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Clinical Research

Appropriateness of the anxiety subscale of the Hospital Anxiety and Depression Scale for Koreans to measure preoperative anxiety and the effect of preoperative anxiety on postoperative quality of recovery

Minjong Ki[1], Dong-Chan Kim[1], Seon Woo You[1], Jeongmin Oh[1], Jieun Jang[1], and Hyo Hyun Yoo[2]

[1]Department of Anesthesiology and Pain Medicine, Jeonbuk National University Medical School and Hospital, [2]Department of Medical Education, Jeonbuk National University Medical School, Jeonju, Korea

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Corresponding author
Dong-Chan Kim, M.D., Ph.D.
Department of Anesthesiology and Pain Medicine, Jeonbuk National University Medical School and Hospital, 20 Geonji-ro, Deokjin-gu, Jeonju 54907, Korea
Tel:82-63-250-1251
Fax:82-63-250-1240
E-mail: dckim@jbnu.ac.kr

Background: The reliability and validity of the anxiety subscale of the Hospital Anxiety and Depression Scale for Koreans (K-HADS-A) has not been studied in Korean surgical patients. This study aimed to validate the usefulness of K-HADS-A for measuring preoperative anxiety in Korean surgical patients. Additionally, the effect of preoperative anxiety on postoperative quality of recovery was evaluated.

Methods: Preoperative anxiety in 126 inpatients with planned elective surgery was measured using the K-HADS-A. The postoperative quality of recovery was measured using the Korean version of the Quality of Recovery-15. The validity and reliability of the K-HADS-A were evaluated. The differences in quality of recovery on the first and seventh day postoperatively were then compared between the anxious and non-anxious groups.

Results: There was a statistical correlation between the K-HADS-A and Anxiety Likert Scale. The goodness-of-fit indices of the structural equation model showed how well the data from the K-HADS-A match their concept. The Kaiser-Meyer-Olkin value was 0.848, and the P value of Bartlett's test of sphericity was < 0.001. Cronbach's alpha was high at 0.872. The K-HADS-A had an acceptable level of validity and reliability. Postoperative quality of recovery was significantly lower in the anxious group (postoperative day 1: t = 2.058, P = 0.042; postoperative day 7: t = 3.430, P = 0.002).

Conclusions: The K-HADS-A is an acceptable tool for appropriately assessing preoperative anxiety in Korean surgical patients. Assessing preoperative anxiety is valuable, because preoperative anxiety affects the postoperative quality of mental and physical recovery.

Keywords: Anesthesia; Hospital Anxiety and Depression Scale for Koreans; Postoperative recovery; Preoperative anxiety; Quality of Recovery-15; Surgery.

INTRODUCTION

Many patients scheduled for elective surgery under general or regional anesthesia experience anxiety [1]. Anxiety is a fearful concern that a person normally experiences in life. Moreover, preoperative anxiety is defined as discomfort and tension before surgery about the unknown, such as disease, hospital admission, anesthesia, and surgery [2,3]. This is a normal reaction to potential danger, but it also causes autonomic and somatic symptoms also appear [4]. It eventually increases blood pressure, heart rate, and myocardial workload and affects perioperative outcomes. This process is explained as a pathophysiological response in which the activation of the autonomic system is due to anxiety [5].

Preoperative anxiety affects the intensity of postoperative pain and the required amount of intraoperative anesthetic agent. In addition, it also increases postoperative morbidity and mortality in certain types of surgery [2,6-9]. Anxiety can be measured through several methods. Among the evaluation tools for evaluating anxiety, the State-Trait Anxiety Inventory, Beck Anxiety Inventory, Zung's Self-rating Anxiety Scale, and Hospital Anxiety-Depression Scale (HADS) are representative self-report tests. HADS consists of two subscales of anxiety and depression [10]. Oh et al. [11] developed the Korean version of HADS-A (K-HADS-A) and proved its validity for screening anxiety disorders. The K-HADS-A enables easy and rapid measurement of anxiety even by primary care physicians and non-psychiatrists. In addition, K-HADS-A is widely used to measure preoperative anxiety as it does not require specific skills.

