ARAŞTIRMA MAKALESİ

ADLİ TIP DERGİSİ
TURKISH JOURNAL OF FORENSIC MEDICINE

Geliş: 03.12.2025
Kabul: 24.04.2026

Knowledge and Attitude Scale Toward Forensic Cases: A Scale Development Study

Adli Olgulara Yönelik Bilgi ve Tutum Ölçeği: Ölçek Geliştirme Çalışması

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Öz

Amaç: Bu çalışmanın amacı, sağlık profesyonellerinin adli olgulara yönelik bilgi ve tutumlarını değerlendirmek üzere geçerlik ve güvenirliği sağlanmış yeni bir ölçme aracı olan Adli Olgulara Yönelik Bilgi ve Tutum Ölçeği'ni (AOBTÖ) geliştirmektir.

Yöntem: Bu metodolojik çalışma, Türkiye genelinde sağlık kurumlarında görev yapan sağlık profesyonelleri ile yürütülmüştür. Örneklem, gönüllü olarak katılan ve geçerlik kriterlerini karşılayan 351 sağlık profesyonelinden oluşmaktadır. Veri toplama sürecinde, araştırmacılar tarafından geliştirilen Adli Olgulara Yönelik Bilgi ve Tutum Ölçeği (AOBTÖ) temel ölçme aracı olarak kullanılmıştır. Ölçüt geçerliğini değerlendirmek amacıyla, Arabacı ve Çam (2011) tarafından geliştirilen Adli Psikiyatri Hastalarına Yönelik Hemşire Tutum Ölçeği (APHHTÖ) de uygulanmıştır. AOBTÖ'nin psikometrik özellikleri; Açımlayıcı Faktör Analizi (AFA), Doğrulayıcı Faktör Analizi (DFA), Cronbach alfa katsayısı, madde-toplam korelasyonları ve kapsam geçerliği yöntemleri ile incelenmiştir.

Bulgular: Kaiser-Meyer-Olkin (KMO) ve Bartlett küresellik testleri, örneklemin faktör analizi için uygun olduğunu göstermiştir. AFA sonuçları ölçeğin çok boyutlu bir yapıya sahip olduğunu ortaya koymuş ve bu yapı DFA ile doğrulanmıştır. AOBTÖ, Cronbach alfa katsayısına göre yüksek düzeyde iç tutarlılık göstermiştir. Madde-toplam korelasyon değerleri, ölçeğin homojen bir yapıya sahip olduğunu desteklemiştir.

Sonuç: Elde edilen bulgular, AOBTÖ'nin sağlık profesyonellerinin adli olgulara yönelik bilgi ve tutumlarını değerlendirmede geçerli ve güvenilir bir ölçme aracı olduğunu göstermektedir. Ölçeğin, sağlık çalışanlarının eğitim gereksinimlerinin belirlenmesine, uygun eğitim programlarının geliştirilmesine ve adli olgu yönetiminde standardizasyonun sağlanmasına katkı sunması beklenmektedir.

Anahtar Kelimeler: Adli Olgular, Bilgi, Tutum, Ölçek Geliştirme, Sağlık Profesyonelleri

Abstract

Aim: The aim of this study was to develop the Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC), a new measurement tool with established validity and reliability, designed to assess healthcare professionals' knowledge and attitudes toward forensic cases.

Method: This methodological study included healthcare professionals working in healthcare institutions across Türkiye. The sample consisted of 351 healthcare professionals who voluntarily participated and met the validity criteria. During data collection, the Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC), developed by the researchers, was used as the primary measurement tool. To evaluate criterion-related validity, the Nurse Attitude Scale Toward Forensic Psychiatry Patients (NASTFPP), developed by Arabacı and Çam (2011), was additionally administered. The psychometric properties of the KAST-FC were examined through Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Cronbach's alpha coefficient, item-total correlations, and content validity methods.

Results: The Kaiser-Meyer-Olkin (KMO) and Bartlett's tests indicated that the sample was suitable for factor analysis. EFA revealed that the scale appears to have a multidimensional structure, which was confirmed by CFA. The KAST-FC demonstrated a high level of internal consistency, suggesting good reliability according to Cronbach's alpha coefficient. Item-total correlation values supported the homogeneity of the scale.

Conclusion: The findings suggest that the KAST-FC is a valid and reliable measurement tool for evaluating healthcare professionals' knowledge and attitudes toward forensic cases. The scale may contribute to identifying the educational needs of healthcare professionals, developing appropriate training programs, and supporting standardization in forensic case management.

Keywords: Forensic Cases, Knowledge, Attitude, Scale Development, Healthcare Professionals

Nasıl Atıf Yapmalı: Öztuna Ş, Gürhan N, Geniş B, Gareayaghi A. Knowledge And Attitude Scale Toward Forensic Cases: A Scale Development Study. Adli Tıp Dergisi 2026;40(1):(51-63) https://doi.org/10.61970/adlitip.1835220.

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INTRODUCTION

Forensic cases are complex situations in healthcare that simultaneously involve medical, legal, and ethical dimensions, requiring a multidisciplinary approach (1). Traffic accidents, falls, assaults, occupational injuries, poisonings, burns, electrocution and lightning strikes, drowning, sharp object and firearm injuries, cases of abuse or suspected abuse, and suicide attempts are all evaluated within this scope (2). In such cases, not only clinical knowledge and skills but also healthcare professionals' level of knowledge regarding forensic procedures and their ethical sensitivity are considered important (3).

