Research article

Validation of the Turkish version of the second victim experience and Support Tool (T-SVEST)

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ARTICLE INFO

ABSTRACT

Objectives: Second victim experience defines the healthcare professionals involved in unexpected adverse patient events. The Second Victim Experience and Support Tool (SVEST) is a tool used to measure the second victim experience and the desired support resources. This study aims to carry out a cross-cultural adaptation of the SVEST and to evaluate the psychometric properties of the Turkish version (T-SVEST).
Methods: The T-SVEST was translated and adapted according to World Health Organization guidelines. 221 healthcare professionals including physicians, residents and nurses working at the emergency department, completed the survey. Cronbach's values were assessed for reliability, and construct validity was assessed through confirmatory factor analysis in order to evaluate model fit.
Results: The global Cronbach's score of the T-SVEST was 0.90. The final version of the TSVEST including 24 items was consistent with values between 0.83 and 0.89. The most consistent dimension was turnover intentions with a Cronbach's value of 0.89, it was followed by institutional support (Cronbach = 0.88). After applying modifications suggested by confirmatory factor analysis, a final model including 9 factor-structure (7 dimensions and 2 outcome variables) and 24 items was significantly improved with acceptable comparative fit index, Tucker-Lewis index and root mean square error of approximation.
Conclusion: The Turkish version of the SVEST is a reliable and valid instrument that can be used to identify second victims and help implement support resources.

1. Introduction

Medical errors and patient safety incidents are inevitable during the medical career of a healthcare professional (HCP) [1]. The term Second victim was first introduced in 2000 by Wu [2]. In any patient safety incident, while the first victim is the patient, the second victim is the HCP (physician, resident, nurse, and paramedic) who could be the cause of the incident and who is negatively affected by this situation [3, 4]. Examples of incidents of patient safety or medical errors include mix-up of patients, drug and dose selection error, wrong diagnosis, incorrect medical treatment, and accidental harm during a procedure [5]. Such cases can leave permanent emotional scars on practitioners. Frequently, second victims feel personally responsible for these unexpected patient outcomes and have doubts about their clinical knowledge and skills. Likewise, healthcare workers involved in near misses experience similar feelings [6, 7]. It has been reported that up to half of all HCPs have experienced the second victim phenomenon during their professional career [8]. Second victims experience distress on both a professional and personal level [9, 10]. In this case, medical errors or adverse events can seriously affect healthcare workers and cause permanent scars [11]. Second victims face symptoms that are common in post-traumatic stress disorders such as anxiety, depression, guilt, and sleep disorders [12]. These symptoms affect individuals' emotional and physical health, causing them to feel insecure about their professional abilities, and cause them to experience significant emotional distress, such as loss of confidence and decreased job satisfaction [13]. In the medical field, identifying the root cause of errors is important to prevent future errors from occurring [14]. Patient safety measures are often developed through protocols and other interventions in response to an adverse event [15]. Second-victims can contribute to the development of constructive change by not only addressing vulnerabilities within the health system, but also helping health institutions improve [16]. Secondary victims who need help

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coping with their experiences should be encouraged, in the most appropriate way possible; to accept responsibility for the adverse event they have experienced in order to cause constructive change [17]. However, in punitive clinical settings with insufficient support units, healthcare professionals are concerned about reporting medical errors, negatively impacting the prevention of future errors [18]. Studies have revealed that many healthcare professionals find it difficult to get support after a medical error. They could not reach unit for help or guidance to cope with the stress associated with an adverse event [8, 19]. To understand the process that second victims have to cope and determine desired support resources, Burlison et al developed and validated the Second Victim Experience and Support Tool (SVEST) [20]. Recently, cross-cultural adaptations of the scale were carried out in China, Korea, Argentina, Italy, Denmark, Spain, Iran, Germany, and Malaysia [21, 22, 23, 24, 25, 26, 27, 28, 29, 30]. The aim of this study is to translate and perform a psychometric evaluation of the SVEST in Turkey (T-SVEST).

