Title

Development and psychometric assessment of the basic resuscitation skills self-efficacy scale

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Abstract

Background: Nurses are usually the first responders to an in-hospital cardiac arrest. As bystanders, nurses are expected to master some basic resuscitation skills. Self-efficacy levels are a key component in the acquisition of basic resuscitation skills.

Aim: To develop, test and validate a self-efficacy scale that accurately measures nursing students' confidence levels in their capabilities when responding to a cardiac arrest.

Methods: This study enrolled a conveniently recruited sample of 768 nursing students from two different universities in Europe. The Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES) was developed and its psychometrics established. Content validity, criterion validity, discriminant validity, and internal consistency were assessed. Performing item-analysis, principal component analysis and known group analysis evaluated construct validity.

Results: Principal component analysis revealed the three-subscale structure of the final 18-item BRS-SES. A Cronbach's alpha of 0.96 for the overall measure demonstrated the internal consistency of the BRS-SES. Data also evidenced discriminant ability of the BRS-SES and known-group analysis showed its high sensitivity and specificity.

Conclusion: The BRS-SES showed good psychometric properties for measuring self-efficacy in basic resuscitation skills that nursing students, as future first responders to an in-hospital cardiac arrest, will be expected to master.

Implications for practice: The BRS-SES is a validated tool that could have a positive impact on the training of basic resuscitation skills and, therefore, on patients' outcomes.

Keywords

Self-efficacy, resuscitation skills, nurses, confidence, BLS, defibrillation.

Introduction

Despite its improvement over the past decade, survival rates after in-hospital cardiac arrest in Western countries are not higher than 20%.[1-2] Reported survival rate statistics differ from one geographical area to another, which contributes to uncertainty about the available data. Whereas some studies report survival to discharge rates below 20% in Korea (19%), Australia (18%), Canada (16%), the UK (10.1-14.6%) and other European countries (14%), other studies suggest that these rates in the USA could vary from 17-31.7%.[2-7] In any case, these figures represent a motive of concern for healthcare educators as cardiac arrest remains an in-hospital leading cause of death.[8]

Provision of good quality basic life support (BLS) and early use of an automated external defibrillator (AED) by bystanders positively influence patient outcomes.[9-13] Nurses are usually either direct witnesses or first responders to cardiac arrest events.[14-15] Hence, all qualified nurses are expected to be competent in the recognition of a cardiac arrest and activation of the emergency system in place, the initiation of effective cardiopulmonary resuscitation (CPR), and the safe use of an AED.[14-16]

Training of the aforementioned basic resuscitation skills has been included in most undergraduate nursing programmes. However, having been trained in resuscitation does not always imply that the competence has been acquired.[17-18] In fact, international literature often highlights qualified nurses' and nursing students' resuscitation skills to be suboptimal.[19-22] Furthermore, lack of confidence has been identified as a consistent barrier to the achievement of a good quality BLS and the safe use of an AED.[23-25]

Being competent in BLS and the use of an AED requires individuals not only to gain the required cognitive knowledge and psychomotor skills, but also to attain a certain level of self-efficacy in those tasks involved in the activity.[26-28]

Self-efficacy is understood as an individual's beliefs in how capable they are to execute certain tasks.[29] Motivation and cognitive resources are mobilised, and the actions needed to produce given attainments are more likely to be carried out when a strong self-efficacy is perceived.[30] In contrast, when low levels of self-efficacy are present, the likelihood one will not attempt to perform the set of tasks expected is much greater.[30-32]

Assessing nursing students' level of confidence in their own resuscitation skills after attending a training session could provide educators with useful insights about the effectiveness of their teaching. Numerous published articles have measured healthcare students' self-efficacy or confidence in their resuscitation skills.[26-35] However, very few resuscitation self-efficacy scales have been developed, validated and published.[36-38] In addition, these self-efficacy scales seem not to be domain-specific enough to measure the essential resuscitation skills that nursing students, as future common first responders to an in-hospital cardiac arrest, will be expected to master.[39]

The aim of this study is to develop, test and validate a self-efficacy scale that accurately measures nursing students' confidence levels in their capabilities when responding to a cardiac arrest.

