure conscientious objection in nurses. This study aimed to develop a measurement tool for nurses' conscientious objection attitudes.

Methods This research is a methodological study conducted with a total of 261 nurses in Turkiye. Following content validity assessments by ten experts, a 29-item draft scale was developed. Exploratory and confirmatory factor analyses examined the factor structure, and reliability was assessed via the Spearman-Brown coefficient, intraclass correlation coefficient (ICC), and Bland Altman plot. Cronbach's alpha estimated internal consistency and discrimination, which were evaluated by comparing lower and upper 27% groups.

Results The Nurses' Conscientious Objection Attitude Scale (COAS-N) comprises 29 items and three sub-dimensions (prioritizing professional values, prioritizing personal values, and requesting the right to conscientious objection). Cronbach's alpha for the entire scale is 0.81.

Conclusion Validity and reliability were established for the newly developed scale measuring nurses' conscientious objection attitudes.

Keywords Ethics, Nursing care, Refusing to care, Conscientious objection, Scale development, Validity, Reliability

As this scale is a novel instrument that we have developed specifically for our study, there are currently no existing publications to cite that describe its creation or application.

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Background

Conscience is the capacity to judge the goodness and badness of one's actions [1]. Conscientious Objection (CO) in healthcare occurs when healthcare professionals choose not to provide legal medical treatment to patients for moral or conscientious reasons [2]. It occurs when there is an ethical conflict between the nature of a particular professional action and the freedom of conscience itself [3].

If a conscience-based objection is based on moral grounds, it may appear as an objection to ends or means. For example, a nurse's refusal to participate in an abortion due to moral concerns is considered an objection to

the end. In contrast, an objection to an operation that is not considered safe or beneficial for the patient is considered an objection to the means/conditions. Objections not based on conscience arise when a person refuses to perform or participate in an action when neither the ends nor the means/conditions are in question [4]. For CO to be acceptable, it must be practiced not for one's benefit but to avoid harming others [3]. According to the American Nurses Association (ANA) Code of Ethics, "*when a particular decision or action is morally objectionable to the nurse, whether intrinsically so or because it may jeopardize a specific patient, family, community, or population, or when it may jeopardize nursing practice, the nurse is justified in refusing to participate on moral grounds. Conscience-based refusals to participate exclude personal preference, prejudice, bias, convenience, or arbitrariness*" (Provision 5.4) [5]. Accordingly, personal reasons are not accepted as a basis for CO. In the International Council of Nurses (ICN) Code of Ethics it is expressed as follows: "*Nurses may conscientiously object to participating in particular procedures or nursing or health-related research but must facilitate respectful and timely action to ensure that people receive care appropriate to their individual needs.*" [6]. In Turkiye, there is no legal text or ethical declaration regarding CO. However, the ICN Code of Ethics 2021 has been translated into Turkish by the Turkish Nurses Association and is available on the website [7].

CO arises from the need to protect the moral integrity of the health professional [8]. The term "conscientious objection" in health fields was coined in 1898. CO began to be expressed by health professionals after the liberalization of abortion laws in the 1960s and later expanded to sterilization, euthanasia, contraception, assisted reproduction, genetic testing, and prenatal diagnosis [9, 10].

There are different views on CO. Opponents are concerned about the deterioration of the trusting relationship between nurses and patients. It is emphasized that nurses are obliged to provide care and should put these obligations above their personal moral and ethical values [8]. The most common reason for opposition is that patients are unfairly denied access to legitimate medical services and care [11]. Another reason for opposition is that in addition to the burden on patients [12], it may cause an additional burden on colleagues [9]. The starting point for those who advocate CO is that health worker autonomy should be respected just as patient autonomy is respected [9]. Forcing a person to act contrary to their religious or ethical beliefs is considered a form of discrimination and a violation of human rights [13]. It is thought that when health workers are forced by external influences and authorities to compromise their conscience and violate their moral values, it will lead to conscientious stress and moral distress [8].

Significant concerns have been raised about how CO should be allowed in society [14]. Arguments have been put forward about its acceptability [9, 15, 16]. Savulescu states that the health professional has two consciences: "personal conscience" and "professional conscience". Furthermore, he is against CO based on personal interests [17]. When a person realizes that fulfilling a particular professional responsibility conflicts with his or her conscience, he or she makes a moral choice: either to accept all the responsibilities of his or her profession, or to act in accordance with his or her personal beliefs and values [18]. If a nursing practice is standard care that is legal, protects health, and benefits the patient, then it is considered unacceptable for the nurse to refuse the practice conscientiously [19]. The most crucial point to be considered in this regard is to be aware of the obligation of nurses to put patient benefit and well-being above their interests [9].