2. Methods

This cross-sectional study was conducted in two phases; first the translation and adaptation of the original scale into Turkish, then a psychometric validation of the T-SVEST was performed. WHO guidelines were strictly followed, to assess the level of comprehensibility and cognitive equivalence of the translation, only minor adjustments were performed and an online version of the T-SVEST was created. The online questionnaire consisted of two parts; the first part collected different socio-demographic variables of respondents, and the second part collected the T-SVEST.

2.1. The SVEST instrument

The SVEST was developed by Burlison et al. to assist healthcare organizations in implementing and tracking the performance of second victim support resources. The original survey includes 29 items represented in 7 dimensions and 2 outcome variables. The 7 dimensions consist of psychological distress, physical distress, colleague support, supervisor support, institutional support, non-work-related support, and professional self-efficacy. The 2 outcome variables reflect turnover intentions and absenteeism. A 5-point Likert scale was used to assess the second victim experience, with higher scores indicating greater severity. After being completed by 281 HCP working in a U.S. pediatric hospital, the SVEST was validated via the assessment of content validity, internal consistency, and construct validity with confirmatory factor analysis (CFA) [20].

2.2. Translation and adaptation process of the SVEST

The original developers of the scale were contacted for authorization to translate and adapt the SVEST in Turkish (email to corresponding author -March 2020). Translation was performed according to WHO's guidelines [31]. Forward translation from English to Turkish was performed by two bilingual emergency medicine (EM) medical doctors. A panel of five experts (three faculty members including one associate professor and two instructors, and two nurses) with experience in patient safety was established, some wording and sentence constructions were revised to increase relevance to Turkish culture. Back translation was performed by two additional bilingual medical doctors who had no knowledge of the questionnaire. Thereafter, the questionnaire was reevaluated by the expert panel by comparing with the original version and focusing in conceptual and cultural equivalence. In this context, to maintain equivalence with the original scale, some wording was made. The term miserable in Item 3 (My experiences have made me feel miserable) was changed to unhappy and depressed since the translation in Turkish for miserable pertained to pitiful , the experts found it not appropriate. The expression mental health day in Item 28 (My experience with an adverse patient event or medical error has resulted me in

taking a mental health day) had no equivalence in Turkish culture. The expression was replaced as taking an off day .

To assess content validity, item and scale content validity indices (respectively I-CVI and S-CVI) were assessed. Ten independent experts, familiar to patient safety issues rated the relevancy of items on a four-point scale, 1 and 2 were accepted to non-relevant and 3 and 4 relevant. Acceptable values for I-CVIs and S-CVI are greater than 0.78 and greater than 0.90 for 6 to 10 experts [32]. Pre-test respondents were 5 male and 5 female HCP working in over-crowded emergency departments (ED) familiar to patient safety issues. After cognitive evaluation and minor adjustments, a final version of the instrument was distributed for validation.

2.3. Ethical considerations

The study was approved by the institutional review board (IRB No. I8-495-20) of Ankara University, Faculty of Medicine, Ethical Committee.

2.4. Design and study population

The research team contacted the Emergency Medicine Association of Turkey, and the head of high volume emergency departments in Turkey (Ankara City Hospital, University of Health Sciences Şişli Hamidiye Eftal Training and Research Hospital, Ege University Faculty Hospital, Hacettepe University Adult hospital) by phone. The professionals affiliated to those organizations emergency departments received a link via emails, social groups, and internal communications (online messaging platform). The survey was conducted online due to COVID-19 pandemic and an explanation about the purpose of the study was attached. The inclusion criteria were employment in an EM department as a health care professional. The specialty was restricted to EM with an intention to address the survey to potential second victims, however all medical professions such as nurses, residents, attending and consultant physicians, and faculty members were included. *After obtaining informed consent electronically by all participans, the survey tool was completed anonymously.*

