Psychometric Properties of Korean Version of the Second Victim Experience and Support Tool (K-SVEST)

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Objectives: "Second victims" are defined as healthcare professionals whose wellness is influenced by adverse clinical events. The Second Victim Experience and Support Tool (SVEST) was used to measure the second-victim experience and quality of support resources. Although the reliability and validity of the original SVEST have been validated, those for the Korean tool have not been validated. The aim of the study was to evaluate the psychometric properties of the Korean version of the SVEST.

Methods: The study included 305 clinical nurses as participants. The SVEST was translated into Korean via back translation. Content validity was assessed by seven experts, and test-retest reliability was evaluated by 30 clinicians. Internal consistency and construct validity were assessed via confirmatory factor analysis. The analyses were performed using SPSS 23.0 and STATA 13.0 software.

Results: The content validity index value demonstrated validity; item- and scale-level content validity index values were both 0.95. Test-retest reliability and internal consistency reliability were satisfactory: the intraclass consistent coefficient was 0.71, and Cronbach α values ranged from 0.59 to 0.87. The CFA showed a significantly good fit for an eight-factor structure ($\chi^2 = 578.21$, $df = 303$, comparative fit index = 0.92, Tucker-Lewis index = 0.90, root mean square error of approximation = 0.05).

Conclusions: The K-SVEST demonstrated good psychometric properties and adequate validity and reliability. The results showed that the Korean version of SVEST demonstrated the extent of second victimhood and support resources in Korean healthcare workers and could aid in the development of support programs and evaluation of their effectiveness.

Key Words: second victim, adverse events, Korean, reliability, validity

Abbreviations: AIC = Akaike information criteria,
CFA = confirmatory factor analysis, CFI = comparative fit index,
CVI = content validity index, EFA = exploratory factor analysis,
ICC = intraclass consistent coefficient,
I-CVI = item-level content validity index, IRB = institutional review board,
K-SVEST = Korean version of the Second Victim Experience and
Support Tool, RMSEA = root square means error of approximation,
S-CVI = scale-level content validity index, SD = standard deviations,
SVEST = the Second Victim Experience and Support Tool,
TLI = Tucker-Lewis index, WHO = World Health Organization

C linicians often work in high-stakes, stressful environments in which unexpected negative patient outcomes can occur, and errors can result in patient harm. However, involvement in unexpected adverse patient safety events is inevitable, and healthcare providers could require support to recover from them.[1,2] "Second victims" are defined as "healthcare providers who are involved in an unanticipated adverse patient event, in a medical error and/or a patient-related injury and become victimized in the sense that the provider is traumatized by the event."[3(p326)] This often manifests as misguided guilt and personal responsibility for negative patient outcomes. When medical errors occur, the patient becomes the first victim, healthcare providers become the second victims, and the organization becomes the third victim.[4–6]

The symptoms experienced by second victims are similar to those of posttraumatic stress disorder and include isolation, guilt, anxiety, anger, depression, and loss of confidence and physical symptoms such as headaches, fatigue, sleeping difficulties, nausea, and diarrhea.[1,2,5,7–11] These symptoms influence individuals' emotional and physical health, causing them to feel uncertain about their professional abilities.[11,12] Many healthcare professionals have reported increased job-related stress resulting from involvement in medical errors, even when they were involved in near-miss incidents and those that were not considered to have occurred because of error.[5,10]

Whereas many types of healthcare provider are involved in hospital patient care, nurses are involved in medical errors more frequently relative to other professionals.[8,13] Nurses are often expected to multitask perfectly while performing very complex tasks in an often hurried, chaotic fashion and are important contributors to hospital culture in South Korea.[14,15] Nurse involvement in patient safety incidents has been shown to contribute to symptoms associated with the second-victim experience.[8,16] Although the proportions of second victims after adverse events have been reported to vary between 10.4%[17] and 43.3%[18] in American clinicians, there are no accurate corresponding statistics concerning nurses in South Korea. In addition, although many studies have been conducted to examine the second-victim phenomenon in the United States,[2,5,8,10,17,19–24] few have focused on healthcare providers in South Korea.