There are few studies in the literature assessing nurses' attitudes to CO and nurses' attitudes vary [20–24]. Given the perspectives of those who support and those who oppose CO, it is worth exploring nurses' attitudes towards CO. However, no instrument exists to measure nurses' specific attitudes towards CO. The aim of this study is to develop a scale to measure nurses' attitudes towards CO and to establish its validity. This scale may contribute to our understanding of nurses' tendency to reject nursing practices that conflict with their personal beliefs and values, and which practices are associated with CO.

Methods
Scale development process
The draft scale items were developed based on the findings of a qualitative study by Karabulut et al. [24], which explored nurses' attitudes and experiences regarding CO. The contexts that emerged from the thematic analysis of this study provided guidance for the creation of the sub-dimensions of the scale. The draft scale contained 54 items that were answered on a 5-point Likert scale (0: strongly disagree, 1: disagree, 2: undecided, 3: agree, 4: strongly agree). Scaling techniques are generally preferred in cases that require the measurement of attitudes, behaviors, and skills in research conducted in health sciences. The most used scaling methods are Likert-type scales [25]. Likert-type scales are respondent-centered tools commonly used in surveys and research studies. They typically consist of a series of positive and negative statements to which individuals can respond, reflecting their attitudes, opinions, or behaviors. The individual indicates the extent to which he/she agrees or disagrees with each statement in degrees [25].

The draft items have been reviewed by ten faculty members who are experts in medical and/or nursing

ethics studies. Lawshe's method was used to determine the content validity of the scale sent to the experts [26]. The items were evaluated as (i) necessary, (ii) useful but not necessary, (iii) not necessary, and the total number of experts. The minimum Content Validity Ratio (CVR) for ten experts was 0.62. After the expert evaluations, the CVR was calculated, and 25 items with a CVR value less than 0.62 were removed from the scale. In line with all the suggestions made by the experts, necessary corrections and changes were made in the remaining 29 items. The Content Validity Index (CVI) was calculated by averaging the CVI values, and a CVI value of 1 was obtained. The obtained CVI value is above 0.67 and is statistically significant [27]. The pilot study of the 29-item scale, whose content validity was ensured, was applied to 53 people. After the pilot study, the comprehensibility of the questions was checked, and the incomprehensible items were rewritten in clear and straightforward language. The pilot study data were not included in the sample. The final version of the scale was applied to 261 participants. The implementation process of the study is shown in Fig. 1.

Study design and participants

The population of this methodological study consists of nurses employed in inpatient and outpatient units in different hospitals in different cities in Turkiye. In order to perform factor analysis in scale development studies, the sample size should be at least 5–10 times the item size [28, 29]. This study's draft scale consisted of 29 items, and the study sample consisted of 261 nurses. Inclusion criteria were working as a nurse in hospital inpatient and outpatient departments, volunteering for the study and completing the scale correctly. Snowball sampling, a non-random sampling method, was used to reach nurses in different hospitals and cities in Turkiye. Snowball sampling has the advantage of establishing a relationship with the consulted participants and reaching out to a friend, relative/colleague, or potential participants in different cities [30]. With snowball sampling, we could reach nurses from different cities and hospitals.

Data collection

Data were collected from the nurses working in public, private, and university hospitals in different cities in Turkiye between July 2022 and January 2023. Considering that a sample of at least 40 people should be studied for the retest application in the literature, a second application was made to 46 people three weeks later for test-retest evaluation [31]. The data collection form consists of two parts. The first part of the data collection form includes "demographic characteristics". Demographic characteristics included questions about nurses' age, gender, marital status, educational status, years of employment, information about the institution and clinic, and professional position. The second part of the data collection form consists of the Nurses' Conscientious Objection Attitude Scale (COAS-N).

Data analysis

The conformity of quantitative variables to normal distribution was examined with the Shapiro-Wilk test and Kolmogorov–Smirnov test. The Levene test was used to evaluate variance homogeneity. Descriptive statistics
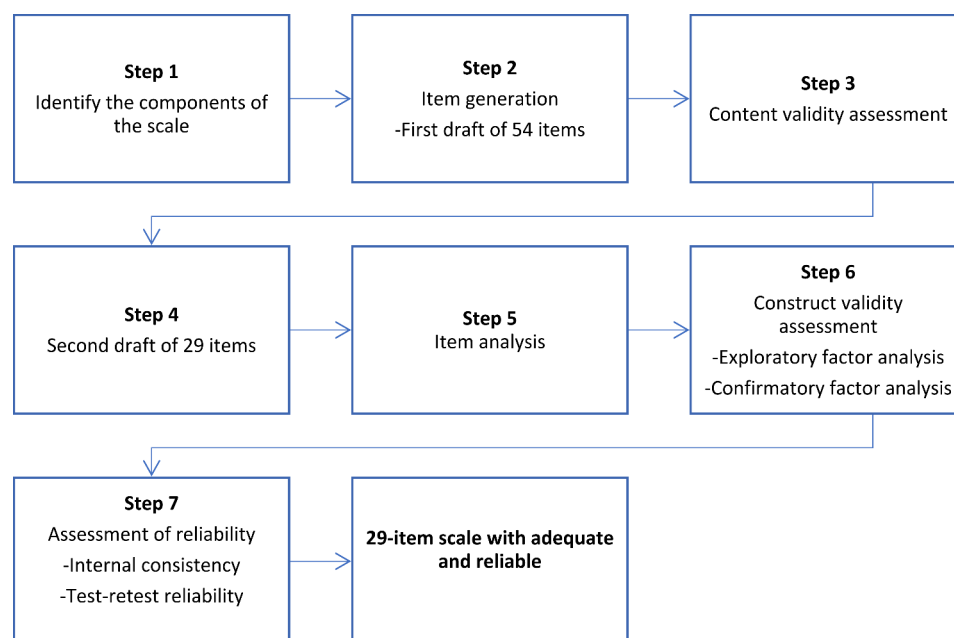
Fig. 1 Summary steps followed the development of the COAS-N Scale