2.5. Data analysis

Data were analyzed using SPSS Software version 23.0 (SPSS Inc, Chicago, IL) and Amos 23.0.0. Descriptive statistics were calculated for demographic characteristics and T-SVEST scores. Mean scores for each item and dimension and desirability of support was scored according to instructions from Burlison [20]. Reliability of T-SVEST was tested by internal consistency which is an estimate of the degree to which its constituent items are interrelated, and is assessed by Cronbach's coefficient, values greater than 0.70 demonstrating an acceptable internal consistency [33, 34]. Bartlett's sphericity test and Kaiser-Meyer-Olkin (KMO) sampling adequacy criteria were calculated before factor analysis. Construct validity was assessed through confirmatory factor analysis (CFA) in order to evaluate model fit. Answers given to all 29 items were used to perform CFA. Number of factor was determined by using number of dimension of original SVEST. Maximum likelihood estimation was used to calculate factor loadings. Multiple indices in CFA as the chi-square statistic (χ^2), root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis index (TLI) were considered for the model's goodness of fit. The Tucker Lewis Index (TLI>0.90 acceptable, >0.95 excellent), the Comparative Fit Index (CFI>0.90 acceptable, >0.95 excellent), the Root Mean Square Error of Approximation (RMSEA<0.08 acceptable, <0.05 excellent), and the chi-square statistic divided by the degree of freedom (<3 acceptable) were used as goodness-of-fit statistics [35]. Items with factor loadings below 0.40 were eliminated [36]. Error items were correlated only if they were in the same construct. If correlation between error terms was greater than 1, one of the two redundant items was deleted. With regard to the sample size for validation studies, for criterion and construct

Table 1. Characteristics of the study group.

Sociodemographic Variables	n (%)
Gender	
Male	119 (53.8)
Female	102 (46.2)
Age	
<25	6 (2.7)
25 35	141 (63.8)
36 45	62 (28.1)
46 54	12 (5.4)
>55	0 (0.0)
Education	
High-school	3 (1.4)
Vocational School	2 (0.9)
University	89 (40.3)
Master's Degree	127 (57.5)
Profession	
ED Physician	92 (41.6)
ED Resident	80 (36.2)
Medical Doctor	11 (5.0)
ED Nurse	38 (17.2)
Title	
Faculty Members	18 (8.1)
Academic Staff	149 (67.4)
Non-academic Staff	54 (24.4)
Work Experience (years)	
<2	39 (17.6)
2 5	57 (25.8)
6 10	51 (23.1)
11 15	42 (19.0)
>15	32 (14.5)
Institution	
State Hospital	73 (33.0)
University Hospital	113 (51.1)
Private Hospital	2 (0.9)
Educational and Research Hospital	33 (14.9)
Awareness of second victim experience	
Yes	44 (19.9)
No	177 (80.1)

Table 3. Internal consistency of the dimension of the t-svest

	Cronbach's					
	This Study		Original	Italian study	Korean study	Persian study
	Model 1	Model 3				
Total	0.90	0.90				
1. Psychological distress	0.86	0.86	0.83	0.72	0.82	0.80
2. Physical distress	0.83	0.83	0.87	0.69	0.87	0.88
3. Colleague support	0.56	0.78	0.61	0.73	0.63	0.68
4. Supervisor support	0.86	0.86	0.87	0.77	0.76	0.69
5. Institutional support	0.44	0.88	0.64	0.75	0.59	0.70
6. Non-work-related support	0.87	0.87	0.84	0.74	0.75	0.82
7. Professional self-efficacy	0.67	0.84	0.79	0.71	0.63	0.71
8. Negative Outcomes					0.86	
Turnover intentions	0.89	0.89	0.81	0.74		0.77
Absenteeism	0.86	0.86	0.88	0.73		0.78

Model 1: Model including 9 factors and 29 items.
Model 3: Model including 9 factors and 24 items.

validation studies in which correlation coefficients are calculated, a minimum of 50 respondents is recommended, but larger samples over 100 are preferred [37].