The Second Victim Experience and Support Tool (SVEST) was originally developed by Burlison et al.[25] and validated via the assessment of content validity, construct validity, and internal consistency. The development of the instrument was intended to measure the second-victim experience and quality of organizational support resources.[16,22,25] The use of a validated tool, such as the SVEST, could assist in promoting the implementation of programs and tracking the performance of support resources for second victims. In addition, results obtained via the SVEST could be used to substantiate required resources or those that have been used to develop programs to prevent the second-victim phenomenon. However, no studies have been conducted to validate the psychometric properties of the SVEST in the Korean population. When a tool is translated into another language, it is important to determine the validity of the translated version in the new cultural setting. Therefore, the present study evaluated the psychometric properties of the Korean version of the SVEST (K-SVEST) and sought to determine levels of SVEST competence in Korean nursing professionals.

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METHODS

Instrument

The SVEST was developed by Burlison et al.[25] to measure the second-victim experience in healthcare providers and support resources.[16,22,25] The first four steps of Hinkin 6-step process[26] (i.e., item generation, content adequacy assessment, questionnaire administration, and confirmatory factor analysis [CFA]) were used to develop the questionnaires. The dimensions were based on the literature review, with numerous iterations and revisions. The final list was agreed unanimously by the authors and included seven dimensions, which measured second victims' responses and support characteristics, and two negative work-related outcomes for second victims.[27,28] The SVEST consists of 29 items that reflect first-person perceptions of each dimension, and responses were measured using five-point Likert scales, with ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Higher SVEST scores indicate greater second-victim symptom prevalence, the extent to which support resources are perceived as inadequate, and two negative work-related outcomes for second victims. The original SVEST scale showed adequate internal consistency, with Cronbach α values ranging from 0.61 to 0.88 (Table 1).

SVEST Translation and Adaptation Process

Translation was performed according to the World Health Organization's guidelines,[29] with permission to use and translate the scale provided by the original developers (personal communication, September 19, 2016). Forward translation from English into Korean was performed independently by two bilingual researchers at a nursing college. A bilingual nursing professor reviewed the Korean version and determined its relevance to Korean culture. Some wording was revised to increase conceptual equivalence and clarify context. Back translation was performed by an independent bilingual translator who had lived in the United States for more than 10 years and majored in nursing. The back-translated version was reviewed by the original developers, who confirmed that most questions were similar to the original version, and recommended a few minor changes in wording. A panel of seven experts with experience in practice and patient safety research examined the Korean version to validate the content and determine whether the expressions/concepts in the items could be understood clearly and suspect to translation problems across cultures. The semistructured questionnaires with dimensions on a four-point ordinal scale were used to computing a content validity index (CVI).[30] A pretest was completed by 30 healthcare providers who had experienced adverse patient-related events. Two weeks later, an identical test was administered to the same respondents to determine test-retest reliability. Each participant received a list of the items, and dimensions and was instructed to match the items to the relevant dimensions and provide feedback regarding item readability.

Design and Study Population

A cross-sectional, descriptive survey was conducted to collect data from 310 clinical nurses working in various departments, including 21 general wards, five intensive care units, six outpatient units, and nine specialized units, at a general hospital in South Korea in 2016. Participants were recruited using non-probability sampling, and the number of nurses selected was proportionate to the number of nurses in the wards to which they were assigned. The inclusion criterion was employment as a clinical nurse providing direct patient care, which was intended to include all nurses with the potential to become second victims through involvement in patient safety incidents.[25,31] E-mails regarding data collection were delivered to head nurses responsible for the target participants. The nurses received explanations regarding the purpose of the study and assurance that participation was voluntary and withdrawal from the study would not affect their careers or unit assignment.

Ethical Considerations

This study was approved by the institutional review board at Cha University (IRB No. CHAMC 2016-10-021). Participants were provided with written information concerning the study purpose, benefits, and risks. After providing informed consent, participants completed the questionnaires anonymously.

Data Analysis

Data were analyzed using SPSS software Version 23.0 (SPSS Inc, Chicago, IL) and STATA software Version 13.0 (StataCorp, College Station, TX). Descriptive statistics were calculated for demographic characteristics and K-SVEST scores. Reliability was assessed using Cronbach α values of greater than 0.70 to demonstrate internal consistency (interobserver) and intraclass correlation coefficients (ICCs) of 0.70 or greater (substantial agreement) and 0.50 to 0.70 (moderate agreement)[32] to demonstrate test-retest reliability.