were given as mean±std deviation and median (minimum-maximum) for quantitative variables and number and percentage for categorical variables. The Content Validity Index (CVI) was calculated for content validity. The Lawshe technique was used to evaluate content validity. Item analysis was performed to evaluate the contribution of the items in the scale to the scale. When the item was deleted, item-total correlations of the scale and the Cronbach alpha coefficients were examined. Item discrimination was evaluated by comparing the item averages of the lower and upper 27% groups. Construct validity was assessed using exploratory factor analyses

Table 1 Descriptive data (*N*=261)

Sociodemographic variables	*N*	%
Gender		
Female	236	90.4%
Male	25	9.6%
Marital Status		
Married	136	52.1%
Single	125	47.9%
Education Status		
High school	12	4.6%
Associate degree	17	6.5%
License	169	64.7%
Master's degree	55	21.1%
PhD	8	3.1%
Public or Private Sector		
Public	226	86.6%
Private	35	13.4%
Employed Institution		
Training and research hospital	131	50.2%
University hospital	57	21.8%
State hospital	48	18.4%
Private hospital / Foundation university hospital	16	6.1%
Private medical center	6	2.3%
Family medicine	3	1.2%
Work Position		
Clinic	158	60.5%
Specialty branch	52	20%
Manager	46	17.6%
Outpatient clinic	5	1.9%
Working Clinic[a]		
Internal Clinics*	78	30.4%
Surgical Clinics**	70	27.2%
Intensive Care Units	33	12.8%
Operating Room	20	7.8%
Administrative Duty	18	7.0%
Emergency Service	16	6.2%
Outpatient	13	5.1%
Dialysis Unit	9	3.5%

*Participants from Internal Medicine, Pediatrics, Neurology, Cardiology, Oncology, Infectious Diseases and Family Medicine clinics

**General Surgery, Obstetrics and Gynecology, Orthopedics, Neurosurgery, Cardiac-vascular surgery, and Urology clinics

a= 257 nurses responded to this question.

(EFA) and confirmatory factor analyses (CFA). The eigenvalue-greater-than-one rule was used to determine the number of factors. Varimax rotation was conducted to obtain appropriate factorization. CFA was used to verify the resulting factor structure. Internal consistency (Cronbach's alpha) coefficient, Intraclass Correlation Coefficient (ICC), and The Spearman-Brown coefficient were examined to test the scale's reliability. Whether the scale was correlated with the retest application for its reliability was checked with ICC. Bland–Altman's graphical approach was used to evaluate the agreement between test-retest results. The significance level for all hypothesis testing processes was set at $P<0.05$. Data were analyzed using IBM SPSS v25.0 and Amos v25. All data analyses were performed by a biostatistics expert (EGA) with 10 years of experience, who is one of the authors of the study.

Results
Descriptive results
The mean age of the participants was 33.9±9.3 years, and the mean number of years of employment was 12.1±10.1. The sociodemographic characteristics of the participants are shown in Table 1. 90.4% (*n*=236) of the participants were female, and 52.1% (*n*=136) of the participants were married. 86.6% of the nurses were public employees and mostly worked in training and research hospitals. 60.5% of the nurses were clinical nurses, and 20% were special branch nurses.

Reliability and validity results
Item analysis was performed on the 29-item scale, the content validity of which was determined. When the item-total correlations were analyzed, it was seen that the item-total correlations of all items except item 23 were greater than 0.25. This item with correlations less than 0.25 was not removed from the scale because there was no significant increase in Cronbach's alpha value when it was removed from the scale (see Table 2). In order to evaluate the discrimination of the scale, the lower and upper 27% groups were compared, and all items were found statistically significant in the comparison of the two groups ($p<0.05$). The overall internal consistency coefficient Cronbach's alpha was 0.889.