3. Results

221 ED HCPs completed the survey. 102 (46.2%) of the respondents were female, 119 (53.8%) were male. 41.6% were ED physicians, 17.2% were nurses, 36.2% were ED residents. 18 of the participants had an academic title. 80.1% of the responders had never heard of second victim phenomenon. Descriptive socio-demographic statistics of the study population are given in Table 1.

Content validity was assessed using I-CVI and S-CVI (S-CVI/Ave). I-CVI values were greater than 0.80 and the S-CVI/Ave value was 0.92 showing an excellent content validity.

Table 2. Agreement, means, SDs of the survey tool and desirability of support options.

	Mean (SD)		% of Agreement
1. Psychological distress	3.16 (1.02)		26.7
2. Physical distress	2.79 (1.00)		14.9
3. Colleague support	3.64 (1.02)		61.5
4. Supervisor support	2.94 (0.95)		14.9
5. Institutional support	2.37 (1.03)		12.7
6. Non-work-related support	3.58 (1.04)		57.5
7. Professional self-efficacy	2.50 (1.11)		14.5
8. Turnover intentions	2.73 (1.19)		25.8
9. Absenteeism	2.28 (1.09)		11.3

	Mean (SD)	Not Desired %	Neutral %	Desired %
1. The ability to take time away	3.48 (1.33)	27.6	14.0	58.4
2. A specified peaceful location	3.78 (1.31)	20.8	7.2	71.9
3. A respected peer to discuss	3.90 (1.18)	15.4	6.8	77.8
4. An employee assistance program	3.59 (1.36)	23.5	11.8	64.7
5. A discussion with manager or supervisor	3.62 (1.18)	18.1	18.6	63.3
6. The opportunity to schedule a counselor	3.40 (1.30)	26.2	17.6	56.1
7. A confidential discussion available 24 h a day	3.24 (1.34)	29.4	24.9	45.7

Item mean scores (SD) ranged from 2.24 (1.18) to 3.72 (1.19) and item-total correlation coefficients from 0.29 to 0.68. The dimensions that obtained the highest degree of impact were colleague support (61.5%) and non-work-related support (57.5%). Dimensions with the lowest degree of agreement were absenteeism (11.3%) and institutional support (12.7%).

The most desired support options were a respected peer to discuss the details of what happened with 77.8% and a specified peaceful location that is available to recover and recompose after one of these events with 71.9%. Mean scores of all support options were above 3. The least desired support was a confidential way to get in touch with someone 24 h a day to discuss how my experience may be affecting me (45.7%).

Mean, agreement level and SDs of the survey tool and desirability of support options are given in Table 2.

The global Cronbach's score of the T-SVET was 0.90. The values ranged from 0.44 to 0.89 in the first version with all items included. The

final version (Model 3) of the T-SVEST including 24 items was more consistent with values between 0.83 and 0.89.

The most consistent dimension was turnover intentions with a Cronbach α value of 0.89, it was followed by institutional support (Cronbach = 0.88). Cronbach values for each dimension are given in Table 3.

Tests for Bartlett sphericity showed statistical significance (p < 0,001) and the KMO value of 0.84 justified further analysis. The CFA run on the initial model with 9 factors and 29 items (Model 1) demonstrated low CFI and TLI and did not meet criteria for goodness fit. Since items 9, 11 19, and 25 had factor loadings under 0.40, respectively 0.186, 0.12, -0.81, 0.16, they were deleted from Model 1 and Model 2 was obtained. All factor loadings for each item and each model were presented in Table 4. Since correlation coefficient of the error term between items 22 and 24 was greater than one, the one (item 24) with the lower factor loading was deleted from Model 2 and Model 3 was obtained (Figure 1). After applying modifications suggested by CFA, Model 3 was significantly improved with acceptable CFI, TLI and RMSEA (Table 5).