Healthcare workers' knowledge and attitudes toward forensic cases play an important role in effective case management and patient safety. Studies have shown that healthcare professionals experience difficulties in providing care due to lack of knowledge and inconsistencies in practice concerning forensic cases (4,5). Deficiencies in collecting and documenting forensic evidence negatively affect the standardization of care.

Professional attitudes toward forensic cases are important for protecting patient privacy, preventing retraumatization, and ensuring a safe care environment (6). Trauma-informed care models contribute to healthcare workers adopting a nonjudgmental, respectful, and holistic approach (7). In the study by Kıyak et al. (2024), healthcare workers reported finding forensic medicine training insufficient and experiencing hesitation and stress during forensic report preparation. Most participants expressed the need for regular education in this field (8).

In the study by Yeşil et al. (2020), the majority of students had not received training on forensic cases and responsibilities (82.1%), and their knowledge regarding forensic responsibilities was found to be low (9). Similarly, in the study by Can et al. (2017), physicians were found to experience hesitation and challenges in practice due to ethical dilemmas and lack of knowledge about legal responsibilities when reporting forensic cases (10). These findings highlight the need for reliable measurement tools to assess healthcare workers' knowledge and attitudes toward forensic cases.

Various scales have been developed internationally to meet this need. For example, the Forensic Nursing Knowledge and Attitudes Scale aims to assess nurses' level of knowledge and attitudes regarding forensic cases (11). In Türkiye, the "Nurse Attitude Scale Toward Forensic Psychiatry Patients" developed by Arabacı and Çam (2011) targets only nurses working in forensic psychiatry and does not include healthcare professionals from other disciplines (12). This underscores the need for more comprehensive, interdisciplinary scales (13). Healthcare professionals are emphasized as the group that first intervenes in forensic cases and bears critical responsibilities in preserving evidence (14).

The aim of this study is to develop a new, valid, and reliable scale to measure healthcare professionals' knowledge and attitudes toward forensic cases. The Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC) is intended to support the identification of healthcare workers' educational needs, the development of appropriate training programs, and the establishment of standardization in forensic case management.

METHODS

Research Design

This methodological study covers the development process of the Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC), designed to measure healthcare professionals' knowledge and attitudes toward forensic cases in healthcare institutions in Türkiye. The research was planned as a methodological study with a cross-sectional

design and conducted over a one-year period following approval from the relevant ethics committee.

Population and Sample

The population of the study consisted of healthcare professionals working in healthcare institutions across Türkiye. The sample included 351 healthcare professionals who voluntarily participated in the study. During data collection, questionnaires were reviewed by the researchers, and those that were incomplete or had unanswered items on the scale were excluded from the analysis. As a result, analyses were conducted based on 351 valid participants.

Table 1. Sociodemographic Characteristics of the Participants

Variables	n	%
Gender		
Female	216	62,1
Male	132	37,9
Marital Status		
Single	102	29,3
Married	246	70,7
Education Level		
High School	6	1,7
University	342	98,3
Profession		
Emergency Medical Technician (EMT)	9	2,6
Physician	57	16,4
Midwife	14	4,0
Nurse	220	63,2
Technician	19	5,5
Clerk/Administrative Staff	24	6,9
Psychologist	5	1,4
Sector of Employment		
Public	337	96,8
Private	11	3,2
Department of Employment		
Psychiatry	24	6,9
Emergency Department	83	23,9
Forensic Medicine	5	1,4
Internal Medicine Units	110	31,6
Surgical Units	49	14,1
Manager/Administrative	11	3,2
Other	66	19,0
City of Employment		
Balıkesir	222	63,8
Gaziantep	30	8,6
Tokat	24	6,9
Istanbul	37	10,6
Ankara	10	2,9
Other	25	7,2
Place of Residence		
District	59	17,0
Province	289	83,0

The sociodemographic characteristics of the sample are presented in Table 1, while the participants' training and knowledge related to the management of forensic cases are shown in Table 2.

When examining the sociodemographic characteristics of the participants, the majority were female (62.1%) and married (70.7%), with 98.3% having a university degree. Nurses constituted 63.2% of the sample, while physicians accounted for 16.4%. Most participants (96.8%) worked in public institutions, and 31.6% were employed in internal medicine departments. The highest representation by city was from Balıkesir (63.8%), and most participants resided in the city center (83%).

Among the participants, 18.4% had never provided care for forensic cases, while 66.1% had prior experience in caring for such cases. Regarding training, 61.8% reported not having received any, whereas 38.2% indicated that they had received training but found it insufficient (theoretical, practical, or both).

In terms of legal knowledge, 54.3% of the participants stated that they were aware of the legal regulations related to forensic case management. However, 41.1% felt inadequately competent in preparing forensic reports, and 13.2% reported feeling completely unprepared. When asked about the establishment of a dedicated team for managing forensic cases in their unit, 57.5% of the sample expressed that such a team was necessary and that they would like to be part of it.