Assessment of postoperative recovery quality has become an important research aspect that indicates patient perceptions of postoperative outcomes. Previous studies measured postoperative pain, analgesic requirements, hospital stay, morbidity, and mortality as indicators of postoperative recovery [8,12-14]. However, these indicators do not fully represent the postoperative recovery quality. The postoperative quality of recovery score (QoR) is a widely used questionnaire to evaluate postoperative recovery quality. It has been used to self-evaluate the postoperative recovery quality among patients and has a clinically practical value [15,16]. The QoR was recently translated into a Korean version (QoR-40K, 15K), and its reliability and validity were evaluated [17,18].

Although K-HADS-A was primarily developed to screen patients with anxiety disorders, no studies have verified its reliability and validity in measuring the preoperative anxiety of Korean surgical patients [19]. Therefore, this study primarily aimed to validate the appropriateness of K-HADS-A for measuring preoperative anxiety in Korean surgical patients. In addition, the effect of preoperative anxiety on postoperative quality of recovery was evaluated using the objective and integrated QoR-15K rather than a single indicator.

MATERIALS AND METHODS

Study participants

The Institutional Review Board of Jeonbuk National University Hospital approved this prospective study (approval no. 2020-01-036-001). All procedures involving human participants were conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 Declaration on Helsinki and its later amendments. Written informed consent was obtained from all participating patients.

Inpatients with planned elective surgery were enrolled. The inclusion criteria were Korean reading and writing ability and hospitalization for 2 nights before surgery and 2 days after surgery. The exclusion criteria were as follows: (1) cognitive impairment, (2) age < 18 year or > 74 year, (3) American Society of Anesthesiologists physical status IV or above, (4) a history of alcohol or any other substance abuse, (5) patients with anxiety disorders, (6) postoperative sedation, (7) patients who cannot provide cognitive function assessments after specific surgeries, and (8) refusal to participate in the study.

Evaluation of preoperative anxiety using K-HADS-A

Preoperative anxiety was measured using K-HADS-A. The study authors evaluated the K-HADS-A score after explaining about surgery and anesthesia on the day before surgery. The anxiety subscale consisted of 7 items, with possible scores ranging from 0 to 21 (Appendix 1) [11]. The cut-off score for distinguishing between the anxious and non-anxious groups was set as 8 based on previous studies [10,11]. In addition, the 5-point Anxiety Likert Scale (ALS) was also used to measure preoperative anxiety. The ALS presents statements such as "I often feel anxious", and respondents choose one of the following options: "Strongly Agree," "Agree," "Neutral," "Disagree," or "Strongly Disagree." The score of the respondent's selected answers for each statement is interpreted as a score representing the degree of

anxiety. In general, a low score indicates a low level of anxiety, while a high score indicates a high level of anxiety. The ALS is useful for measuring anxiety symptoms and is widely used for measuring everyday anxiety symptoms [20]. Additionally, this scale is also used to track and evaluate the progression of anxiety symptoms in clinical research. Therefore, the ALS was selected as a standard control group to measure criterion validity.

Subgroup analyses were also performed to measure preoperative anxiety using K-HADS-A, and variables were classified into two groups. The variables are sex, age, education, previous experience with anesthesia, American Society of Anesthesiologists physical status, and religion. Age was classified at a cut-off of 45 year, and educational background was classified based on high school graduation.

Validity and reliability for K-HADS-A

The validity of the K-HADS-A was assessed to determine the accuracy of its concepts. Validity was verified using construct validity, goodness-of-fit indices of the structural equation model, and factor analysis. Construct validity was assessed using convergent validity, and correlations between the K-HADS-A and ALS were compared. The goodness-of-fit indices of the structural equation model assess how well the data from the K-HADS-A matches its concepts. The goodness-of-fit indices of the structural equation model were evaluated by absolute fit index, incremental fit index (IFI), and parsimonious fit index. The absolute fit was measured using the Root Mean Square of Error Approximation, Standardized Root Mean Square Residual (SRMR), and Goodness-of-fit index [21]. The IFI was calculated using the comparative fit index (CFI), Tucker-Lewis index (TLI), and normed fit index [22]. Lastly, the parsimonious fit was examined using the chi-squared/degree of freedom, which should be less than five.