Table 4. Factor loadings for each item of the T-SVEST.

| Factors	Items	Standardized Factor Loadings		
		Model 1	Model 2	Model 3
F1	1. I have experienced embarrassment from these instances.	0.66	0.66	0.65
	2. My involvement in these types of instances has made me fearful of future occurrences	0.80	0.80	0.74
	3. My experiences have made me feel miserable	0.88	0.88	0.82
	4. I feel deep remorse for my past involvements in these types of events.	0.77	0.77	0.81
F2	5. The mental weight of my experience is exhausting	0.69	0.69	0.76
	6. My experience with these occurrences can make it hard to sleep regularly	0.79	0.79	0.77
	7. The stress from these situations has made me feel queasy or nauseous	0.86	0.86	0.86
	8. Thinking about these situations can make it difficult to have an appetite	0.65	0.65	0.59
F3	9. I appreciate my coworkers attempts to console me, but their efforts can come at the wrong time	0.19		
	10. Discussing what happened with my colleagues provides me with a sense of relief.	0.80	0.80	0.80
	11. My colleagues can be indifferent to the impact these situations have had on me.	0.12		
	12. My colleagues help me feel that I am still a good healthcare provider despite any mistakes I have made	0.81	0.81	0.80
F4	13. I feel that my supervisor treats me appropriately after these occasions.	0.90	0.90	0.90
	14. My supervisor's responses are fair.	0.94	0.94	0.94
	15. My supervisor blames individuals	0.45	0.45	0.45
	16. I feel that my supervisor evaluates these situations in a manner that considers the complexity of patient care practices	0.86	0.86	0.86