Data Collection Tools

Three instruments were used to collect data in this study:

•Descriptive Information Form: Developed by the researchers, this form consists of 25 items designed to assess participants' demographic characteristics (age,

Table 2. Participants' Training and Knowledge Related to the Management of Forensic Cases

Variables	n	%
Have you ever provided care for a forensic case?		
No, I have never provided care	64	18,4
Yes, I have provided care before	230	66,1
Yes, I am currently providing care	54	15,5
Where did you obtain your knowledge regarding forensic cases?		
I have never received any information	28	8,0
Courses during my education	79	22,7
In-service training programs	72	20,7
From my colleagues/friends	89	25,6
From the internet, books, or journals	63	18,1
Seminars-conferences-congresses	9	2,6
Forensic medicine is my primary specialty	1	,3
Other	7	2,0
Have you received any training on the management of forensic cases?		
I could not receive training because such training does not exist	215	61,8
I received training, but the practical training was insufficient	80	23,0
I received training, but the theoretical training was insufficient	11	3,2
I received training, but both theoretical and practical training were insufficient	42	12,1
Are forensic reports prepared in your institution?		
No	5	1,4
Yes	328	94,3
I don't know	15	4,3
Do you know the legal regulations regarding the preparation of forensic reports?		
No, I do not know	159	45,7
Yes, I know	189	54,3
How competent do you consider yourself in preparing forensic reports?		
Not competent at all	46	13,2
Not competent	143	41,1
Partially competent	140	40,2
Competent	16	4,6
Highly competent	3	,9
Do you feel the need for more information about forensic cases?		
No	14	4,0
Yes	334	96,0
Have you received training on the management of forensic cases after graduation?		
No	255	73,3
Yes	93	26,7
Have you received training on reporting forensic cases after graduation?		
No	255	73,3
Partially	17	4,9
Yes	76	21,8
Do you know the role of forensic reports in judicial processes?		
No, I do not know	125	35,9
Yes, I know	223	64,1
Do you consider pre-prepared guidelines for forensic reports necessary?		
No	9	2,6
Yes	339	97,4
Do you consider pre-prepared guidelines for forensic reports sufficient?		
No	146	42,0
Yes	202	58,0
If a proposal to establish a team exclusively responsible for the management of forensic cases in your unit were introduced, what would your approach be?		
It is necessary, and I would join	200	57,5
It is necessary, but I would not join	139	39,9
It is unnecessary, but I would join	4	1,1
It is unnecessary, and I would not join	5	1,4
Have you had any problems with patients/their relatives during the notification process of forensic cases to the authorities?		
No, I have not	196	56,3
Yes, I have	152	43,7

gender, education level, marital status, place of residence) and professional characteristics (years of professional experience, duration of employment at the institution, exposure to forensic cases/frequency), as well as their knowledge of forensic cases and opinions on legal regulations. The form includes both open-ended and closed-ended questions.

•Nurse Attitude Scale Toward Forensic Psychiatry Patients (NASTFPP): Developed by Arabacı and Çam (2011) to evaluate nurses' attitudes toward forensic psychiatry patients, this 25-item scale uses a 5-point Likert-type response format. The scale comprises four sub-dimensions: Social Distance, Willingness to Provide Care, Trust, and Perceived Dangerousness. Higher scores indicate more positive attitudes. In the original study, the Cronbach's alpha internal consistency coefficient was reported as 0.86 (12).

•Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC): Developed in this study to measure healthcare professionals' knowledge and attitudes toward forensic cases, this scale consists of 19 items rated on a 5-point Likert scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree. During its development, a literature review was conducted, expert opinions were consulted, and pilot testing was performed to evaluate construct validity. The full scale and scoring system are presented in Appendix 1.

Data Analysis

SPSS 25.0 and AMOS 24.0 were used for the validity and reliability analyses of the KAST-FC. After evaluating sample adequacy with the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests, the factor structure was examined using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Internal consistency of the scale was determined using Cronbach's alpha coefficient, while item consistency was assessed through item-total correlations. Content validity was evaluated using Lawshe's method, and modification indices were applied in CFA where necessary.

RESULTS

Scale Development Process

The Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC) was developed by the researchers based on a literature review and expert opinions. Items were prepared to be clear, understandable, and to reflect a single statement.

The scale development process was conducted in four stages:

1. Item Pool: Based on the literature review and expert input, an initial pool of 52 items was created.

2. Face Validity: Following expert evaluations, 14 items were removed from the scale.

3. Content Validity: Seven items deemed insufficient in terms of content were excluded.

4. Pilot Application: In the pilot study conducted with the remaining 31 items, two items were revised for clarity and format based on participant feedback.

Exploratory Factor Analysis (EFA) structured the scale into four sub-dimensions comprising a total of 19 items. The factors consist of 7, 6, 4, and 2 items, respectively, explaining 64.5% of the total variance. The scale demonstrated high internal consistency (Cronbach's α = 0.91), supporting its reliability.

Pilot Application

Before the main data collection, a pilot study was conducted with 15 healthcare professionals from different units, selected based on suitability for the study. Based on participant feedback, two items in the 31-item draft scale

were revised in terms of content and language. The pilot results indicated that the scale was generally understandable and applicable.