Furthermore, the assessment of factor analysis was confirmed by the Kaiser-Meyer-Olkin (KMO) value and Bartlett's test of sphericity. A KMO value of 0.6 or higher is considered acceptable, or 0.7 or higher if strictly applied. Bartlett's test for sphericity indicates that the factorization model is appropriate if the P value is less than 0.05, which is the level of significance.

Reliability was used as an indicator of the consistency of the K-HADS-A. Reliability was assessed by internal consistency measured using Cronbach's alpha. Internal consistency coefficients were interpreted as follows: 0.9 or more, excellent; 0.8– 0.9, very good; and 0.7–0.8, adequate [23].

Relationship between preoperative anxiety and postoperative quality of recovery

Two groups were classified based on the K-HADS-A score, and the postoperative quality of recovery, as measured using the Korean version of the Quality of Recovery-15 (QoR-15K) [17], was compared. The QoR-15K includes 15 items in 5 subscales: physical comfort, physical independence, emotional state, psychological support, and pain. Psychological support and emotional state represent mental well-being. Physical independence, physical comfort, and pain represented physical well-being. The score for QoR-15K items ranges from 0 to 10, and the global QoR-15K score is the sum of all item scores. The scores range from 0 to 150. The higher the score, the higher the quality of recovery. In addition, the 100-mm Visual Analog Scale for Recovery (VAS-R) was also used to measure postoperative recovery quality. The VAS-R is a subjective rating scale commonly used to assess an individual's perception of their recovery status. It is a straight line with endpoints representing extreme states, such as "Complete Recovery" and "No Recovery." Participants are asked to place a mark on the line to indicate their current perception of their recovery status. Participants' responses on the VAS for recovery can be measured by measuring the distance (in millimeters) from the "No Recovery" endpoint to the mark they placed on the line. This measurement provides a numerical value representing their perceived level of recovery. The QoR-15K and VAS-R were evaluated on the first and seventh day postoperatively by the study authors.

Intraoperative anesthesia protocol

A standardized anesthetic protocol was established in this study. There were no interventions or pharmacological premedications such as sedatives aimed at decreasing anxiety levels. Noninvasive blood pressure, temperature, electrocardiogram, pulse oximetry, and bispectral index (BIS) were monitored during surgery. BIS value was maintained between 40 and 60. Volatile anesthetics (sevoflurane) and opioids (remifentanil) were chosen to maintain general anesthesia.

Sample size calculation and statistical analysis

When validating a questionnaire, the sample size is typi-

cally set to 10–20 times the total number of items [17]. Given that the K-HADS-A had seven items, we multiplied that by 15 and determined that the required sample size was 105 patients. Considering a dropout rate, the total sample size was determined to be 126.

All descriptive data were expressed as the number of patients or as the mean ± standard deviation (SD). First, the measurement model was assessed to evaluate the reliability and validity of the measurement scales. Confirmatory factor analysis was performed to examine the fit between the observed variables and their respective latent constructs. Model fit indices, including the chi-square test, CFI, TLI, Root Mean Square Error of Approximation, and SRMR, were examined to assess the goodness-of-fit of the measurement model. Next, associations were measured using Spearman's correlation coefficient. Continuous variables of the QoR-15K were analyzed using an independent sample *t*-test after the normality test. All statistical analyses were performed using IBM AMOS 23.0. (International Business Machines Co.), and IBM SPSS Statistics Version 27.0 (IBM Co.). A P value of less than 0.05 was considered statistically significant.