The Kaiser-Meyer-Olkin (KMO) coefficient calculated to examine the adequacy of the sample for the application of exploratory factor analysis in COAS-N, whose item analysis was completed, was 0.849. The result of Bartlett's test, which tests the validity of factor analysis, was significant (Chi-square=2975.6; $p<0.001$) and showed that factor analysis was appropriate. Factor analysis was performed with varimax rotation with 29 items, and a four-factor structure emerged. It was observed that the variance ratios explained by these four factors explained

Table 2 Item analysis of COAS-N

Items	Mean ± SD	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
i1*	1.52 ± 0.98	0.325	0.885
i2	2.5 ± 1.09	0.249	0.886
i3	1.25 ± 1.09	0.438	0.882
i4	0.26 ± 0.50	0.262	0.886
i5	1.38 ± 1.32	0.489	0.881
i6	1.24 ± 1.31	0.482	0.881
i7	1.25 ± 1.14	0.300	0.885
i8	1.31 ± 1.17	0.318	0.885
i9	1.27 ± 1.06	0.334	0.885
i10	1.74 ± 1.11	0.600	0.879
i11	1.30 ± 1.12	0.627	0.878
i12	0.68 ± 0.80	0.479	0.882
i13	0.99 ± 1.14	0.575	0.879
i14	1.47 ± 1.17	0.657	0.877
i15	0.59 ± 0.75	0.480	0.882
i16	2.75 ± 1.20	0.321	0.885
i17	2.21 ± 1.24	0.340	0.885
i18	0.74 ± 0.83	0.459	0.882
i19	0.53 ± 0.68	0.389	0.884
i20	0.99 ± 1.03	0.404	0.883
i21	1.59 ± 1.10	0.260	0.886
i22	1.92 ± 1.20	0.469	0.882
i23	1.82 ± 1.15	0.201	0.888
i24	1.35 ± 1.05	0.444	0.882
i25	1.18 ± 1.00	0.642	0.878
i26	1.45 ± 1.08	0.564	0.879
i27	1.43 ± 1.06	0.608	0.879
i28	2.28 ± 1.10	0.461	0.882
i29	2.34 ± 1.07	0.504	0.881

*i: Item

Table 3 Factor and factor loads obtained after varimax rotation for COAS-N

Items	F1	F2	F3	F4
i7	0.420			
i8	0.414			
i9	0.374			
i23	0.324			
i24	0.661			
i25	0.699			
i26	0.758			
i27	0.714			
i28	0.494			
i3		0.358		
i4		0.454		
i11		0.506		
i12		0.514		
i13		0.479		
i15		0.721		
i18		0.680		
i19		0.646		
i20		0.458		
i1			0.327	
i2			0.353	
i10			0.493	
i14			0.544	
i16			0.586	
i17			0.615	
i21			0.393	
i22			0.410	
i29			0.594	
i5				0.806
i6				0.784

KMO: 0.849; Bartlet test of sphericity chi-sq = 2975.6, $p < 0.001$

56.3% of the total variability. The factor loadings and distributions of the items are summarized in Table 3.

Expert authors evaluated the results of the exploratory factor analysis in the field of ethics and statistics. As a result of this evaluation, the items that will form the sub-dimensions were conceptually revised. CFA was conducted to demonstrate the construct validity of the revised scale based on the results of the EFA analysis and the opinions of the authors [32]. As a result of the CFA of the path graph shown in Fig. 2, the model was found to be significant ($p < 0.001$). Various fit indices were used to evaluate the suitability of the model: Cmin/df ($\chi 2$ / df) 1.834, Comparative fit index (CFI) = 0.951, Goodness of fit index (GFI) = 0.933, Normal fit index (NFI) = 0.936, Incremental fit index (IFI) = 0.941, Tucker-Lewis's index (TLI) = 0.936, Root mean squares error of approximation (RMSEA) = 0.057 and Root mean square residual (RMR) = 0.086 (Table 4). The fit limits of these indices show that the model fit is good [33, 34]. When the compliance limits for these indices were examined, it was found that the 3-dimensional scale structure consisting of 29 items was valid. The items that make up the first factor (items 7,8,9,23,24,25,26,27,28) were named "prioritizing professional values" since they are statements that point to protecting the profession and professional values. The items that make up the second factor (items 1,2,3,4,13,14,15,16,17,18,19,20) were named "prioritizing personal values" because they indicate that personal values are prioritized. The items constituting the third factor (items 5,6,10,11,12,21,22,29) were labeled "requesting the right to conscientious objection" since they were related to the acceptance and applicability of CO (see Table 5).