Scale Validity

Face Validity

To evaluate the face validity of the scale, a total of 35 experts and target group participants-5 psychiatric physicians and 30 healthcare professionals-were involved. The initial draft scale consisted of 52 items. Based on expert feedback, items with similar content were combined, while unclear or irrelevant items were removed from the scale.

Specifically, items M45, M46, M47, and M48 were removed because they had overlapping content and could be included under item M44. Items M11, M12, and M13 were excluded due to unclear wording and lack of alignment with the scale's context. Item M25 was removed for containing stigmatizing expressions, and items M35 and M43 were excluded because they devalued professional effort in forensic processes. Additionally, items M26 and M30 were removed due to overlapping attitudes, while items M28 and M29 were eliminated because they caused content redundancy.

As a result of these revisions, the scale was reduced to 38 items. The majority of participants reported that the revised items were clear and reflected their attitudes when encountering forensic cases. Participants also noted that the scale prompted them to reflect on their own level of knowledge in this area. Accordingly, the 38-item draft scale was deemed sufficient in terms of face validity and easily answerable by healthcare professionals.

Content Validity

Following the face validity stage, nine experts with specialized knowledge in forensic medicine and forensic psychiatry-who were familiar with the subject and able to allocate sufficient time-were selected to evaluate the content validity of the scale. None of these experts had participated in the face validity process. Six of the experts were academicians (two psychiatrists, two forensic medicine specialists, and two psychiatric nurses), and the remaining three were clinicians with practical experience (two psychiatrists and one forensic medicine physician).

Lawshe's technique was used to assess content validity, and a specially prepared form was provided to the experts. In this method, with nine experts, items were expected to have a content validity ratio (CVR) of at least 0.75. Based on expert evaluations, seven items (M16, M17, M18, M21, M22, M33, and M34) that did not meet this threshold were removed. Notably, item M18 had a very low CVR of 0.33, while the others remained around 0.55.

Experts justified the removal of these items for the following reasons:

• Lack of clarity and precision in wording (M21, M22, M34)

• High content overlap with other items (M18 overlapping with M15)

• Use of stigmatizing language (M18, M33)

• Absolute or judgmental expressions that could lead to social desirability bias (M16, M17, M18)

• Items prompting the participant to describe the patient rather than reflect their own attitude (M16, M17, M18)

As a result of the evaluation, eight of the nine experts indicated that items M1, M5, M6, M15, M19, M36, M40, M41, and M42 were necessary to retain in the scale. For the remaining items (M2, M3, M4, M7, M8, M9, M10, M14, M20, M23, M24, M27, M31, M32, M37, M38, M39, M44, M49, M50, M51, and M52), all experts agreed on their necessity.

After the removal of seven items, the scale's Content Validity Index (CVI) was calculated as 0.93, indicating a

high and sufficient level of content validity.

Construct Validity: Exploratory Factor Analysis

After data collection was completed, Exploratory Factor Analysis (EFA) was conducted to examine the factor structure of the draft scale. Sample adequacy was assessed using the Kaiser-Meyer-Olkin (KMO) measure, which was found to be 0.88. Bartlett's test of sphericity was significant ($p < 0.001$), indicating that the data were suitable for factor analysis.

In the initial analyses, items M5 and M36 showed high loadings on three factors and were removed from the scale, after which the analysis was repeated. Additionally, items M1, M3, M14, M20, M23, M31, M32, M39, and M40 loaded similarly on two factors, with factor loading differences below 0.10; these items were gradually removed. Subsequently, item M6 formed a separate single factor and was also removed before the final analysis.

In the final analysis, the KMO value was 0.86, and Bartlett's test remained significant ($\chi^2 = 61330.389$; $df = 171$; $p < 0.001$). Factor loadings of the items ranged from 0.54 to 0.95. The analysis indicated that the scale had a four-factor structure (Table 3), which was supported by the scree plot (Figure 1). The four factors together explained

Table 3. Exploratory Factor Analysis Results of the KAST-FC

Scale Items	Factor Loadings			
	1	2	3	4
Factor 1: Forensic Medical Competence				
49. I know how to perform the forensic medical evaluation of wounds	0.942			
44. I know the classification of wounds in forensic traumatology	0.939			
52. I have sufficient knowledge about the severity grading of wounds in forensic cases	0.938			
50. I can make inferences about the origin of wounds by examining their characteristics	0.927			
51. I can make inferences about the object that caused a wound based on its characteristics	0.897			
2. I have sufficient knowledge about forensic reports	0.764			
4. I have sufficient knowledge about taking the history (anamnesis) of a forensic case	0.741			
Factor 2: Forensic Relationship Management				
37. I do not conduct one-on-one interviews with forensic cases		0.846		
41. I behave authoritatively toward patients who have experienced a forensic incident		0.827		
15. Patients who have experienced a forensic incident tend to be aggressive		0.823		
19. It is necessary to cope with anger when treating patients who have experienced a forensic incident		0.819		
42. I warn my colleagues to be cautious when dealing with patients who have experienced a forensic incident		0.812		
27. It is important to perceive the emotions of a patient who has experienced a forensic incident		0.540		
Factor 3: Forensic Reporting Knowledge				
8. In the forensic report of an individual exposed to trauma, it should be stated whether there is any fracture in the body			0.949	
7. In the forensic report of an individual exposed to trauma, the severity of the trauma should be indicated			0.933	
9. In the forensic report of an individual exposed to trauma, it should be specified whether there is a permanent mark on the face			0.921	
10. In the approach to forensic cases, there are separate items regarding professional responsibilities for physicians and for nurses			0.694	
Factor 4: Empathic Sensitivity Toward Forensic Cases				
38. I believe that one should act with understanding when providing care to forensic cases				0.913
24. Working with a patient who has experienced a forensic incident contributes to my personal development				0.687
Variance	36.22	21.37	11.97	6.32
Eigen value	6.88	4.06	2.27	1.20