RESULTS

Among the 126 patients enrolled, 9 patients were excluded due to canceled surgery (n = 1) and loss to follow-up (n = 8); thus, 117 patients were included and completed the questionnaire. The Consolidated Standards for Reporting of Trials flow diagram is presented in Fig. 1. The completion rate of the questionnaire was 92.9%. Based on a cutoff of preoperative K-HADS-A score of 8, 91 and 26 patients were classified into the non-anxious and anxious groups, respectively. Therefore, the incidence of preoperative anxiety in the present study was 22.2%. The mean K-HADS-A scores in the

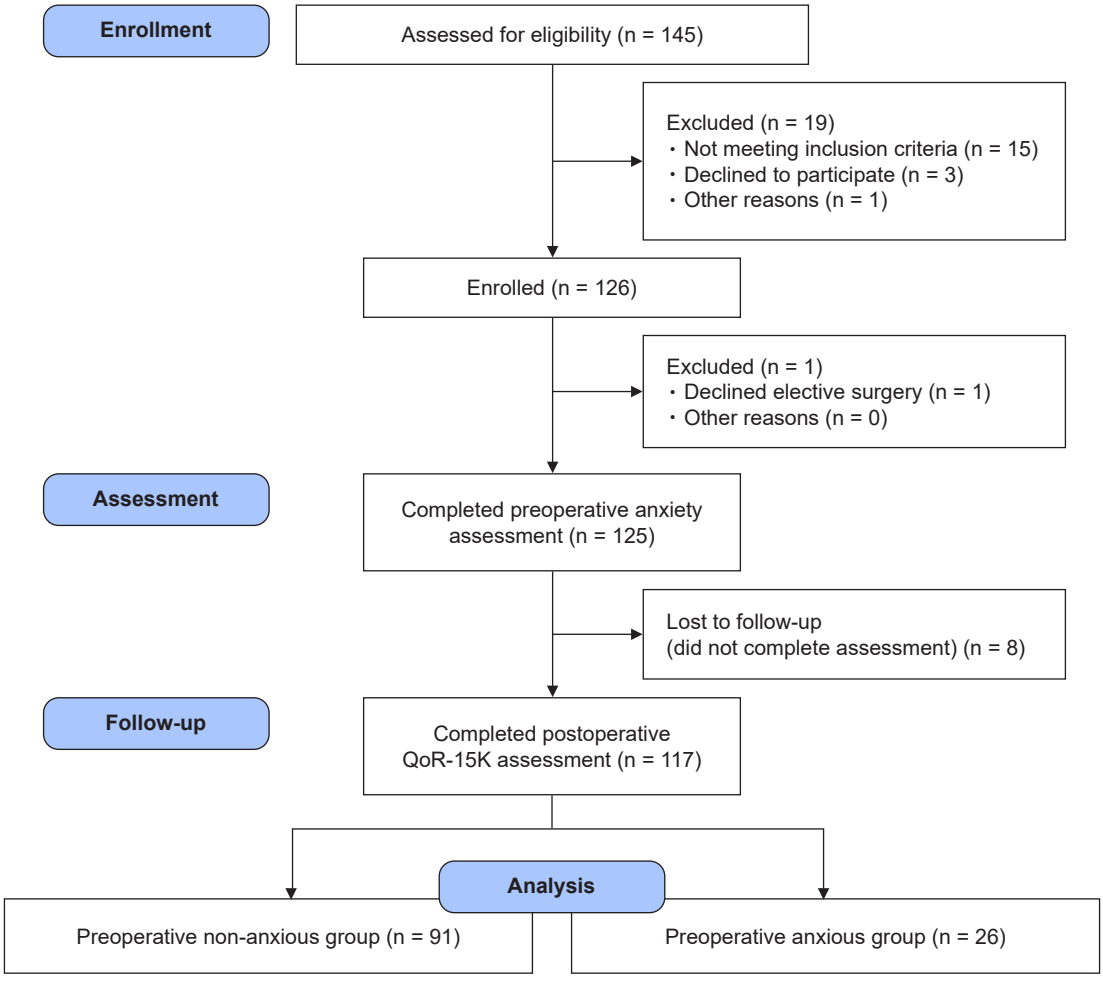

Fig. 1. CONSORT flow diagram. CONSORT: Consolidated Standards for Reporting of Trials, QoR-15K: Korean version of the Quality of Recovery-15.

non-anxious and anxious groups were 3.89 ± 2.25 and 9.46 ± 2.06 (P < 0.001). The study population included a broad range of patients and surgical procedures. However, demographic data showed no significant between-group differences (Table 1).