Content validity was calculated using item-[30,33] and scale-level (S-CVI) content validity indices; acceptable values for I-CVIs and S-CVIs are greater than 0.78[34] and greater than 0.80, respectively.[30,33] Seven experts were asked to determine the suitability, relevance, comprehensiveness, interpretability, and missing values for the items, and unclear Korean expression were modified. To obtain the CVI for item relevancy and clarity, the number of experts who judged them as relevant or clear (rating 3 or 4) was divided by the number of content experts, both I-CVIs and S-CVIs were calculated.

Construct validity was assessed via CFA with multiple indices used to evaluate model fit. Confirmatory factor analysis has recently been considered a superior approach to exploratory factor analysis (EFA) in verifying construct validity.[35] Confirmatory factor analysis tests the hypothesis that the a priori specified structures of measurement scales will be observed in the data, whereas EFA explores the correlational patterns between the items of a measurement scale and suggests an emerging structure.[36] Because the SVEST had already demonstrated good psychometric properties via empirical validation,[25] CFA was used to determine whether the original SVEST structure was suitable for use in Korean populations. Two models were tested: model 1 assessed eight latent variables according to the model factors: seven dimensions (items 1–25) and one outcome variable (items 26–28). Model 2 was developed after the correction of error terms to improve model fit. The model's goodness of fit was evaluated using multiple indices in CFA. Models were considered adequate when the following conditions were met: χ^2 statistic divided by degrees of freedom: (χ^2/df): <3 or 5; comparative fit index (CFI): >0.90; Tucker-Lewis index (TLI): >0.90; root mean square error of approximation (RMSEA): <0.05 (good fit) or 0.05 to 0.08 (acceptable fit).[35,37] The Akaike information criterion (AIC) was used to compare models, whereby models with lower AIC values were more likely to be replicated, include fewer parameters, and demonstrate good fit.[38] The required sample size for factor analysis with 29 items was 300,[37] to satisfy the rule stipulating 10 observations per variable.[39]

RESULTS

Participants' Characteristics

Of 310 clinical nurses, 307 returned completed surveys and provided 305 valid responses (response rate = 98.38%) (Table 2). The participants' mean age was 28.05(4.66)years, and 295 (96.4%) were women. Most participants were single (n = 264, 86.6%), had completed a bachelor's degree within the preceding 4 years (n = 227, 74.4%), and had less than 3 years' nursing experience (n = 176, 57.7%).

Descriptive Statistics for K-SVEST Items and Subdimensions

Item means and standard deviations, corrected item-total correlations, and Cronbach α values for deleted items are shown in Table 2. The mean (SD) K-SVEST scores ranged from 1.55 to 3.78 (0.69–1.09), and item-total correlation coefficients ranged from 0.09 to 0.62. Corrected item-total correlation coefficients of less than 0.30 are considered to contribute little to the measurement. Therefore, in the item selection, changes in Cronbach α with the deletion of each item were also considered.[40] The

corrected item-total correlation coefficients for seven items (i.e., items 10, 14, 16, 17, 20, 21, and 29) (Table 2) were less than 0.30; however, as Cronbach α values with the items deleted ranged from 0.87 to 0.88, we retained all the original items other than item 29. The item 29 ("I have taken time off after one of these instances occurs") was excluded because the "strongly disagree" response was 55.4% at minimum (Table 3), which was the floor effect. The mean (SD) score of item 29 was 1.55 (0.69) very low compared with another items. Most Korean nurses were found to be worked despite illness due to lack of manpower, difficulty in adjusting the schedule, reluctance to take care of colleagues, or high responsibility.[41] In the Korean hospital culture, it is difficult to time off practically because of second victim.

In the factor analysis of original measure, turnover intentions and absenteeism are one of the higher factors of "negative work-related outcome." In this study, three items 26, 27, and 28 were described as one negative work-related outcome. Means and standard deviations for the dimensions and outcome variables are shown in Table 1. The mean (SD) scores for the dimensions and outcome variable ranged from 3.46 (0.75) for psychological distress to 2.56 (0.57) for colleague support.