75.9% of the total variance.

Based on their content, the factors were named as follows:

• Factor 1: Forensic Medical Competence-covering topics such as wound information, classification, origin, objects, and report details.

• Factor 2: Forensic Relationship Management-including elements such as patient interviewing, authority, anger, empathy, and team alertness.

• Factor 3: Forensic Reporting Knowledge-addressing details in forensic reports such as fractures, trauma severity, and marks.

• Factor 4: Forensic Sensitivity-comprising empathetic attitudes and professional development components.

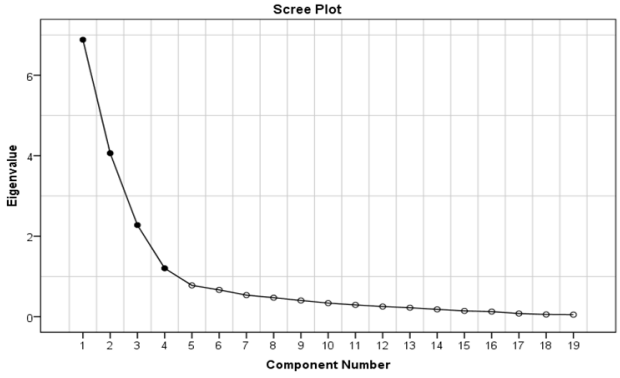


Figure 1. Scree Plot of the Exploratory Factor Analysis Results for the KAST-FC

Reliability Analyses

After determining the factor structure of the draft scale, internal consistency was evaluated using Cronbach's alpha coefficient and item-total correlations.

The 19-item scale demonstrated a Cronbach's alpha of 0.886. Cronbach's alpha values for the sub-dimensions were as follows: Forensic Medical Competence 0.954, Forensic Relationship Management 0.879, Forensic Reporting Knowledge 0.919, and Forensic Sensitivity 0.645. All sub-dimensions except Forensic Sensitivity showed "very good" to "excellent" reliability. The alpha value for the Forensic Sensitivity sub-dimension falls within the "acceptable" range of 0.60-0.79, which is considered sufficient for newly developed scales in the literature (15).

Item-total correlation coefficients ranged from 0.266 to 0.715. Although a value of 0.30 is generally accepted as the lower limit in the literature (16), item M38 had a coefficient of 0.266; however, it was retained because it represented an important factor of the scale. Some sources also consider values above 0.20 as acceptable (15). Based on these findings, no items were removed from the scale (Table 4).

Confirmatory Factor Analysis (CFA)

To test the validity of the four-factor structure obtained from the Exploratory Factor Analysis

(EFA), Confirmatory Factor Analysis (CFA) was conducted. In the initial analysis, the goodness-of-fit index x2/df was calculated as 50.618, which exceeded the recommended threshold of 5 for large samples. Therefore, modification indices were examined in detail.

A high error correlation was detected between items M2 and M4 in the Forensic Medical Competence sub-dimension, and an error covariance was added between these two items. After rerunning the analysis, the x2/df ratio decreased to 40.803. However, other fit indices still did not reach the recommended levels (RMSEA = 0.105; GFI = 0.816; AGFI = 0.759; NFI = 0.889; CFI = 0.909).

In the second modification stage, a significant error correlation was found between items M50 and M51, also in the same sub-dimension, and an error covariance was added. Following this adjustment, the fit indices were as follows: x2/df = 40.168; RMSEA = 0.096; GFI = 0.845; AGFI = 0.795; NFI = 0.904; CFI = 0.925.

These findings indicate that, with the applied

Table 4. Item Analysis Results of the KAST-FC

	Item	Communalities	Item-Total Correlation	Ort±ss	Cronbach's Alpha
Perceived Competence					0.954
	YO49	0.902	0.715	20.10±10.34	
	YO44	0.877	0.699	20.00±10.24	
	YO52	0.819	0.582	10.94±10.12	
	YO50	0.888	0.711	20.23±10.45	
	YO51	0.861	0.714	20.26±10.45	
	YO2	0.608	0.548	20.33±10.02	
	YO4	0.606	0.572	20.42±10.16	
Risk Sensitivity					0.879
	YO37	0.677	0.323	40.04±10.27	
	YO41	0.666	0.393	30.85±10.31	
	YO15	0.717	0.308	30.91±10.12	
	YO19	0.729	0.368	40.09±10.16	
	YO42	0.696	0.440	40.18±10.21	
	YO27	0.447	0.524	30.81±10.09	
Forensic Reporting Knowledge					0.919
	YO8	0.922	0.519	30.94±10.00	
	YO7	0.834	0.447	30.85±10.04	
	YO9	0.918	0.568	30.89±00.97	
	YO10	0.683	0.555	30.50±10.04	
Empathic Practice					0.645
	YO38	0.813	0.266	40.12±10.08	
	YO24	0.758	0.431	30.50±10.31	

modifications, the model achieved an acceptable level of fit. Although some fit indices did not fully meet the recommended thresholds, acceptable fit was considered based on CFI and NFI values. These results should be interpreted with caution, particularly given the sample size