Validity and reliability for K-HADS-A

For the convergent validity of the K-HADS-A, we compared K-HADS-A and ALS. The K-HADS-A showed a significant positive correlation with ALS (r = 0.562, P < 0.001). The goodness-of-fit indices of the structural equation model (Fig. 2) were used to evaluate how well the data from the K-HADS-A matched the model. The goodness-of-fit indices are described in Table 2. Moreover, we checked the assessment of confirmatory factor analysis to take the measure of sampling adequacy. The KMO value was 0.848, and the P value of Bartlett's test of sphericity was < 0.001 (approximate chi-square = 368.76, degree of freedom = 21).

With respect to the reliability of the K-HADS-A, Cronbach's alpha was high at 0.872, exceeding the recommended reliable value of > 0.7 [23].

Relationship between preoperative anxiety and quality of recovery

Pearson's correlation analysis to check the correlation between the QoR-15K and VAS-R showed that the global QoR-15K score on a postoperative day (POD) 1 had a significant positive correlation with VAS-R on POD1 (r = 0.468, P < 0.001). In addition, the global QoR-15K score on POD7 showed a significant positive correlation with the VAS-R on POD7 (r = 0.574, P < 0.001).

There were significant between-group differences in the global QoR-15K (t = 2.058, P = 0.042), emotional state (t =

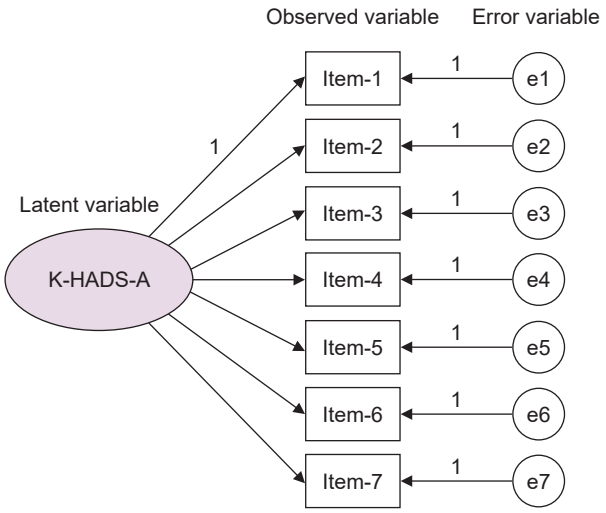

Fig. 2. Structural equation model for Hospital Anxiety and Depression Scale for Koreans (K-HADS-A). Latent variables are theoretical concepts that are not directly observed, and this refers to what K-HADS-A represents. Meanwhile, observed variables are directly measured variables and represent the seven questions of the K-HADS-A. Given that the seven items in the K-HADS-A measure a single latent variable, the modeling focuses on the relationship between these items and the latent variable.

Table 1. Clinicodemographic Patient Characteristics by Group

Variable	Non-anxious group (n = 91)	Anxious group (n = 26)	P value
Age (yr)	40.53 ± 9.61	37.69 ± 9.72	0.188
Sex (M/F)	35/56	6/20	0.147
Weight (kg)	65.59 ± 12.66	67.39 ± 17.36	0.560
Height (cm)	162.80 ± 9.44	162.29 ± 8.15	0.799
ASA PS classification (1/2/3)	28/61/2	8/17/1	0.895
Type of surgery			
General surgery	30	9	
Gynecologic	39	11	
Orthopedic	20	6	
Others	2	0	
Duration of anesthesia (min)	105.83 ± 39.33	105.92 ± 44.23	0.992
Duration of surgery (min)	72.22 ± 38.09	71.27 ± 39.11	0.911
PACU stay (min)	54.48 ± 13.56	52.92 ± 14.97	0.616
Duration of admission (days)	5.66 ± 2.06	5.50 ± 1.56	0.722

Values are presented as mean ± SD or number only. ASA PS: American Society of Anesthesiologists physical status, PACU: post-anesthesia care unit.