Methods

Participants

Convenience sampling methods were used to recruit 398 nursing students from the University of Almeria (UAL) in Spain and 370 from Middlesex University (MDX) in the UK. The 768 participants met the following inclusion criteria: (1) to be at least 18 years old, and (2) to be enrolled in a Nursing degree programme during the 2013/1014 academic year. Collected demographic characteristics included age, gender, education level, exposition to a real cardiac arrest and last resuscitation training session attended.

Ethical considerations

Ethical approval was obtained from the relevant Ethics Committees in both institutions (MDX and UAL). Eligible students received a written document with clear information regarding the research process and its aims. In addition, informed consent was gained from each participant who volunteered. Participants' anonymity and confidentiality was maintained throughout the data collection and analysis.

Development of the initial instrument

Self-efficacy was measured in terms of “can do”. A ‘0-100 response format’ was used to maximise the response options. Gradations of difficulty were added to the efficacy items to abstain from ceiling effects.[29]

An initial three-domain version of the Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES) with 18 items was created based upon Bandura’s self-efficacy theory,[29] the European Resuscitation Council’s guidelines,[39] Resuscitation Council UK’s recommendations,[40] and previous scales developed.[36-38] A panel of fifteen English-speaking experts in emergency care and resuscitation training from six different institutions across London (UK) and Almería (Spain) critically revised the questionnaire. Lawshe’s method to determine the BRS-SES’s items’ content validity index (I-CVI) was followed.[41] The fifteen experts were asked to individually define each item as “not necessary”, “useful but not essential”, or “essential” for measuring the particular domain they belonged to.

The English version of the BRS-SES was translated into Spanish by following a forward-backward procedure.[42] Two bilingual experts (native Spanish fluent in English) separately and independently translated the scale from English to Spanish. Slight discrepancies between translators’ versions were easily conciliated by mutual agreement and a common version was created. A bilingual independent translator (native English fluent in Spanish) performed a ‘blind back-translation’.[43] Prior to applying pilot testing procedures, the original BRS-SES, the Spanish translation and the ‘blind back-translation’ were reviewed by the same bilingual expert committee that critically revised the questionnaire. It was agreed by consensus that the semantic, cultural and conceptual original meanings of the scale were preserved in its Spanish translated version. Cultural adaptation of the BRS-SES was not required, as first responders to an in-hospital cardiac arrest must follow the same guidelines and recommendations in both countries.[39] I-CVI for the Spanish version of the scale was then re-tested by the seven Spanish-speaking experts who were also members of the panel that revised the English initial version of the BRS-SES.

A pilot test to determine temporal stability and internal consistency of the scale was carried out. Fifty nursing students from the UAL and 47 nursing students from MDX were conveniently recruited. Participants had attended a "CPR and use of an AED" training session within one year before the test. Information about the study was given and informed consent was gained from all participants. Administering the initial version of BRS-SES to the same participants at two different moments in time (4 weeks) assessed test-retest reliability. Cronbach's alpha was used to determine internal consistency of the scale.

Data analysis

IBM® SPSS® version 21 for Mac® was the software used to perform all the data analysis.

Readability of the BRS-SES. Readability and grade level of the BRS-SES were assessed by using the Flesch-Kincaid tool in Microsoft Word® for Mac® 2011. The amount of time required to complete the questionnaire was measured during the pilot test previously described. Furthermore, 17 nursing students whose first language was not the one of the scale were interviewed to determine understandability of the BRS-SES.

Validity. Content validity of the BRS-SES was determined by following Lawshe's method to calculate the I-CVI for the 18 items compounding the scale.[41] In addition, an averaging calculation method was used to determine the content validity index for the overall scale (S-CVI).[44] Discriminant validity was established by comparing the BRS-SES scores between nursing students who had never attended a resuscitation training session before completing the questionnaire and those who had attended one less than a year before doing so. Criterion validity was established by correlating the mean scores of the BRS-SES and the mean scores of the RSES for nurses.[36] Construct validity for the BRS-SES was estimated by performing item analysis, principal component analysis (PCA) and known-groups analysis.

Principal component analysis. Factor structure of the original BRS-SES was examined by conducting an unlimited factor analysis test with Varimax rotation. An eigenvalue higher than 1, a clear graphic representation on the plot of eigenvalues, and a factor loading greater than or equal to 0.5, were considered the criteria to retain factors. Prior to this, appropriateness for PCA was examined by using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett Test of Sphericity.