The overall Cronbach's alpha value was found to be 0.810, with 0.797 for the subscale of prioritizing professional values, 0.776 for the dimension of prioritizing personal values, and 0.889 for the dimension of wanting the right to CO. This study compared COAS-N total scores obtained from both applications with the Intraclass Correlation Coefficient for test-retest reliability. ICC = 0.780 was obtained for the test-retest COAS-N total scores. Test-retest data were analyzed with the Bland-Altman
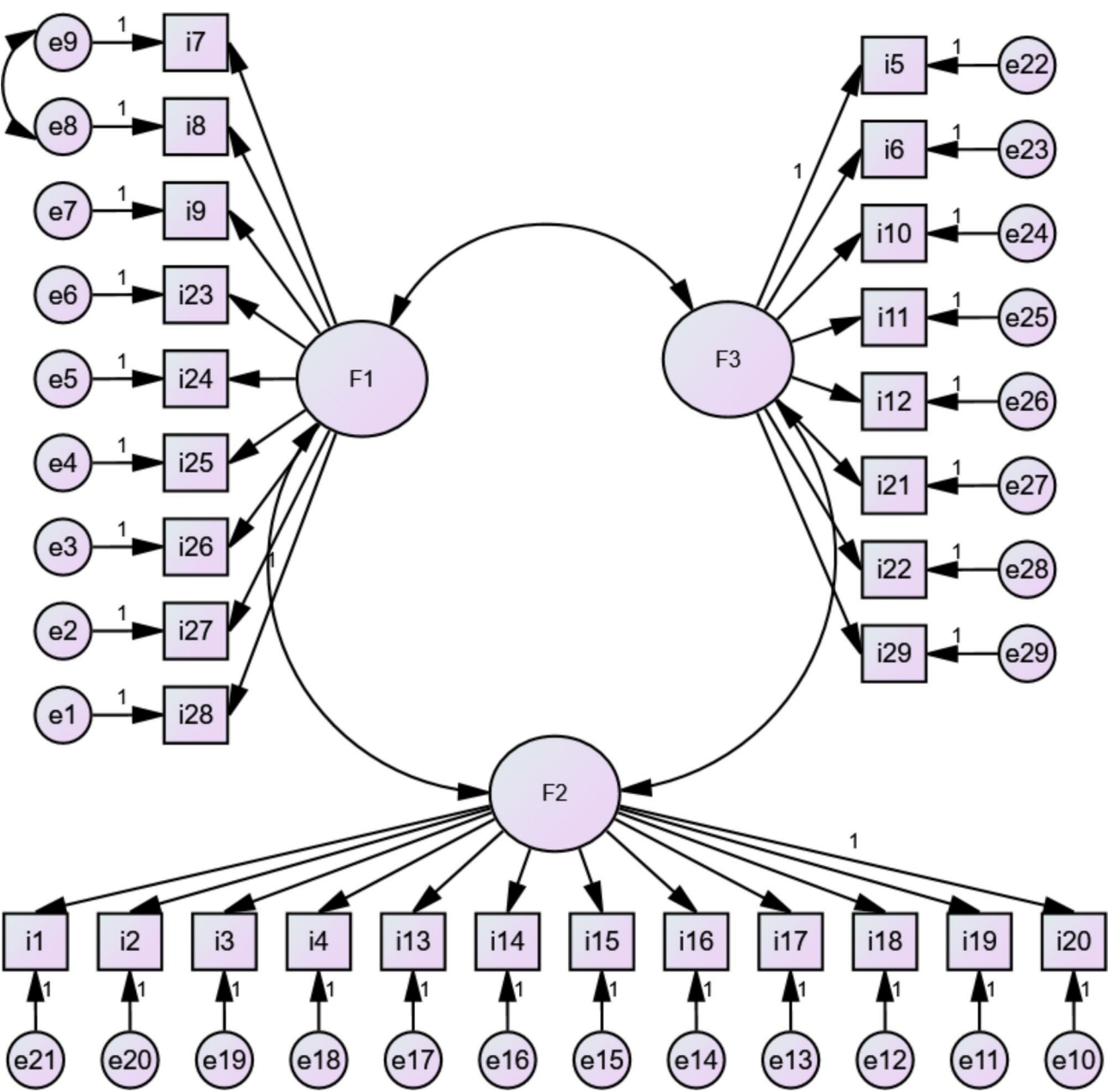
Fig. 2 Path diagram of the scale

Table 4 Goodness of fit indices for the COAS-N

Fit indices	Excellent fit	Acceptable range of fit	Fit value
Chi-square fit test (C_{min}/df)	$0 \leq C_{min}/df \leq 2$	$2 \leq C_{min}/df \leq 3$	1.834
Comparative fit index (CFI)	$0.97 \leq CFI \leq 1.00$	$0.95 \leq CFI \leq 0.97$	0.951
Goodness of fit index (GFI)	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq 0.95$	0.933
Normal fit index (NFI)	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$	0.936
Incremental fit index (IFI)	$0.95 \leq IFI \leq 0.97$	$0.90 \leq IFI \leq 0.95$	0.941
Tucker-Lewis's index (TLI)	$0.95 \leq TLI \leq 0.97$	$0.90 \leq TLI \leq 0.95$	0.936
Root mean squares error of approximation (RMSEA)	$0.00 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	0.057
Root mean square residual (RMR)	$0.00 \leq RMR \leq 0.05$	$0.05 \leq RMR \leq 0.10$	0.086