2.331, P = 0.021), and mental well-being (t = 2.396, P = 0.018) scores on POD1. There were significant between-group differences in the global QoR-15K (t = 3.430, P = 0.002), emotional state (t = 3.566, P = 0.001), physical comfort (t = 3.079, P = 0.004), pain (t = 3.308, P = 0.001), physical well-being (t = 3.247, P = 0.003), and mental well-being (t = 3.272, P = 0.003) scores on POD7. Quality of recovery on POD1 and POD7 was also significantly different between the two groups (POD1: t = 2.058, P = 0.042; POD7: t = 3.430, P = 0.002). Further, it was significantly lower in the anxious group than in the non-anxious group. The differences in the postoperative quality of recovery between the two groups are presented in Table 3.

Table 2. Fit Indices of the Structural Equation Model for K-HADS-A

Index	Value
χ^2	48.688
df	14
χ^2/df	3.48
RMSEA (90% CI)	0.146 (0.103, 0.192)
SRMR	0.0614
GFI	0.894
IFI	0.905
CFI	0.903
TLI	0.855
NFI	0.872

K-HADS-A: the anxiety subscale of the Hospital Anxiety and Depression Scale for Koreans, χ^2: Chi-square, df: degree of freedom, χ^2/df: the ratio of chi-square to degrees of freedom, RMSEA: Root Mean Square of Error Approximation, CI: confidence interval, SRMR: Standardized Root Mean Square Residual, GFI: Goodness-of-fit index, IFI: incremental fit index, CFI: comparative fit index, TLI: Tucker-Lewis index, NFI: normed fit index. χ^2 statistic for K-HADS-A is significant at P < 0.001.

Influencing factors of preoperative anxiety

In previous studies, sex, age, education, experience of anesthesia, American Society of Anesthesiologists physical status classification, and religion were confirmed to influence preoperative anxiety [1]. Subgroup analyses in the current study showed that preoperative anxiety was significantly different according to sex and age. Female patients and patients aged < 45 year felt more anxious in the preoperative period. Meanwhile, there was no significant difference in preoperative anxiety in the groups classified by education, previous experience with anesthesia, American Society of Anesthesiologists physical status classification, and religion (Table 4).

Table 3. Differences in Postoperative Quality of Recovery Between the Non-anxious and Anxious Groups

QoR-15K	Non-anxious group (n = 91)	Anxious group* (n = 26)	P value
POD 1			
Global QoR-15K score	108.85 ± 26.54	96.77 ± 25.88	0.042
Physical comfort	36.46 ± 11.13	32.85 ± 9.40	0.134
Emotional state	31.43 ± 8.35	26.73 ± 11.24	0.021
Psychological support	17.35 ± 3.61	15.88 ± 4.08	0.078
Physical independence	12.65 ± 6.37	11.31 ± 5.67	0.335
Pain	10.95 ± 4.65	10.00 ± 4.36	0.351
Mental well-being	48.78 ± 11.13	42.62 ± 13.03	0.018
Physical well-being	60.07 ± 17.22	54.15 ± 15.77	0.120
POD 7			
Global QoR-15K score	127.55 ± 18.94	106.58 ± 29.49	0.002
Physical comfort	44.45 ± 6.83	37.54 ± 10.78	0.004
Emotional state	34.25 ± 6.42	26.96 ± 9.85	0.001
Psychological support	17.62 ± 3.47	15.81 ± 4.98	0.092
Physical independence	15.66 ± 4.49	13.81 ± 5.54	0.127
Pain	15.57 ± 4.06	12.46 ± 4.79	0.001
Mental well-being	51.87 ± 8.15	42.77 ± 13.49	0.003
Physical well-being	75.68 ± 12.30	63.81 ± 17.45	0.003

Values are presented as mean ± SD. POD: postoperative day, QoR-15K: Quality of Recovery-15. *Patients with preoperative the anxiety subscale of the Hospital Anxiety and Depression Scale for Koreans scores of 8 or higher are classified into the anxious group.