TABLE 1. Test-Retest Reliability and Internal Consistency of Dimensions of the K-SVEST (28 Items)

Characteristics	Categories	Health Care Providers (n = 30)		Nurse (N = 305)	
		n (%)	Mean (SD)	n (%)	Mean (SD)
Sex	Male	15 (50.0)		11 (3.6)	
	Female	15 (50.0)		294 (96.4)	
Age	<30	10 (33.3)	32.57 (6.06)	214 (70.2)	28.05 (4.66)
	30–39	16 (53.3)		82 (26.9)	
	≥40	4 (13.3)		8 (2.6)	
Marriage	Single	17 (56.7)		264 (86.6)	
	Married	13 (43.3)		41 (13.4)	
Education	<Bachelor's degree (3 y)	6 (20.0)		55 (18.0)	
	Bachelor's degree (4 y)	12 (40.0)		227 (74.4)	
	Master's degree	11 (36.7)		21 (6.9)	
	Others	1 (3.3)		2 (0.7)	
Position	Nurse	6 (20.0)		214 (70.2)	
	Charge nurse	4 (13.3)		82 (26.9)	
	Head nurse	—		6 (2.0)	
	Doctor	10 (33.3)		—	
	Pharmacist	3 (10.0)		—	
	Therapist	7 (23.4)		—	
	Missing	—		3 (1.0)	
Department	Internal medicine	5 (16.7)		64 (21.0)	
	Surgery	2 (6.7)		28 (9.2)	
	ICU	1 (3.3)		51 (16.7)	
	Operating room	2 (6.7)		28 (9.2)	
	Emergency	4 (13.3)		35 (11.5)	
	Obstetrics and gynecology	2 (6.6)		21 (6.9)	
	Anesthesia	—		16 (5.2)	
	Others	14 (46.7)		62 (20.3)	
Carrier of Hospital, y	<3	10 (33.3)		153 (50.2)	
	3–5	6 (20.0)		59 (19.3)	
	5–10	6 (20.0)		62 (20.3)	
	≥10	8 (26.7)		31 (10.2)	

ICU, intensive care unit.

TABLE 2. General Characteristics of Participants

| Characteristics | Health Care Providers (n = 30) | | | | Nurse (n = 305) | | |
| | Test | Retest | Test-Retest Reliability | | | Cronbach α | |
	Mean (SD)	Mean (SD)	ICC (95% CI)	P	Mean (SD)	This Study	Original[25]
Total			0.84 (0.66–0.92)	<0.001			
1. Psychological distress	3.64 (0.67)	3.45 (0.64)	0.88 (0.75–0.94)	<0.001	3.46 (0.75)	0.82	0.83
2. Physical distress	2.95 (0.87)	2.95 (0.78)	0.94 (0.88–0.97)	<0.001	3.03 (0.89)	0.87	0.87
3. Colleague support	2.80 (0.52)	2.80 (0.42)	0.77 (0.51–0.89)	<0.001	2.57 (0.57)	0.63	0.61
4. Supervisor support	2.30 (0.41)	2.36 (0.39)	0.85 (0.69–0.93)	<0.001	2.56 (0.58)	0.76	0.87
5. Institutional support	2.44 (0.65)	2.52 (0.59)	0.90 (0.79–0.95)	<0.001	2.67 (0.61)	0.59	0.64
6. Nonwork-related support	2.16 (0.72)	2.43 (0.75)	0.90 (0.79–0.95)	<0.001	2.48 (0.75)	0.75	0.84
7. Professional self-efficacy	3.18 (0.73)	2.90 (0.60)	0.72 (0.42–0.87)	<0.001	3.22 (0.58)	0.63	0.79
8. Negative work-related outcome	2.54 (0.82)	2.67 (0.79)	0.81 (0.60–0.91)	<0.001	3.12 (0.92)	0.86	
Turnover intentions (original[25])							0.81
Absenteeism (original[25])							0.88

Original[25]; 29 items (turnover intentions 2 items, absenteeism 2 items).