F5	17. My organization understands that those involved may need help to process and resolve any effects they may have on care providers	0.85	0.85	0.85
	18. My organization offers a variety of resources to help me get over the effects of involvement with these instances	0.94	0.93	0.94
	19. The concept of concern for the well-being of those involved in these situations is not strong at my organization.	-0.08		
F6	20. I look to close friends and family for emotional support after one of these situations happens	0.82	0.82	0.81
	21. The love from my closest friends and family helps me get over these occurrences	0.94	0.94	0.94
F7	22. Following my involvement I experienced feelings of inadequacy regarding my patient care abilities	0.83	0.83	0.92
	23. My experience makes me wonder if I am not really a good healthcare provider	0.84	0.84	0.78
	24. After my experience, I became afraid to attempt difficult or high-risk procedures	0.63	0.63	
	25. These situations do not make me question my professional abilities	0.16		
F8	26. My experience with these events has led to a desire to take a position outside of patient care.	0.91	0.91	0.90
	27. Sometimes the stress from being involved with these situations makes me want to quit my job	0.88	0.88	0.89
F9	28. My experience with an adverse patient event or medical error has resulted in me taking a mental health day	0.98	0.98	0.98
	29. I have taken time off after one of these instances occurs	0.78	0.78	0.78
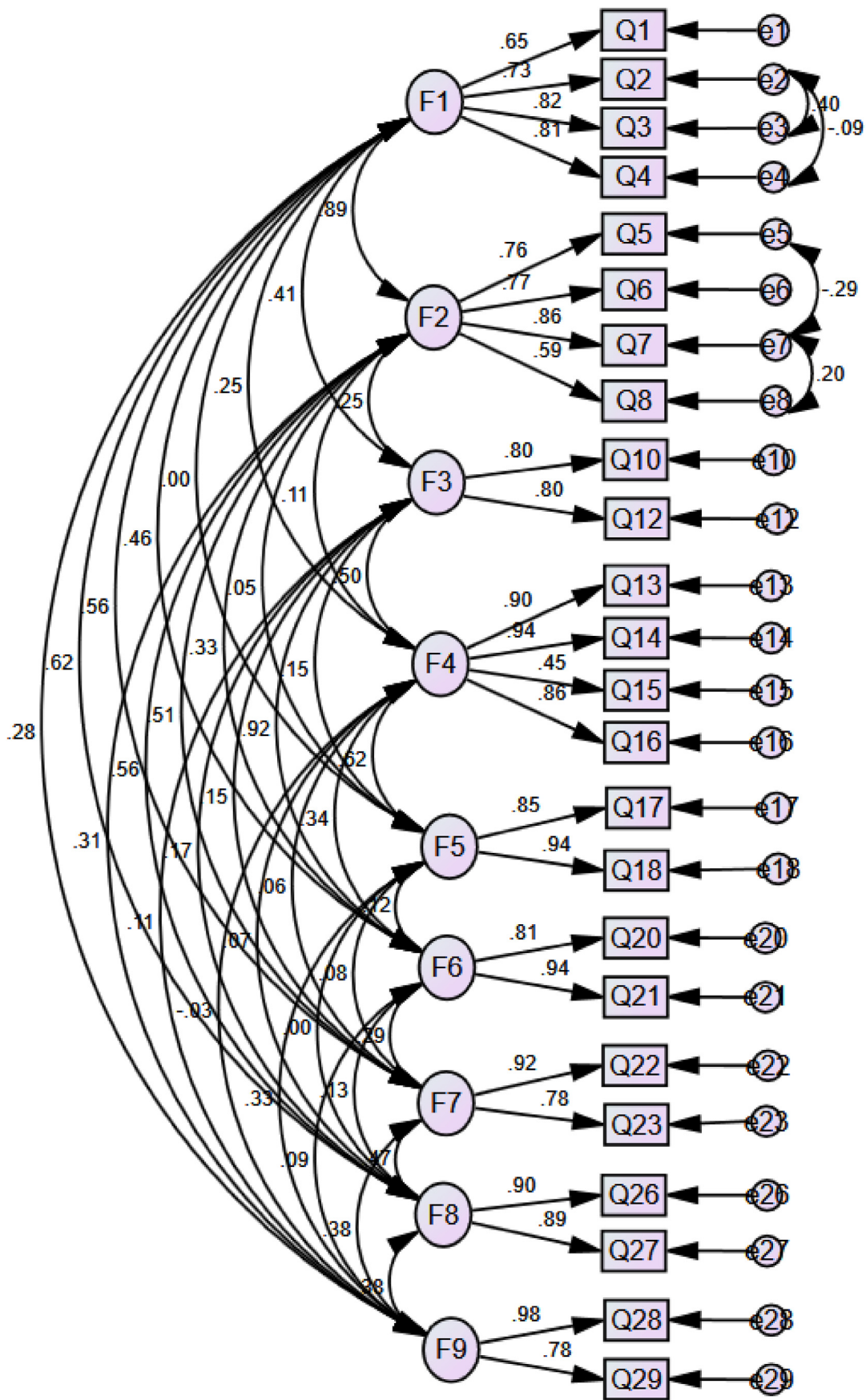
Figure 1. Confirmatory factor analysis of the T-SVEST, Model 3.