Table 4. Differences in Preoperative Anxiety according to Sex, Age, Education, Previous Experience of Anesthesia, ASA Physical Status, and Religion

Group	Number of patients	Mean	SD	t	P value
Sex					
M	41	3.39	2.836	−4.381	0.000
F	76	6.07	3.008		
Age					
Young (< 45 yr)	72	5.71	3.265	2.534	0.013
Old (≥ 45 yr)	45	4.2	2.905		
Education					
College graduate	73	5.45	3.383	1.414	0.160
High school graduate	44	4.59	2.839		
Previous experience of anesthesia					
First time	55	5.22	3.624	0.281	0.780
Previous experience	62	5.05	2.808		
ASA classification					
ASA 1	36	5.11	3.379	−0.038	0.970
ASA 2,3	81	5.14	3.145		
Religious practices					
Religion	63	5.05	3.381	−0.293	0.770
No religion	54	5.22	3.014		

ASA: American Society of Anesthesiologists.

DISCUSSION

This study shows that the K-HADS-A is an acceptable tool for appropriately assessing preoperative anxiety in Korean surgical patients. To evaluate the appropriateness of using K-HADS-A as a method to measure preoperative anxiety in surgical patients, the validity and reliability of K-HADS-A were assessed. The relationships between the K-HADS-A and ALS were statistically well correlated. This shows that K-HADS-A has significant convergent validity. The goodness-of-fit indices of the structural equation model were sufficiently strong to conclude that the K-HADS-A had an acceptable level of construct validity. The results of the internal consistency of the K-HADS-A also showed that it had an adequate level of reliability. In addition, factor analysis as a validation method through KMO measurement and Barlett's test showed that most items of the K-HADS-A were valid.

In addition, we found that preoperative anxiety can affect not only postoperative mental well-being, but also postoperative physical well-being. The dimensions of QoR-15K offer excellent assessment and discrimination capabilities to quantify changes in the postoperative health state. The QoR-15K mental well-being scale score is significantly different on POD1 and POD7 between the non-anxious and anxious groups. This means that the effects of preoperative anxiety persisted until POD7. Meanwhile, physical well-being is not significantly different between groups on POD1, but significant differences are found on POD7. This shows that preoperative anxiety continues to affect postoperative mental and physical well-being. Our findings confirm that preoperative anxiety could delay postoperative recovery.

The minimal clinically important difference (MCID) for the QoR-15K score is 8, and an MCID of 8 or more points indicates a clinically meaningful improvement [24]. In this study, the MCID of the non-anxious and anxious groups was 18.70 ± 23.73 and 9.81 ± 31.56, respectively. The non-anxious and anxious groups showed a clinically meaningful improvement in postoperative recovery quality. However, the global QoR-15K score was significantly lower in the anxious group than in the non-anxious group on POD1 and POD7. Although both groups showed clinically significant improvement, that is, recovery state, the anxious group showed relatively delayed postoperative recovery.

The influencing factors of surgical outcome include demographic factors, clinical, damage to specific anatomic structures, comorbid health conditions, and psychological factors [25]. Psychological factors have been found to substantially impact surgical recovery [20]. Anxiety is important as it can considerably impact perioperative situations, such as preoperative preparation, intraoperative anesthesia re-

quirements, postoperative opioid demands, and surgical outcome. Previous studies [2,6-9,20,25] have identified a relationship between preoperative anxiety and surgical outcome, and consistent findings were observed in the present study.

Preoperative anxiety is caused by fear of the unknown, thinking of postoperative pain, and possible complications. Influencing factors of preoperative anxiety include sociodemographic and psychosocial factors, type of surgery, and type of anesthesia. Sociodemographic factors include age, sex, American Society of Anesthesiologists physical status classification, and education. Previous studies have shown that preoperative anxiety is more frequent in women and younger patients, and the present study supports this. However, there was no difference in preoperative anxiety according to the American Society of Anesthesiologists physical status classification and education level in the present study.

The main strength of our study was that the postoperative quality of recovery was measured using the objective and integrated QoR-15K to demonstrate postoperative outcome differences. In addition, a wide range of surgical patients and surgical settings were evaluated. Further, the present study used the K-HADS-A questionnaire to measure preoperative anxiety. The K-HADS-A is an easy and convenient tool for examining the degree of anxiety in a short time without special skills. Moreover, the present study showed that the K-HADS-A is an acceptable method of appropriately assessing preoperative anxiety in surgical patients by evaluating its validity and reliability.