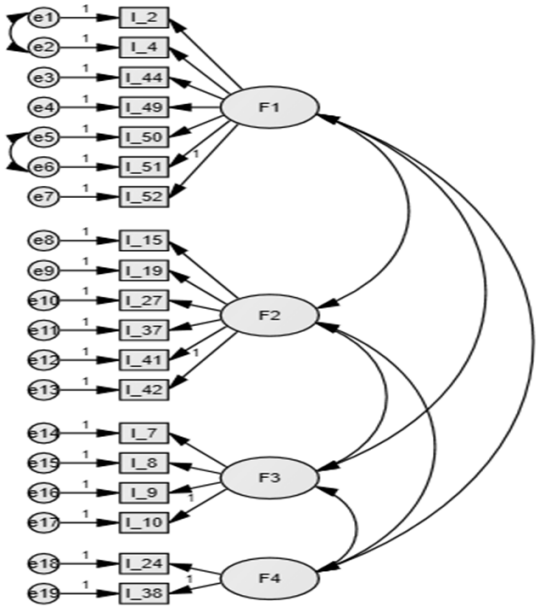


Figure 2. Confirmatory Factor Analysis (CFA) Model of the Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC)

Step Sequence	Conducted Procedures	Number of Items
Step 1	The conceptual and theoretical framework was determined	-
Step 2	A pool of items consisting of 52 statements was created by the researchers	52 items
Step 3-Face Validity	The face validity was examined with a total of 35 people, including 5 psychiatrists and 30 healthcare workers. Problematic items were removed based on feedback	38 items
Step 4-Content Validity	Opinions of 9 experts were obtained for content validity and analyses were conducted. Items with low CVI were removed. While the number of items in the draft scale was 31, the Content Validity Index was 0.93	31 items
Step 5-Pilot Application	A pilot application of the draft scale was conducted with 15 healthcare workers. Two items were revised in terms of language and content	31 items
Step 6-Data Collection	The application was carried out in the sample group. Although 450 questionnaires were collected, 24 questionnaires with missing responses that could impede analysis and 78 questionnaires with incomplete responses in the scales were excluded. As a result, the study was completed with 348 participants	31 items
Step 7-Exploratory Factor Analysis	After the exploratory factor analysis, two items were removed because they loaded on three factors, nine items were removed due to factor loading differences below 0.100 across different factors, and one item was removed because it formed a factor alone	19 items
Step 8-Reliability	As a result of reliability analyses, the scale's Cronbach's alpha was 0.88, while the Cronbach's alpha values of the sub-dimensions ranged between 0.64 and 0.95	19 items
Step 9-Confirmatory Factor Analysis (CFA)	With two modifications in the confirmatory factor analysis, the model was determined to fit the data. $\chi^2/df = 4.168$; RMSEA = 0.096; GFI = 0.845; AGFI = 0.795; NFI = 0.904; CFI = 0.925	19 items

Figure 3. Summary of the Scale Development Stag

and model complexity (Figure 2).

The development of the KAST-FC scale followed a systematic, multi-step process, including item generation, content validation, pilot testing, and refinement (Figure 3). This figure provides a clear visual overview of the methodological steps undertaken to ensure the scale's validity and reliability. The relationships between the NASTFPP and KAST-FC scales are presented in Table 5. The total score of the KAST-FC was found to have a significant positive correlation with all of its sub-dimensions ($p < 0.01$ for each).

Furthermore, the total KAST-FC score showed a significant positive correlation with the Perceived Dangerousness ($r = 0.402$; $p < 0.01$) and Social Distance ($r = 0.298$; $p < 0.01$) sub-dimensions of the NASTFPP. In contrast, it was significantly negatively correlated with the Willingness to Provide Care ($r = -0.188$; $p < 0.01$) and Trust ($r = -0.237$; $p < 0.01$) sub-dimensions of the NASTFPP.