Known-groups analysis. For known-groups analysis, participants were categorised in different groups and their mean score on BRS-SES and its subscales were compared. The sample (N=768) was divided on the basis of their last attendance at a resuscitation training session (never trained (n=188), trained less than 1 year before (n=198), trained between 1-2 years before (n=179), or trained just before completing the questionnaire (n=203)). Multivariant analysis was carried out. One-way MANOVA for testing differences between four groups was calculated and Tukey's Honestly Significant Difference (HSD) post-hoc tests were run to compare each group's mean scores.

Reliability. In order to determine the internal consistency of the BRS-SES, the Cronbach's coefficient alpha was calculated.

Results

Development of the initial instrument

Results of the pilot test of the initial BRS-SES are shown in Table 1. The I-CVI values for the initial instrument (English and Spanish versions) ranged from 0.87 to 1, which means no items were removed from the scale. Very good temporal stability and excellent internal consistency were evidenced for both samples. A paired t-test showed that differences between BRS-SES mean scores at test-retest were non-significant for both the UAL ($t(25)=0.83$, $p=0.408$) and the MDX sample ($t(25)=-1.74$, $p=0.088$).

Demographics statistics

No significant statistical differences amongst participants from both institutions were found for any of the demographics (Table 2). The composition of the main sample (N=768) was 78% female (n=600) and its age ranged from 18 to 55, with a mean age of 22.7 years (SD=5.96). 6.6% (n=51) were graduated whereas the remaining 93.4% (n=717) had completed their A-Levels or equivalent. Less than 15% (n=113) had witnessed a cardiac arrest in real life and only 10% (n=77) had had the opportunity to perform CPR in a real event.

Readability of the BRS-SES

According to the Flesch-Kincaid readability statistics in Microsoft Word® for Mac® 2011, the reading level of the BRS-SES corresponds to 12th grade. The mean amount of time to complete the scale was just over 6 minutes and it ranged from 4 to 9 minutes. Students, whose first language was not the one of the scale, gave feedback on their perception of readability and understandability of the BRS-SES. Instructions for completing the questionnaire were slightly modified upon these comments. However, Flesch-Kincaid readability statistics were not affected.

Validity

The I-CVI for the 18 items comprising the final BRS-SES ranged from 0.87 to 1, which means that all the items actively contributed to constitute a relevant operational definition of the construct intended to be measured.[44] No items were removed from the questionnaire and the S-CVI for the BRS-SES was 0.98. With regard to determine discriminant validity, significant statistical differences ($t(25)=-25$, $p<0.001$) in mean scoring between participants who had never received any resuscitation training (M=42.9, SD=17.8) and those who completed the BRS-SES immediately after attending a 'CPR and use of an AED' training session (M=81.3, SD=11.8) were found. Data for criterion validity are presented in Table 3. Pearson's correlation coefficient (r) between the BRS-SES and the RSES score ranged from 0.58 to 0.63 ($p<0.01$). Descriptive statistics of the BRS-SES scores for item-analysis are presented in Table 4. Mean item scores ranged from 55.77 to 80.68. Item-total correlations varied from 0.42 to 0.86.

Principal component analysis

The Kaiser-Meyer-Olkin Measure of sampling adequacy was 0.955, which suggested that it was appropriate to conduct component analysis due to sufficiency and high variability in the data. Furthermore, Bartlett's Test of Sphericity was significant ($X^2=13660.7$, $p<0.001$), which indicated that the correlation matrix was not an identity matrix.

An exploratory PCA was performed on the 18-item BRS-SES. The results are presented in Table 5. The three identified significant factors with eigenvalues greater than 1 accounted for the 74.3% of the total variance. Six items were loaded Factor 1 ('Recognition and Alertness'). Four items were loaded Factor 2 ('CPR'). Eight items were loaded Factor 3 ('Safe Use of an AED'). Factor loading of the 18 items ranged from 0.53 to 0.88, which means all of them were retained.

Known-groups analysis

One-way MANOVA showed statistically significant differences (F (9, 1854.66) = 84.07, $p<0.001$; Wilk's $\Lambda = 0.435$, partial $\eta^2 = 0.24$) in the mean scores amongst the four groups for the three subscales and for the total BRS-SES. As seen in Table 6, statistically significant differences between all groups' BRS-SES mean score were found ($p<0.005$) when performing Tukey's HSD post-hoc test. Students trained less than a year before completing the BRS-SES and those trained between one and two years before, did not have significantly different scores on the subscales 'Recognition and Alertness' ($p=0.58$) and 'Cardiopulmonary Resuscitation' ($p=0.87$).