Table 5 COAS-N

New No	Previous No	Items
Factor 1. Prioritizing Professional Values		
1r*	i7r	Having the option not to provide nursing care due to my personal values and religious beliefs disrupts the working peace among colleagues.
2r*	i8r	Having the option not to provide nursing care due to my personal values and religious beliefs negatively affects the health of the patient.
3r*	i9r	I think that nurses will abuse the request of not wanting to provide specific care practices to specific patient groups due to values and religious beliefs of personal.
4r*	i23r	The right of nurses to refuse some care practices due to personal values and beliefs is unacceptable.
5r*	i24r	Having nurses who do not want to work in some areas due to their personal values and beliefs negatively affects nurse employment.
6r*	i25r	Not wanting to practice certain nursing practices due to personal values and beliefs negatively affects trust in the nursing profession.
7r*	i26r	I think granting nurses the right to conscientious objection would be unfair to other nurses who will take care of patients.
8r*	i27r	I think granting nurses the right to conscientious objection would harm professional values.
9r*	i28r	Legal sanctions should be imposed on nurses who do not want to provide care due to their personal values and beliefs.
Factor 2. Prioritizing Personal Values		
10	i1	My personal values come before my professional values.
11	i2	I do not want to participate in professional practices that contradict my conscientious values.
12	i3	I would not want to participate in professional practices that are not in line with my religious beliefs.
13	i4	I would not want to care for patients who have different political views from me.
14	i13	I would not want to provide care services (urinary catheterization, injection, etc.) to a patient of the opposite gender.
15	i14	If I do not want to take part in treatment or care that is not in line with my values and beliefs, I would like to delegate the task to another colleague.
16	i15	I would not want to provide nursing care to a patient with alcohol intoxication due to my personal values and beliefs.
17	i16	I would not want to care for a patient who commits violence against a health worker.
18	i17	I would not want to provide nursing care to a patient because of some characteristics of the patient (member of a terrorist organization, rape offender, aggressive patient).
19	i18	I do not want to give care to that patient because of the patient's lifestyle (for example, being a sex worker).
20	i19	I do not find it right to provide treatment and care to a patient who has attempted suicide.
Factor 3. Requesting the Right to Conscientious Objection		
21	i20	I would not want to be involved in a curettage procedure, even if it is within legal limits.
22	i5	Having the option not to provide care because of my values does not lead to discrimination between patients.
23	i6	Having the option not to provide care due to my religious beliefs does not lead to discrimination among patients.
24	i10	Nurses should have the option not to participate in care practices that they do not find appropriate regarding their personal values.
25	i11	Nurses should have the option not to participate in nursing care that they do not find appropriate regarding their religious beliefs.
26	i12	Nurses should have the option not to participate in nursing care that they do not find appropriate regarding their political views.
27	i21	Nurses should have the option not to participate in treatments that are considered futile and prolong the patient's pain and suffering and are considered futile.
28	i22	Nurses who do not want to perform some care practices due to their values and beliefs can be assigned to different clinics.
29	i29	I think there should be a right to conscientious objection, provided that legal limits are set.

* r: reverse coded items

graph (Fig. 3). The graph shows that the errors are randomly distributed, and the mean of the differences is close to zero. Scale reliability was also examined using the Split-Half method. The Spearman-Brown coefficient rSB obtained with the Split-Half method was 0.930.

Scoring of the scale

The scale consists of 3 factors and 29 items. Items numbered 1, 2, 3, 4, 5, 6, 7, 8, and 9 are reverse-coded. According to the five-point Likert scale, the weighted raw score that a participant can get from the scale is at least 0 and at most 116. A high total score on the COAS-N indicates a high tendency for CO.

Discussion

There is no tool for measuring nurses' attitudes toward CO, and upon evaluating the literature reviewed in this study, it becomes clear that a measurement tool is needed in nursing. To our knowledge, this is the first study to develop a scale to measure nurses' attitudes toward CO and establish its validity.