Content Validity

The I-CVI and S-CVI values were both 0.95, demonstrating validity (thresholds: I-CVI > 0.78[34] with 6–10 experts; S-CVI > 0.80[30,33]).

Confirmatory Factor Analysis

Of the CFA indices used to assess model 1, the CFI (0.853) and TLI (0.827) values did not meet the criteria, but the RMSEA (0.073) value was acceptable. After the error terms were connected to improve the model fit (Fig. 1), model 2 showed improved values in all fit indices, relative to those for model 1. The standardized factor weights and residuals for model 2 are shown in Figure 1, and the goodness of fit for both models is shown in Table 4. Therefore, the final survey consisted of 28 items including 25 items in seven dimensions and three items representing the outcome variable (turnover intention and absenteeism) (Table 1). In model 2, the factor loadings for all items, aside from items 17 and 25, exceeded the conventional loading level of 0.40, which justified aligning it with a construct factor loading (Table 4). However, we did not remove these items, because Cronbach α showed little change when they were deleted.

The factor loadings for all items were 0.32 or greater and significant at the 0.001 level (Fig. 1). Factor loadings for psychological distress, physical distress, colleague support, supervisor support, institutional support, non-work-related support, professional self-efficacy, and turnover intention and absenteeism ranged from 0.54 to 0.92, 0.52 to 0.79, 0.41 to 0.65, 0.51 to 0.84, 0.32 to 0.68, 0.74 to 0.83, 0.37 to 0.74, and 0.79 to 0.84, respectively. The correlation coefficients for the eight latent factors varied from 0.14 to 0.78 and were significant at the 0.05 level.

Internal Consistency Reliability

Cronbach α values were used to assess internal consistency for the overall scale and dimensions. Cronbach α values for the dimensions ranged from 0.59 to 0.87.

Test-Retest Reliability

Descriptive statistics of rest-retest were presented in Table 1. The ICC used to assess test-retest reliability was 0.84 (95% confidential interval = 0.66–0.92, P < 0.001). The ICCs for the subscales ranged from 0.72 to 0.94 (Table 1).

DISCUSSION

Determination of the prevalence of the second-victim experience in healthcare workers, identification of support resources to reduce or prevent second-victim symptom, and assessment of organizational outcomes, such as turnover and absenteeism[16,27] are important issues. This study examined the reliability and validity of the K-SVEST using validated translation methods and the psychometric methods used by the developers of the original SVEST.[25] The original SVEST was validated using content validity, internal consistency, and construct validity via CFA.[16,19] The extent of the second-victim phenomenon could differ between healthcare delivery systems, hospital cultures, and countries. To our knowledge, this was the first study to examine the psychometric properties of the K-SVEST for use in Korean healthcare settings.

The translation and adaption process was performed to maintain equivalence between the SVEST and K-SVEST, and cultural equivalence was confirmed by seven experts with work experience in patient safety; these results provided empirical support for item equivalence between the two versions of the SVEST.[29] Watson and Thompson (2006)[36] posited that the assessment of hypothesized structures in a data set could be achieved via CFA, which indicates the degree to which a hypothesized scale structure is confirmed. Exploratory factor analysis does not verify or evaluate specific assumptions or theories via hypothesized links, as it aims to explore data sets to identify underlying dimensions.[36] Therefore, we performed CFA using the original K-SVEST structure to test its suitability for use in Korean populations.[42,43]