Table 5. Examination of the Relationships Between the NASTFPP and KAST-FC Scales

Subscales Of The Scales	1	2	3	4	5	6	7	8
KAST-FC -Total	0,760**	0,632**	0,629**	0,513**	0,402**	-0,188**	0,298**	-0,237**
KAST-FC -Perceived Competence (1)	-							
KAST-FC -Risk Sensitivity (2)	0,051	-						
KAST-FC -Forensic Reporting Knowledge (3)	0,429**	0,192**	-					
KAST-FC -Empathic Practice (4)	0,256**	0,374**	0,103	-				
NASTFPP-Perceiving as Dangerous (5)	0,683**	-0,154**	0,271**	0,062	-			
NASTFPP -Willingness to Provide Care (6)	-0,057	-0,354**	0,076	-0,001	-0,096	-		
NASTFPP -Social Distance (7)	0,530**	-0,243**	0,367**	0,080	0,585**	0,216**	-	
NASTFPP -Trust (8)	0,155**	-0,520**	-0,152**	-0,192**	0,510**	0,084	0,188**	-

KAST-FC: Knowledge and Attitude Scale Toward Forensic Cases, NASTFPP: Nurse Attitude Scale Toward Forensic Psychiatry Patients

DISCUSSION

The Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC) developed in this study was designed to assess healthcare professionals' knowledge, attitudes, and awareness regarding forensic cases. Validity and reliability analyses indicated that the scale appears to have acceptable psychometric properties. Its high internal consistency (Cronbach's $\alpha = 0.91$), together with construct validity, suggests that the scale may help address a gap in the field. These findings align with previous studies emphasizing the need for standardized measurement tools to evaluate competencies and training needs of professionals providing healthcare in forensic contexts (17,18).

The four-factor structure-Forensic Medical Competence, Forensic Relationship Management, Forensic Reporting Knowledge, and Forensic Sensitivity- appears to reflect the multidimensional nature of approaching forensic cases. This aligns with literature highlighting that forensic practice requires not only knowledge but also ethical, communicative, and professional sensitivity (19). The factor structure parallels the multidimensional competency themes identified in Jo et al.'s (2020) Forensic Nursing Competency Scale for Nurses, providing preliminary evidence for the scale's validity across different disciplines (20).

Although the confirmatory factor analysis supported the four-factor structure of the KAST-FC, some fit indices did not fully reach the recommended thresholds and

should therefore be interpreted with caution. In addition, the Forensic Sensitivity sub-dimension demonstrated a relatively lower internal consistency coefficient compared to the other sub-dimensions. This finding may be attributed to the limited number of items in this factor and the heterogeneous nature of sensitivity-related constructs. Previous methodological studies have noted that sub-dimensions with fewer items may yield lower Cronbach's alpha values without necessarily undermining construct validity. Future studies conducted with larger and more diverse samples, as well as potential item refinement, may contribute to further strengthening the internal consistency and overall model fit of the scale.

Another key finding of this study is the relationship between the KAST-FC and the Nurse Attitude Scale Toward Forensic Psychiatry Patients (NASTFPP). The total KAST-FC score was positively correlated with the Perceived Dangerousness and Social Distance sub-dimensions of the NASTFPP. This suggests that individuals with higher knowledge and awareness of forensic cases may perceive patients as more dangerous and prefer maintaining social distance. Similarly, Kılıç-Demir and Kızılpınar (2024) reported that forensic psychiatry nurses exhibited higher perceptions of danger and social distancing compared to nurses in other clinical settings (21).

Conversely, the total KAST-FC score was negatively correlated with the Willingness to Provide Care and Trust sub-dimensions of the NASTFPP. This may indicate that as healthcare professionals' knowledge and awareness of forensic cases increase, they may become more hesitant to provide care and more reserved in establishing trust. This finding is consistent with the literature; for instance, Ireland et al. (2022) emphasized that high-stress events in forensic hospital settings can lead staff to adopt more distant attitudes (22). Moreover, healthcare professionals working in forensic psychiatry often experience high stress, anxiety, and burnout, which can negatively affect trust and willingness to provide care (23,24).

The study has certain limitations. The absence of nationally developed and validated comparable tools for forensic cases limits the ability to perform comparative analyses, although it also highlights the originality of the scale. Nevertheless, the participation of healthcare professionals from multiple disciplines indicates that the scale is suitable for interdisciplinary application. In addition, the overrepresentation of participants from a single city may limit the generalizability of the findings.

Future studies could use this scale to assess pre- and post-training knowledge and attitude levels, providing a clearer understanding of the educational needs of professionals serving forensic cases. This could allow for more targeted intervention programs. In conclusion, the KAST-FC is a valid and reliable tool for assessing healthcare professionals' knowledge and attitudes toward forensic cases. It may contribute to the literature, support professional development, and facilitate the establishment of standardized care principles, and facilitate the establishment of standardized care principles in forensic settings.

CONCLUSION

The Knowledge and Attitude Scale Toward Forensic Cases (KAST-FC) developed in this study was found to be a valid and reliable tool for assessing healthcare professionals' knowledge and attitudes regarding forensic cases. The scale may provide a scientific basis for identifying educational needs in this field and for developing structured, targeted training programs.

The findings can guide practical applications such as establishing standards for forensic case management within the healthcare system, preparing guidelines, and developing protocols. Additionally, it is recommended

that cultural adaptation and cross-validation studies be conducted to enhance the applicability of the scale in different sociocultural and institutional contexts. This would allow the scale to serve as a usable assessment tool at an international level.

Long-term use of the scale may enable monitoring changes in healthcare professionals' knowledge and attitudes over time, thereby contributing to the evaluation of the effectiveness of educational and legal interventions. In this regard, the KAST-FC may serve not only as a tool for assessing the current status but also as a strategic instrument for tracking and evaluating professional development processes.

Declarations

Conflict of Interest

The authors declare that they have no conflict of interest related to this article.