Reliability

The Cronbach's coefficient alpha for the total scale was excellent ($\alpha=0.96$) and it varied from very good to excellent for the three subscales that emerged from the PCA (Table 7).

Discussion

In this study, a questionnaire to measure nursing students' self-efficacy in basic resuscitation skills was developed and its psychometric properties established.

The BRS-SES has shown an excellent internal consistency and a very good temporal stability over a 4-week period. After having been reviewed by an extensive panel of experts, all items comprising the scale scored highly on their I-CVI and actively contributed to the very good S-CVI value of the BRS-SES. This adds credibility and validity to the tool.[44] A high correlation between the mean scores for the BRS-SES (and its three subscales) and the RSES for nurses[25] shows good evidence for criterion validity. Results for correlation between each individual item and the total BRS-SES, in conjunction with results from PCA and known-group analysis, show excellent evidence for construct validity.

In contrast with other published resuscitation self-efficacy scales,[36-38] the BRS-SES does not attempt to measure overcomplicated activities or tasks that go beyond general nurses' knowledge or competences. The 18-item BRS-SES offers a very quick and simple tool for measuring self-efficacy in those resuscitation skills that all nurses are expected to master.[14-16] Its readability and understandability characteristics could facilitate compliance and stimulate further research in the effects of resuscitation training on nurses' performances and behaviour during a cardiac arrest event.

Exploratory factor analytic procedures revealed the three-subscale structure of the BRS-SES. The 'Recognition and alertness', 'CPR' and 'Safe use of an AED' subscales precisely measure bystanders' self-efficacy in activities that positively influence patients' outcomes after a cardiac arrest.[9-13] In fact, these three sub-scales correspond with the first three links of the 'Chain of survival'[39] and they represent the basic resuscitation skills that all nurses should acquire.[14-16]

As lack of confidence has been shown to be a consistent barrier to the achievement of good quality BLS and to the safe use of an AED,[23-25] the BRS-SES provides nursing educators with a reliable, consistent and validated tool, which will allow them to measure students' confidence in those skills that they will be expected to master.

External factors can modify levels of self-efficacy; if the strength of an individual's self-efficacy is low, real challenging situations can stop the activity from being performed.[30] Although resuscitation training does not always imply that resuscitation skills have been acquired,[17-18] training has been identified as a potential booster for resuscitation self-efficacy.[23-25] Therefore, discriminant validity of the BRS-SES was also tested, and demonstrated that nursing students who have not been trained in resuscitation are significantly less confident than those who have been trained.

Indeed, the BRS-SES goes beyond this discriminant ability, and known-group analysis showed significantly different scores between nursing students who have either not trained, have trained less than a year before, have trained between one and two years before, or trained just before completing the questionnaire. These findings demonstrate that the BRS-SES is suitably sensitive and specific in distinguishing amongst groups with different characteristics.

This study had various limitations. Firstly, the BRS-SES was specifically developed according to the European Resuscitation Council guidelines. Therefore, its use in countries where bystanders are recommended to follow different guidelines may need to be preceded by modification and revalidation of the BRS-SES. Secondly, the BRS-SES has the potential to be used to measure self-efficacy levels in any bystanders. In hospital settings, nurses, doctors, other healthcare professionals, and non-clinical staff are expected to be able to recognise a cardiac arrest event and alert the emergency services, to initiate and perform CPR, and to safely use an AED. However, in this study, the BRS-SES was only tested in nursing students from two European countries. Thus, further testing using nurses or any other potential bystanders from different areas and hospitals is recommended. Thirdly, test-retest reliability was only tested in the pilot version of the BRS-SES. As self-efficacy is an individual's distinctive characteristic, it is possible that inter-subject differences accounted for some of the variability in the correlations reported. Administering the BRS-SES to a large main sample at two different moments in time and correlating the results would provide more robust data about test-retest reliability of the scale. In addition, having two different measurements for each individual would allow for the calculation of the intraclass correlation coefficient (ICC) for the BRS-SES. This would provide information about the impact that inter-subject differences could have on the potential variability found in correlations. Finally, the findings in this study do not allow for a generalisation for other tasks or domains without previous testing and validation of the accordingly modified tool.