The CFA results indicated good model fit for the eight-factor structure and meaningful loading patterns for the K-SVEST items. The CFI, TLI, and RMSEA values also suggested that the model showed an acceptable fit to the data. The K-SVEST with the underlying eight-factor structure (i.e., 7 dimensions and 1 outcome variable) was completed by 305 clinical nurses. In the factor analysis of original measure, the two dimensions of the outcome variable (i.e., "turnover intention" and "absenteeism") are one of the higher factors of "negative work-related outcome." The study data and findings were similar to those reported by the original article describing the SVEST,[25] indicating that the K-VEST
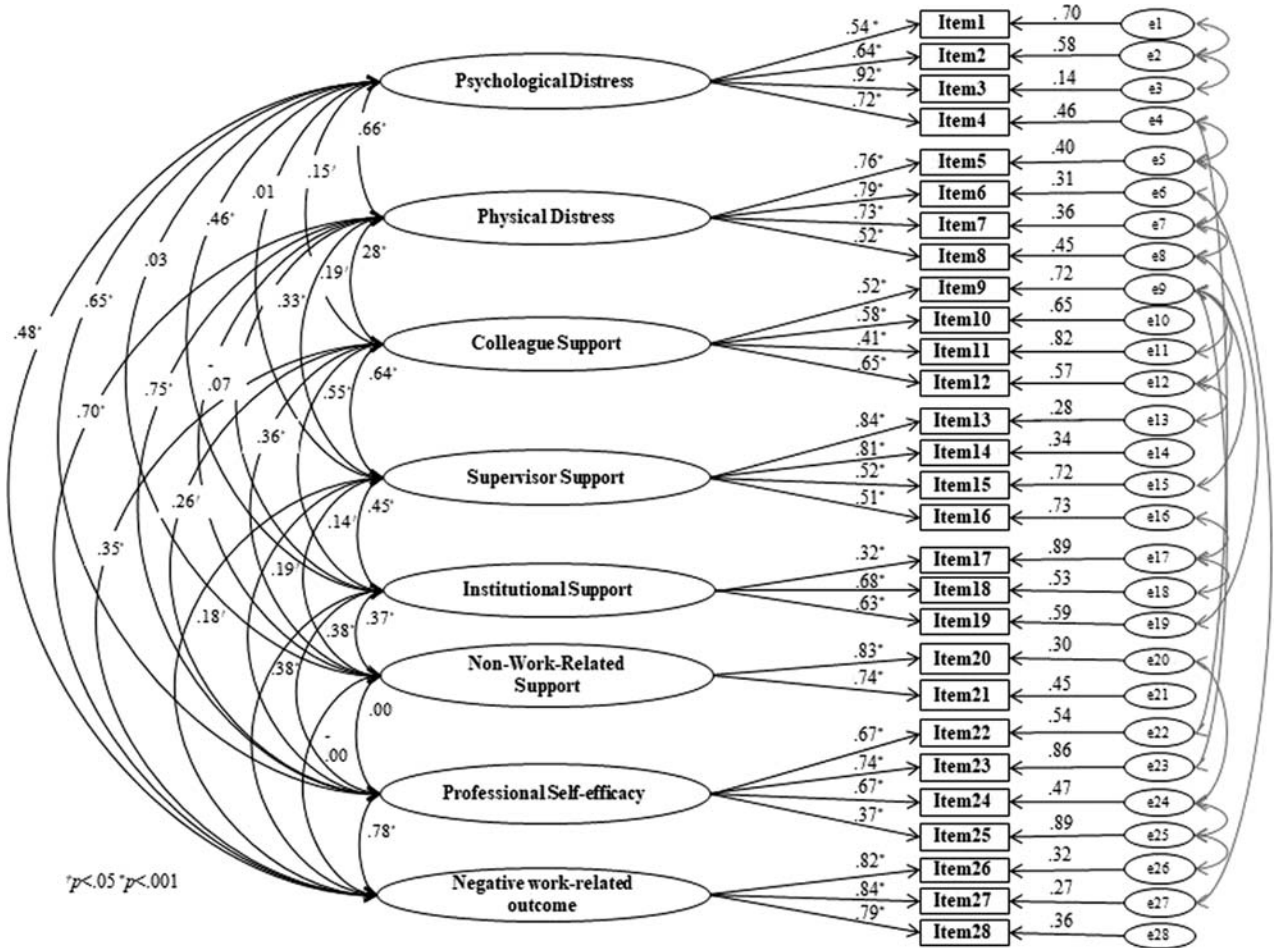
FIGURE 1. Standardized parameter estimates for the factor structure of the K-SVEST.

demonstrated validity. Therefore, the eight-factor model could be applied to healthcare organizations in South Korea. However, some differences were observed between the K-SVEST and original SVEST, which could be explained by cultural differences in perception between American and Korean nurses.