Factor analysis is essential to test the construct validity of the scale [35]. To proceed with the exploratory
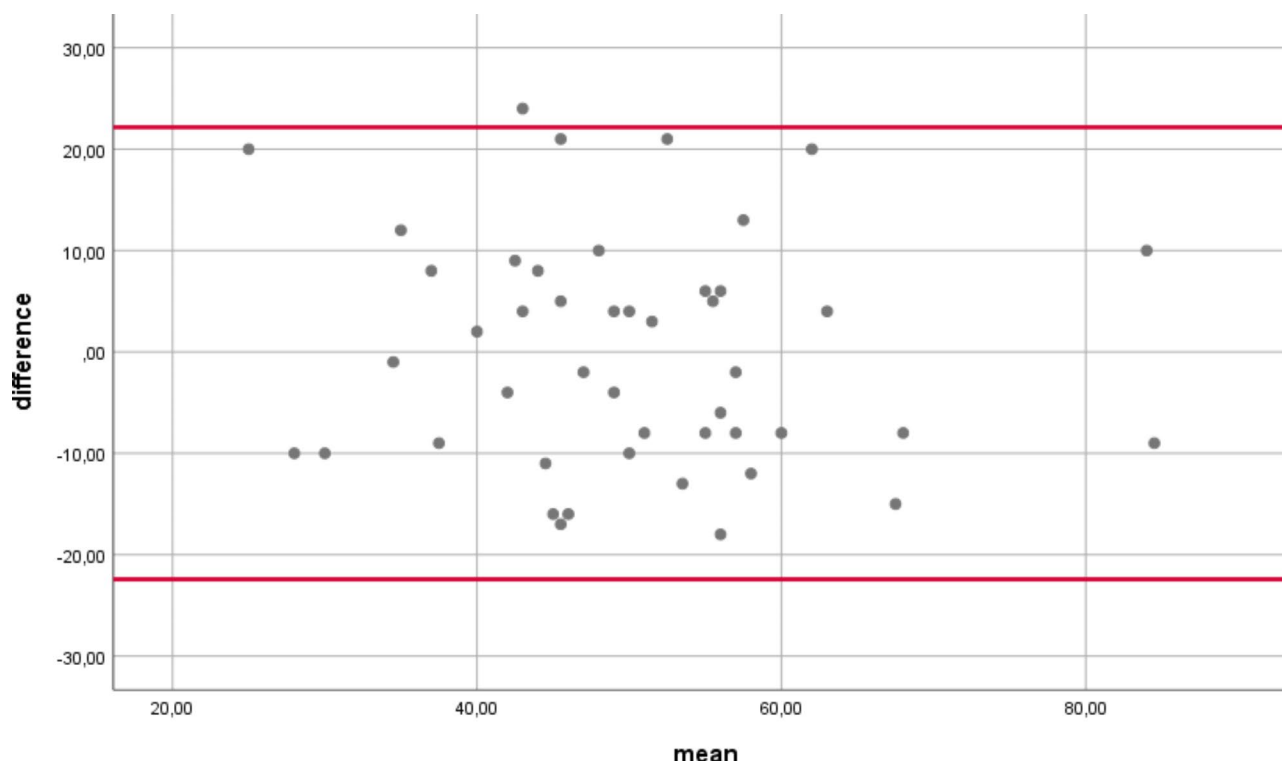
Fig. 3 Bland altman plot

factor analysis in our scale development study, KMO was first applied to test the suitability of the data structure in terms of sample size and was found to be 0.84. The result of Barlett's test, which tested the validity of the factor analysis, was $p<0.001$ and showed that the data came from a multivariate normal distribution. The result is a desirable condition to indicate that the data have a factorable structure. This finding shows that the sample size is quite suitable for factor analysis, and the correlation matrix of the items included in the questionnaire is suitable for factor analysis [36, 37]. As a result of the factor analysis performed with varimax rotation, a four-factor structure emerged. The four factors explain 56.3% of the total variance. It is generally desirable that the explained variance ratios are above 40% [38]. This shows that the scale explains the existing structure.

In addition, when the item-total correlations were examined in our study, only the 23rd item was less than 0.25. Values above 0.25 are often suggested for factor loads that sufficiently explain the items' correlation with the factors (subscale) [27].

Several model fit indices, including Cmin/df value ($\chi2$ /df), RMSEA, RMR, and GFI, were used to assess the proposed model's fit. The RMSEA value was found to be close to the limit of perfect fit and the $\chi2$/df value indicated excellent fit. Acceptable values of other fit indices confirmed the goodness of model fit, and construct validity of COAS-N [33, 34].

Reliability means the consistency and stability of test results. The reliability of a measurement tool is the degree to which the tool consistently measures the variable it is intended to measure or the degree to which measurement results are free from errors [35].

Cronbach's alpha coefficient measures the internal consistency of the items in the scale. When the alpha coefficient is less than 0.40, the measurement tool is not reliable; 0.40–0.59 is not very reliable; 0.60–0.79 is reasonable reliability; 0.80-1.00 is highly reliable [39]. The overall Cronbach's alpha value of the scale was found to be highly reliable (0.81). This is evidence that COAS-N measures nurses' attitudes towards CO with the items that make up the scale. In addition, Cronbach's alpha value was 0.797 for the "prioritizing professional values" dimension, 0.776 for the "prioritizing personal values" dimension, and 0.889 for the "requesting the right to conscientious objection dimension". A very high Cronbach's alpha coefficient indicates a high level of agreement between the items in the measurement tool [40]. In addition, the test-retest reliability was evaluated with ICC, and the result (ICC=0.780) shows that the reliability of the scale is at a sufficient level [27]. In the Bland Altman graph created based on the test-retest data, it was observed that the errors were randomly distributed, and the mean of the differences was close to zero, so it is said that the results of both measurements are consistent. The Spearman-Brown coefficient r_{SB} obtained with the

split-half method was 0.930, and according to this value, this scale shows high reliability [27].