Conclusions

The BRS-SES shows very good psychometric properties for the measurement of self-efficacy in those skills that all nurses, as potential bystanders for a cardiac arrest, are expected to master. The BRS-SES is a very quick and simple tool that could facilitate the assessment of self-efficacy as part of the competency in resuscitation. This could foster the implementation of educational strategies that improve self-efficacy for nurses, and ultimately contribute to better patient outcomes. Further work on testing the BRS-SES in potential in-hospital bystanders other than nursing students, is highly recommended.

Implications for practice

- The BRS-SES represents a standardised tool for measuring bystanders' resuscitation self-efficacy.
- The widespread use of the BRS-SES as part of resuscitation skills' assessment, could improve training quality and patients' outcomes.
- Translation of the BRS-SES into more European languages and testing of their psychometric properties is highly recommended.

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Conflict of interest

Authors declare that there is not conflict of interest.

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Tables

Table 1.
Psychometrics of the pilot initial version of BRS-SES

	University of Almeria (N=50)		**Middlesex University (N=47)**	
	r		r	
Temporal stability	0.82*		0.86*	
	Test	***Re-test***	***Test***	***Re-test***
Internal consistency (Cronbach's α)	0.95	0.94	0.96	0.94
Mean score BRS-SES (*M* ± *SD)*	67.13 ± 15.96	66.03 ± 11.30	66.76 ± 15.01	67.80 ± 13.26

* p<0.01 level.

Table 2.
Demographics characteristics of participants

Characteristic	**University of Almería (*N*=390)**	**Middlesex University (*N*=378)**	**All (*N*=768)**
	M ± S.D.	*M* ± S.D.	*M* ± S.D.
Age (years)	21.96 ± 5.62	23.47 ± 6.2	22.7 ± 5.96
	n (%)	n (%)	n (%)
Gender			
Female	298 (73.4)	302 (79.9)	600 (78.1)
Male	92 (26.6)	76 (20.1)	168 (21.9)
Education Level (completed)			
A-levels	372 (95.4)	345 (91.3)	717 (93.4)
Degree	18 (4.6)	33 (8.7)	51 (6.6)
Last CPR training			
Never trained	98 (25.1)	90 (23.8)	188 (24.5)
Less than 1 year before test	98 (25.1)	100 (26.5)	197 (25.8)
Between 1-2 years before test	93 (23.8)	86 (22.8)	179 (23.3)
Immediately before test	101 (25.9)	102 (27)	203 (26.4)
Cardiac arrest witnessed	51 (13.1)	60 (15.9)	111 (14.5)
CPR performed real scenario	32 (8.2)	45 (11.9)	77 (10)

Table 3.
Correlations between BRS-SES and RSES for criterion validity (*N*=768)

BRS-SES	**RSES**
	Total
Total BRS-SES	0.63**
Recognition & Alertness	0.58**
CPR	0.58**
Safe use of an AED	0.58**

** p<0.01 level.

Table 4.
Item analysis of the BRS-SES (*N*=768)

	Mean ± SD	ITC*	Cronbach's Alpha if item deleted
In an emergency situation, I am confident I can always…			
1. Assess the safety of myself and the victim, in this order, before approaching	76.25 ± 20.13	.47	.961
2. Assess the victim's level of consciousness within 5 seconds	66.74 ± 22.51	.61	.959
3. Shout for help while continuing with the "Primary Survey"	80.68 ± 17.40	.42	.962
4. Open the airway by applying the most effective manoeuvre, depending on the situation	66.91 ± 23.44	.74	.958
5. Assess for breathing and differentiate between effective and agonal respirations in no more than 10 seconds	59.22 ± 24.43	.66	.959
6. Alert the emergency services following set protocol and initiate CPR without delay	67.01 ± 23.54	.70	.958
7. Perform CPR according to current European Resuscitation Council's guidelines	66.34 ± 23.40	.76	.957
8. Provide effective chest compressions (correct hand placement, depth, recoil and speed)	63.61 ± 22.72	.66	.959
9. Give effective rescue breaths with a pocket mask (correct volume of air and speed of breaths)	59.17 ± 24.93	.80	.957
10. Maintain correct CPR ratio of compressions to breaths until I have a valid reason to stop	62.85 ± 26.87	.82	.956
11. Switch on the AED and start using it as soon as it is available without delay	57.77 ± 31.17	.84	.956
12. Follow the AED voice prompts in the right order without getting confused and/or distracted	60.53 ± 31.55	.86	.956
13. Attach AED pads in the correct positions taking into account possible contraindications	55.43 ± 31.32	.84	.956
14. Ensure nobody touches the victim whilst rhythm is being analysed	76.00 ± 23.07	.68	.959
15. Deliver a rapid and safe shock to the victim keeping visual check and giving verbal commands	58.62 ± 31.50	.85	.956
16. Resume, without hesitation, appropriate post-shock actions according to current guidelines	54.77 ± 29.27	.85	.956
17. Guarantee minimal interruptions in chest compressions during the resuscitation attempt	59.74 ± 27.44	.82	.956
18. Continue as directed by voice and/or visual prompts from the AED	61.72 ± 30.67	.86	.956