Table 5. Confirmatory factor analysis: Models goodness of fit of the T-SVEST.

	# of items	x^2/df	p	CFI	TLI	RMSEA	AIC
Model 1	29	2.944	<0.001	0.832	0.800	0.094	1191.794
Model 2	25	2.459	<0.001	0.904	0.879	0.081	759.674
Model 3	24	2.120	<0.001	0.931	0.911	0.071	625.422

Model 1: Model including 9 factors and 29 items.
Model 2: Model including 9 factors and 25 items.
Model 3: Model including 9 factors and 24 items.
x^2/df: chi-square/degree of freedom; RMSEA: root mean square error of approximation; CFI: comparative fit index; TLI: Tucker-Lewis index; AIC: Akaike information criterion.

4. Discussion

Cross-cultural adaptations of the SVEST have been reported in several countries (China, Korea, Argentina, Italy, Denmark, Spain, Iran, Germany, and Malaysia) [21, 22, 23, 24, 25, 26, 27, 28, 29, 30]. Yet, it has not been adapted in Turkey. This study is the first one to evaluate validation and psychometric properties of the Turkish version of the SVEST.

The second victim phenomenon and its extent may differ from hospital culture and countries. Therefore, it is important for healthcare institutions to be able to determine the prevalence of the second victim phenomenon, and to provide support for this experience to its employees.

Translation and adaptation were conducted according to WHO guidelines in order to maintain equivalence with SVEST [31]. Cultural aspects were discussed among a panel of experts and a final questionnaire was confirmed.

The survey was only addressed to EM HCPs. When comparing with other adaptations of the scale, we are the only authors who restricted the specialty and area of work to a single one. In Scarpis et al's study, the HCPs included were from different departments such as internal medicine, mother-child, anesthesia and ICU [24]. In the Korean study, the most represented departments were internal medicine and ICU with respectively %21 and 16.7 % of the study population [22]. In point of fact, EM HCPs are potential second victims, because of the nature of the specialty. Working in overcrowded environment, facing critical patients in urgent need of care are challenging points for HCPs of the ED [38]. In 2017, during the American College of Emergency Physicians resident Wellness Consensus Summit, the educator toolkit workgroup defined second victim syndrome as one of the three toolkit resources necessary to improve EM residents' wellness [39]. Therefore, both faculty and residents should be aware of the existence of second victim syndrome in order to develop strategies to mitigate the negative effects in both themselves and their colleagues.

The Cronbach's coefficient of the T-SVEST and its dimension showed great consistency. Analyzing each dimension separately, the Cronbach's values in the final version of the Turkish scale, ranged from 0.89 to 0.83, which were higher than the original version of the scale (0.61 0.87). In Burlison et al.'s original scale, colleague support dimension was the one with the lowest value [20]. Similarly, the T-SVEST showed the same result with a value of 0.78.

The most reliable dimensions were absenteeism in the original version, professional self-efficiency for the Argentinean version, physical stress for both the Korean study and Persian study and supervisor support for the Italian survey [20, 22, 23, 24, 28]. In our study, turnover intentions was the dimension with the highest consistency. The varieties of these findings are key elements that show diversity among HCPs through culture and regions. Therefore, transcultural adaptation of such questionnaire for use in a new country, culture or language remains challenging because of need to assess equivalence to the original scale. Santana et al. developed the Spanish version of the SVEST (SVEST-E) by conducting their study in Spain although a Spanish version has already been adapted by Brunelli et al. in Argentina [23, 26, 27]. The results of the two studies emphasize the effect of cultural connotations and language variations. Both language and local cultural aspect issues have to be considered when developing a questionnaire in a new environment to fulfill cross-cultural adaptation [40].

In our study, a total of five items was deleted for better reliability. The items that were deleted were the following ones; item 5: The mental weight of my experience is exhausting , item 9: I appreciate my co-workers attempts to console me, but their efforts can come at the wrong time , item 11: My colleagues can be indifferent to the impact these situations have had on me , item 19: The concept of concern for the well-being of those involved in these situations is not strong at my organization , item 24: After my experience, I became afraid to attempt difficult or high-risk procedures .

Mental weight as mentioned in item 4 has always been challenging for HCPs. In a study conducted among ICU nurses in Turkey, witnessing insufficient quality of patient care due to poor communication within the team was the cause of nurses high levels of moral distress [41]. The psychological distress is commonly not taken in consideration and unfortunately neglected. Similarly, in the Italian scale, the authors indicate that both physical and psychological distress were not relevant in their country [24]. Items 9 and 11 were both items from the colleague support dimension. Colleague support was also the dimension with the highest level of agreement and mean score. Evaluating results from SVEST scales of an institution can help finding the focus of what kind of support is needed. Similarly, in our study the most desired support option was a discussion with a respected peer. Item 19 is related to the concern of well-being of second victims. To date, little research on healthcare worker perceptions about patient safety culture has been conducted in Turkey and to our knowledge; no study on second victim phenomenon in Turkey has been published [42]. It is understandable that item 19 showed a low loading factor since the concept of the second victim is not well established in Turkey, and support at the organizational level remains very poor. Moreover, this finding is coherent to the low percentage of participants who had heard about the second victim phenomenon. Improvements in patient safety culture should be a continuous process. In the last ten years, some important steps have been taken to ensure patient safety by the Ministry of Health in Turkey. Various communiqués and regulations have been published to ensure patient and employee safety and mandatory quality standards have been developed [43]. However, reporting adverse events, one of the most important concerns of patient safety is still very low. Aksu and Akkaş conducted a retrospective analysis on a-10-year observational period to search the near misses and unsafe conditions that occurred in the ED to improve patient safety [44]. The results showed that only a total number of 220 adverse events were reported in the 10-year period, and the ratio was 0.07% for the total ED visits showing that adverse events from ED were under-reported. This suggests that further actions have to be taken to improve patient care quality.