The scale and subscale reliability and internal consistency of the K-SVEST indicated that 28 items in the K-SVEST demonstrated acceptable reliability; Cronbach α values for the K-SVEST and original SVEST ranged from 0.59 to 0.87 and 0.81 to 0.88,[25] respectively. Cronbach α values for some subscales, such as colleague and institutional support, did not reach the traditional 0.70 threshold in either version of the SVEST. Although item equivalence did not demonstrate strong reliability, the K-SVEST showed overall reliability for use with Korean healthcare professionals. Changes in Cronbach α values with the deletion of individual items did not exceed that for the overall scale, indicating that all items contributed to the K-SVEST. These findings demonstrated item equivalence. In addition, K-SVEST score stability, evaluated via a test-retest reliability assessment involving 30 healthcare providers who were not involved in the main study and completed the scale twice with a 2-week interval, was acceptable.

Nurses' total K-SVEST scores were higher relative to those reported for the original SVEST.[25] This suggests that Korean nurses experienced greater stress and received more support relative to American healthcare professionals. One study reported that 63.6% of Korean nurses were involved in medication errors, but

only 28.3% reported them formally, because they feared being blamed and experiencing adverse consequences.[15] In second victims, women tend to report significantly greater distress relative to that reported by men.[5] Most Korean nurses are female; therefore, Korean nurses could be particularly vulnerable to the second-victim phenomenon, and nursing managers should establish supportive and constructive prevention strategies.[14,15]

The results provide evidence indicating conceptual, semantic, and constructional equivalence between the SVEST and K-SVEST. However, the study was subject to some limitations. For example, although the study intended to include nurses who provided direct patient care and worked in different settings, including general wards and intensive care units, data collection was conducted at a single general hospital. Therefore, the results might not represent all Korean nurses and cannot be generalized to other populations. Therefore, future studies should include large, random samples to improve external validity. In addition, the study examined the psychometric properties of the K-SVEST for nurses but not for other healthcare professionals; therefore, further research is required to examine use of the K-SVEST with other healthcare providers.

Despite these limitations, the study demonstrated the psychometric properties of the K-SVEST using construct validity testing beyond factor analysis (i.e., known group, convergent, and discriminant validity), which provided a comprehensive assessment of the instrument's validity. Future research examining the K-SVEST in probability-based samples of healthcare providers from a large

TABLE 3. Item Performance and Reliability of the K-SVEST

	Mean (SD)	Corrected Item-Total Correlation	Cronbach α if Item Deleted	% at Minimum	% at Maximum
Original dimension 1. Psychological distress					
1 I have experienced embarrassment from these instances.	3.51 (0.88)	0.318	0.879	2.0	6.6
2 My involvement in these types of instances has made me fearful of future occurrences.	3.73 (0.83)	0.392	0.878	0.7	14.8
3 My experiences have made me feel miserable.	3.19 (1.03)	0.614	0.872	3.9	8.2
4 I feel deep remorse for my past involvements in these types of events.	3.45 (0.99)	0.471	0.876	3.6	11.8
Original dimension 2. Physical distress					
5 The mental weight of my experience is exhausting.	3.47 (0.98)	0.615	0.872	3.0	12.8
6 My experience with these occurrences can make it hard to sleep regularly.	3.07 (1.06)	0.626	0.871	5.2	9.8
7 The stress from these situations has made me feel queasy or nauseous.	2.68 (1.04)	0.622	0.872	11.5	5.2
8 Thinking about these situations can make it difficult to have an appetite.	2.91 (1.09)	0.622	0.871	9.8	6.2
Original dimension 3. Colleague support					
9 I appreciate my coworkers' attempts to console me, but their efforts can come at the wrong time.	2.57 (0.94)	0.503	0.875	9.8	1.6
10 Discussing what happened with my colleagues provides me with a sense of relief.	2.57 (0.80)	0.279	0.880	1.0	5.2
11 My colleagues can be indifferent to the impact these situations have had on me.	2.56 (0.86)	0.341	0.879	7.9	0.7
12 My colleagues help me feel that I am still a good healthcare provider despite any mistakes I have made.	2.60 (0.70)	0.300	0.879	0.7	3.9
Original dimension 4. Supervisor support					
13 I feel that my supervisor treats me appropriately after these occasions.	2.60 (0.76)	0.346	0.878	1.6	4.3
14 My supervisor's responses are fair.	2.58 (0.73)	0.240	0.880	1.3	3.6
15 My supervisor blames individuals.	2.30 (0.85)	0.379	0.878	16.1	.7
16 I feel that my supervisor evaluates these situations in a manner that considers the complexity of patient care practices.	2.80 (0.72)	0.240	0.880	0.3	1.3
Original dimension 5. Institutional support					
17 My organization understands that those involved may need help to process and resolve any effects they may have on care providers.	2.43 (0.71)	0.260	0.880	6.2	7.2
18 My organization offers a variety of resources to help me get over the effects of involvement with these instances.	2.77 (0.76)	0.369	0.878	0.7	2.6
19 The concept of concern for the well-being of those involved in these situations is not strong at my organization.	2.84 (0.97)	0.460	0.876	5.9	5.2
Original dimension 6. Nonwork-related support					
20 I look to close friends and family for emotional support after one of these situations happens.	2.58 (0.88)	0.095	0.884	2.0	7.9
21 The love from my closest friends and family helps me get over these occurrences.	2.39 (0.79)	0.185	0.882	0.7	9.8
Original dimension 7. Professional self-efficacy					
22 Following my involvement I experienced feelings of inadequacy regarding my patient care abilities.	3.28 (0.85)	0.508	0.875	1.0	5.2