However, there are also limitations in the present study. Given that the K-HADS-A measures pathological anxiety, it could not differentiate between state and trait anxiety. Suppose state anxiety can be measured under exceptional circumstances such as surgery. In that case, it is expected that the effect of preoperative emotional pressure on the postoperative recovery quality can be subdivided and compared. Further, among seven questions of the K-HADS-A, when a question with low agreement was removed, it showed better goodness-of-fit as a measure of preoperative anxiety. More accurate results are expected if preoperative anxiety is measured with the 6-item K-HADS-A. However, this scale's cut-off value for diagnosing anxiety is unknown. Thus, further research is needed.

In conclusion, the K-HADS-A is a valid and reliable tool for appropriately assessing preoperative anxiety in Korean surgical patients. Preoperative anxiety affects the postoperative quality of recovery, both mentally and physically, but it is a preventable risk factor. Assessment of preoperative anxiety is valuable to improve postoperative quality of recovery, and thus, methods to reduce preoperative anxiety should be developed and applied.

KSAP

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

DATA AVAILABILITY STATEMENT

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

AUTHOR CONTRIBUTIONS

Conceptualization: Dong-Chan Kim. Data curation: Jeongmin Oh, Jieun Jang. Formal analysis: Minjong Ki, Hyo Hyun Yoo. Methodology: Minjong Ki, Dong-Chan Kim. Visualization: Minjong Ki. Writing - original draft: Minjong Ki. Writing - review & editing: Dong-Chan Kim. Investigation: Seon Woo You, Jeongmin Oh. Software: Seon Woo You. Validation: Minjong Ki, Hyo Hyun Yoo.

ORCID

Minjong Ki, https://orcid.org/0000-0001-9959-7908
Dong-Chan Kim, https://orcid.org/0000-0001-6946-1129
Seon Woo You, https://orcid.org/0000-0002-1742-7487
Jeongmin Oh, https://orcid.org/0000-0003-2394-2992
Jieun Jang, https://orcid.org/0000-0002-9582-9465
Hyo Hyun Yoo, https://orcid.org/0000-0003-4226-2589

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Appendix 1. Anxiety subscale of the Hospital Anxiety and Depression Scale for Koreans

병원 불안 척도(Hospital Anxiety Scale, K-HADS-A)

* 다음을 읽고 당신의 상태를 가장 잘 나타낸다고 생각되는 문항을 골라 "O"를 하십시오.

1) 나는 긴장감 또는 "정신적 고통"을 느낀다.

0. 전혀 아니다. 1. 가끔 그렇다. 2. 자주 그렇다. 3. 거의 그렇다.

2) 나는 무언가 무서운 일이 일어날 것 같은 느낌이 든다.

0. 전혀 아니다. 1. 조금 있지만 걱정하지 않는다. 2. 있지만 그렇게 나쁘지는 않다.
3. 매우 분명하고 기분이 나쁘다.

3) 마음속에 걱정스러운 생각이 든다.

0. 거의 그렇지 않다. 1. 가끔 그렇다. 2. 자주 그렇다. 3. 항상 그렇다.

4) 나는 편하게 긴장을 풀 수 있다.

0. 항상 그렇다. 1. 대부분 그렇다. 2. 대부분 그렇지 않다. 3. 전혀 그렇지 않다.

5) 나는 초조하고 두렵다.

0. 전혀 아니다. 1. 가끔 그렇다. 2. 자주 그렇다. 3. 매우 자주 그렇다.

6) 나는 가만히 있지 못하고 안절부절 한다.

0. 전혀 그렇지 않다. 1. 가끔 그렇다. 2. 자주 그렇다. 3. 매우 그렇다.

7) 나는 갑자기 당황스럽고 두려움을 느낀다.

0. 전혀 그렇지 않다. 1. 가끔 그렇다. 2. 꽤 자주 그렇다. 3. 거의 항상 그렇다.

총점	