Support at organizational level may start with non-punitive approach to those who are involved in and who report medical errors and adverse events [42, 45]. Moreover, taking off days because of an adverse event or a near miss is not a custom for Turkish HCPs. Most of the time, due to lack of staff in healthcare institutions, a day-off for one means workload for another. Therefore, absenteeism showed to have little impact in Turkish HCPs with a low level of agreement. These findings highlight the cultural differences between T-SVEST and the original SVEST which may be due to cultural diversity on perception of patient safety among American and Turkish healthcare professionals.

The professional self-efficacy dimension had a moderate impact on the population under study, whereas it showed greater impact in the original USA survey [20]. Our results to this dimension were consistent with Italian and Argentinean ones, showing that professional self-efficacy does not have relevant impact on HCP in Turkey [21, 22, 23, 24].

4.1. Strengths and limitations

The CFA analysis of the T-SVEST showed low goodness of fit at the first run. After problematic error terms corrected and items with low

factor loadings being deleted, the indices were satisfactory with reasonable construct validity. Revising deleted items in future studies may help keep the integrity of the original scale. According to results of other studies, we aimed to recruit diverse HCPs and not only nurses. Moreover, to address the survey to potential second victims, we restricted the study to ED HCPs. Our results represent the second victim experience from the point of view of ED HCPs at all stage. In the one hand, as physicians, residents, nurses were included; it is considered a strength as representation of medical professions. On the other hand, restricting the specialty to EM may not reflect all HCPs in Turkey, even if ED HCPs are the one most involved in direct acute patient care. Future studies should include larger group of HCPS among different departments.

Lastly, the questionnaire was deployed online via e-mail and online messaging platform. Considering lack of verbal and one-way communication, the participants may have encountered difficulty to understand the purpose of the study especially knowing that 80.1 % of the respondents had never heard of the second victim phenomenon. Moreover, being in a pandemic era, may have enforced depression and burnout feelings. This could have affected the answers regarding organizational and supervisor support.

5. Conclusion

The final model for the T-SVEST consists of 24 items that reflect the same nine dimensions of the original SVEST. An empirical measure for the concept of patient safety regarding the HCP may help to manage strategies that need to be adopted. Errors and incidents in patient care are most of the time unavoidable; therefore an evaluation of the HCPs perceptions may provide guidance to improve support resources. Besides demonstrating the burden of second victim experience, the T-SVEST could help identify the specific resources needed by HCPs at the organizational level. Healthcare leaders should focus on implementing support resources for second victims by tracking the performance of second victims, this questionnaire can be the first step of obtaining accurate information on the phenomenon.

Declarations

Author contribution statement

Ayca Koca: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Atilla halil Elhan: Analyzed and interpreted the data; Wrote the paper.

Sinan Genç: Conceived and designed the experiments; Performed the experiments; Contributed reagents, materials, analysis tools or data.

Ahmet Burak Oğuz: Performed the experiments; Wrote the paper.

Müge Günalp Eneyli: Conceived and designed the experiments; Analyzed and interpreted the data.

Onur Polat: Performed the experiments; Contributed reagents, materials, analysis tools or data.

Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

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