(Continued next page)

TABLE 3. *(Continued)*

		Mean (SD)	Corrected Item-Total Correlation	Cronbach α if Item Deleted	% at Minimum	% at Maximum
23	My experience makes me wonder if I am not really a good healthcare provider.	3.78 (0.72)	0.287	0.880	1.0	10.8
24	After my experience, I became afraid to attempt difficult or high-risk procedures.	2.92 (0.98)	0.578	0.873	6.9	6.2
25	These situations do not make me question my professional abilities.	2.91 (0.81)	0.263	0.880	1.6	2.6
Original negative work-related outcome 1. Turnover intentions						
26	My experience with these events has led to a desire to take a position outside of patient care.	2.97 (1.04)	0.589	0.872	7.5	7.5
27	Sometimes the stress from being involved with these situations makes me want to quit my job.	3.40 (1.01)	0.600	0.872	3.9	12.5
Original negative work-related outcome 2. Absenteeism						
28	My experience with an adverse patient event or medical error has resulted in me taking a mental health day.	2.99 (1.05)	0.616	0.872	6.2	8.2
29	I have taken time off after one of these instances occurs.	1.55 (0.69)	0.165	0.882	55.4	1.6

N = 305.

pool of general hospitals, with the collection of sociodemographic and cultural information, would contribute to the identification of factors associated with second victims in South Korea.

With the recent enforcement of the Patient Safety Act, interest in patient safety incidents and secondary damage to exposed medical personnel has increased. Hospitals should screen for early negative feelings regarding patient safety incidents in healthcare providers and enhance programs to aid recovery. The K-SVEST could help demonstrate the status of second victims and support resources in Korean healthcare providers. Furthermore, hospital managers could use the K-SVEST to identify trends in the proportions of second victims in healthcare providers, and researchers could use it to make occupational and international comparisons. Furthermore, it could be used to evaluate and enhance the effectiveness of programs to support second victims.

CONCLUSIONS

The SVEST was used to measure the second-victim experience in healthcare providers and identify support resources. The psychometric evaluation, which included 305 South Korean nurses, demonstrated the reliability and validity of the K-SVEST. The instrument contains eight factors, and 28 of the original 29 items SVEST were retained. The findings provided preliminary results indicating that the K-SVEST showed adequate construct validity via CFA, content validity, test-retest reliability, and internal consistency. Moreover, the results demonstrated the cultural relevance of

the instrument for Korean clinical nurses. This study could aid nursing researchers and hospital leaders in assessing the second-victim phenomenon and promoting organizational support for second victims in South Korea.

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TABLE 4. Model Fit Index of the K-SVEST From Confirmatory Factor Analysis

	χ^2	*df*	*P*	CFI	TLI	AIC	RMSEA
Model 1	846.212	322	<0.001	0.853	0.827	19,203.96	0.073
Model 2	578.212	303	<0.001	0.923	0.904	18,973.96	0.055

N = 305.

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