* ITC=Item-total correlation

Table 5.
Factor Loadings and Total Variance explained from the Rotated Factor Structure for the BRS-SES (*N*=768)

Item by Factor	Factor		
	1	2	3
1. Recognition and Alertness			
Assess safety before approaching	.72		
Assess consciousness within 5 seconds	.60		
Shout for help and continue "Primary Survey"	.82		
Open the airway applying most effective manoeuvre	.56		
Assess breathing in no more than 10 seconds	.53		
Alert emergency services and initiate CPR without delay	.55		
2. Cardiopulmonary Resuscitation			
Perform CPR according current guidelines		.78	
Effective chest compressions		.85	
Effective rescue breaths		.75	
Maintain correct ratio of chest compressions to rescue breaths		.68	
3. Safe use of an AED			
Switch AED on and use it as soon as it becomes available			.83
Follow AED prompts in the right order without confusion or distraction			.87
Attach AED pads in the correct positions			.87
Allow analysis ensuring nobody touches the victim			.63
Deliver rapid and safe shock (visual check and verbal commands)			.87
Resume post-shock protocol without hesitation			.82
Guarantee minimal interruptions in chest compressions			.72
Continue as directed from AED prompts			.88
% of variance	14.4	23.8	36.1
Cumulative % of variance	14.4	38.2	74.3

Table 6.
Tukey's HSD post-hoc test for multiple comparisons

Known-Groups	**No trained (n=188)**	**Trained less than 1 year before (n=198)**	**Trained between 1-2 years before (n=179)**	**Trained immediately before (n=203)**
Factor Group	***M ± SD*** significance	***M ± SD*** significance	***M ± SD*** significance	***M ± SD*** significance
Recognition and Alertness	***58.22 ± 17.67***	***69.91 ± 14.22***	***67.99 ± 13.78***	***80.76 ± 12.38***
No trained		.001*	.001*	.001*
Trained less than 1 year before	.001*		.580	.001*
Trained between 1-2 years before	.001*	.580		.001*
Trained immediately before	.001*	.001*	.001*	
Cardiopulmonary Resuscitation	***43.51 ± 25.50***	***66.57 ± 15.97***	***65.07 ± 17.13***	***75.71 ± 14.95***
No trained		.001*	.001*	.001*
Trained less than 1 year before	.001*		.870	.001*
Trained between 1-2 years before	.001*	.870		.001*
Trained immediately before	.001*	.001*	.001*	
Safe use of an AED	***31.07 ± 20.76***	***67.79 ± 19.50***	***57.56 ± 19.06***	***84.50 ± 11.69***
No trained		.001*	.001*	.001*
Trained less than 1 year before	.001*		.001*	.001*
Trained between 1-2 years before	.001*	.001*		.001*
Trained immediately before	.001*	.001*	.001*	
Total BRS-SES	***42.88 ± 17.76***	***67.78 ± 14.88***	***62.70 ± 14.21***	***81.30 ± 11.77***
No trained		.001*	.001*	.001*
Trained less than 1 year before	.001*		.005**	.001*
Trained between 1-2 years before	.001*	.005**		.001*
Trained immediately before	.001*	.001*	.001*	

* p<0.001 level.

** p<0.005 level.

Table 7.
Internal consistency of the BRS-SES and its subscales

	Internal consistency Cronbach α
Total BRS-SES	0.96
Recognition & Alertness	0.85
CPR	0.92
Safe use of an AED	0.96