Funding

No financial support was received for this study.

REFERENCES

1. Kök AN. Department of Forensic Medicine 30th Anniversary Commemorative Book [in Turkish]. Erzurum: Atatürk University Press; 2021.

2. Terece C, Kocak AO, Soğukpınar VO, Gurpinar K, Aslıyuksek H. Evaluation of forensic reports prepared in emergency departments and comparison with reports from the Forensic Medicine Institution. Ulus Travma Acil Cerrahi Derg. 2022;28(2):140-146.

3. Öztuna Ş. History of forensic medicine and healthcare professionals in forensic psychiatry [in Turkish]. In: Gürhan N, editor. Mental health and psychiatric nursing. Ankara: Nobel Tıp Kitabevi; 2025. p. 757-786.

4. Kırmızıgül H, Taştekin B, Özensoy HS, Hekimoğlu Y. Determining the effect of training on nurses' knowledge and practices regarding forensic cases in the emergency department. İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi. 2023;8(2):273-280.

5. Özkan E, Sürmeli Ş, Albayrak T. Healthcare professionals' knowledge level regarding forensic cases in the intensive care and operating room. J Basic Clin Health Sci. 2025;9(1):141-149.

6. Petersen L, Thomas G, Collins A. Trauma-informed care in forensic nursing: Promoting safety and trust. J Trauma Nurs. 2020;27(4):204-211.

7. Speck PM, Tepper MM, Li P, Dowdell EB. Recognition of trauma-informed care responses in forensic nurses: Learning constructs and pedagogical implications. J Am Acad Forensic Nurs. 2023;1(2):3-18. doi:10.29173/jafn677

8. Kıyak R, Kıyak S, Çağlar B, Fındık M, Serin S, Dündar AS. Assessment of knowledge level of emergency residents and interns in managing forensic cases presenting to the emergency department. Balıkesir Med J. 2024;8(3):148-155.

9. Yeşil H, Sezer G, Yavuz MS. Determining midwifery and nursing students' knowledge regarding responsibilities in forensic cases. Van Tıp Dergisi. 2020;27(1):26-33.

10. Can Ö, Direk N, Özdemir MH. Physicians' attitudes regarding ethical dilemmas in forensic case reporting. Adli Tıp Bülteni. 2017;22(3):180-188.

11. Black R, Smith J, Johnson L. Development and validation of the Forensic Nursing Knowledge and Attitudes Scale. J Forensic Nurs. 2019;15(2):89-97.

12. Arabacı LB, Çam MO. Development of nurse's attitude towards forensic psychiatric patients scale. Noro Psikiyatr Ars. 2011;48(3):175-183.

13. Han M, Lee NJ, Lee SH. Development and evaluation of a forensic nursing competency-based hybrid simulation education program: A quasi-experimental design. Nurse Educ Pract. 2023;73:103819.

14. Silva RX, Ferreira CAA, Sá GGM, Souto RQ, Barros LM, Galindo-Neto NM. Preservation of forensic traces by nursing in emergency services: A scoping review. Rev Lat-Am Enfermagem. 2022;30:e3593.

15. Taber KS. The use of Cronbach's alpha when developing and reporting research instruments in science education. Res Sci Educ. 2018;48(6):1273-1291.

16. Büyüköztürk Ş. Data Analysis Handbook for Social Sciences: Statistics, Research Design, SPSS Applications, and Interpretation. 23rd ed. Ankara: Pegem Akademi Yayıncılık; 2017.

17. Beck CT, Costa S, Schumacher K. Forensic nursing competencies: A systematic review. J Forensic Nurs. 2019;15(2):67-75.

18. Rosenfeld P, Bersoff D. Evaluating forensic nursing education: Challenges and opportunities. Nurse Educ Pract. 2020;44:102755.

19. Jeon YJ, Park BK. The effect of job characteristics and professional self-concept on competency of forensic nursing among perioperative nurses. J Korean Acad Nurs Adm. 2025;31(3):302-311.

20. Jo NY, Kim MH, Lee YM. Development of the forensic nursing competency scale for nurses. J Korean Crit Care Nurs. 2020;13(3):24-40.

21. Kılıç-Demir B, Kızılpınar SÇ. Stigmatization of patients

with mental disorders: A comparative study of nurses in forensic psychiatry and inpatient settings. Front Psychiatry. 2024;15:1440917. doi:10.3389/fpsyt.2024.1440917

22. Ireland CA, Chu S, Ireland JL, Hartley V, Ozanne R, Lewis M. Extreme stress events in a forensic hospital setting: Prevalence, impact, and protective factors in staff. Issues Ment Health Nurs. 2022;43(5):418-433. doi:10.1080/01612840.2021.2003492

23. Dickinson T, Wright KM. Stress and burnout in forensic mental health nursing: A literature review. Br J Nurs. 2008;17(2):82-87. doi:10.12968/bjon.2008.17.2.28133

24. Lombardo C, Capasso E, Li Rosi G, Salerno M, Chisari M, Esposito M, Di Mauro L, Sessa F. Burnout and stress in forensic science jobs: A systematic review. Healthcare. 2024;12:2032. doi:10.3390/healthcare12202032