The analyses obtained in this study showed that the scale have a three-factor structure: "Prioritizing Professional Values", "Prioritizing Personal Values" and "Requesting the Right to Conscientious Objection". These factors provide an essential framework for understanding the different attitudes and reasons behind nurses' decisions to CO. Notably, while the literature presents both supporting and opposing views on CO, this three-factor structure aligns with critical aspects identified in previous studies, demonstrating its relevance and applicability in real-world scenarios.

The sub-dimension "prioritizing professional values" reflects the recognition of patient rights and professional responsibilities, even in situations where personal beliefs may conflict with professional duties. For example, Ko et al. found that 68.7% of participants believed that patient rights should take precedence over CO [23]. This finding highlights the importance of ensuring that professional standards guide decision-making processes. Nurses who adhere to professional values are likely to prioritize patient welfare and ensure equitable and ethical care. This factor highlights the role of institutional policies and ethical guidelines in balancing professional responsibilities with personal beliefs.

The sub-dimension "Prioritizing personal values" highlights the prevalence of nurses who are inclined to CO because of personal or moral beliefs. For example, a study of American nurses found that CO was acceptable if alternative care providers were available and the patient's life was not at risk [41]. This finding points to a critical area where personal values intersect with professional responsibilities. In some specific cases, such as abortion, CO is common, with individuals refusing to participate in procedures on the basis of personal or moral beliefs. In this sense, it is important to recognize that attitudes to CO may be both country and profession specific, depending on cultural norms and professional regulations [15].

The sub-dimension "Requesting the Right to Conscientious Objection" is based on revealing the desire or tendency on this issue in our country. For example, in the study by Ko et al. only 21.1% of nurses stated that CO was a priority. However, when it came to refusing to provide abortion care, 42.5% of nurses indicated that they would be willing to refuse to participate in an abortion case if allowed [23]. This suggests considerable variability in attitudes depending on the specific context and nature of the procedure. At this point, it should not be overlooked that the recognition of the right to CO may have implications for patients and the provision of health services [2]. The establishment of clear policies that define the scope and limits of CO is essential to ensure that patient care is uninterrupted while respecting the ethical boundaries of healthcare providers.

The implications of these findings are important. First, recognition of these three factors provides a nuanced understanding of the ethical dilemmas nurses face in practice. Healthcare organizations can use this scale to identify areas where additional training or ethical guidance is needed. For example, interventions that focus on strengthening nurses' understanding of professional values while respecting their personal beliefs may improve the quality and consistency of care.

Limitations

This study has several limitations. Firstly, because of the limited knowledge and lack of common language about CO in our country, some nurses had difficulty understanding its meaning. Sample questions in the scale were helpful in clarifying this concept and guiding participants. Second, as this scale is the first and only one of its kind, comparisons with other existing instruments could not be made. Third, the study was conducted within a specific cultural and health care context, which may limit the generalizability of the scale to other cultures or health care systems. In addition, the inclusion of a specific group of nurses raises concerns about the generalizability of the results to all nurses or other health professionals. Further research is needed to assess the applicability of the scale in different cultural contexts and healthcare settings, and to test its validity and reliability with a wider range of healthcare professionals.

Conclusion

Given the nature of the nursing profession, a nurse is expected to reflect on professional values, act in the patient's best interest, and consider their "professional conscience". In this context, it is important to understand whether nurses prioritize professional values and personal values or request the right to CO. Overall, the development and validation of COAS-N offer a reliable and valid tool for measuring nurses' attitudes toward CO. This scale addresses a significant gap in the field. It can be used in future research to explore various aspects of nurses' ethical decision-making and attitudes toward CO. We also believe that it will serve as a foundational tool for healthcare institutions seeking to understand and address ethical conflicts in nursing practice.

Abbreviations

CO	Conscientious Objection
COAS-N	The Nurses' Conscientious Objection Attitude Scale
ANA	American Nurses Association
ICN	International Council of Nurses
CVR	Content Validity Ratio
CVI	Content Validity Index
EFA	Exploratory Factor Analyses
CFA	Confirmatory Factor Analyses

ICC	Intraclass Correlation Coefficient
KMO	Kaiser-Meyer-Olkin
CFI	Comparative fit index
GFI	Goodness of fit index
NFI	Normal fit index
IFI	Incremental fit index
TLI	Tucker-Lewis's index
RMSEA	Root mean squares error of approximation
RMR	Root mean square residual

Data availability
All data generated or analysed during this study are included in this published article.

Declarations

Ethics approval and consent to participate
This study was approved by the Assessment and Evaluation Ethics Subcommittee of Gazi University (Project No: 2021 − 1081; Date: 23.11.2021). The nurses were informed of the aim and method of the study, and their written informed consent was obtained.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Clinical trial number
Not applicable.

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