

Original Research

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Reliability and Validity of the Persian Version of the Disaster Resilience Measuring Tool for Health care Rescuers in Iran

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Abstract

Objectives: This study evaluated the validity and reliability of the Persian version of the Disaster Resilience Measuring Tool (DRMT-C19).

Methods: The research was a methodological, psychometric study. Standard translation processes were performed. Face validity and content validity were determined along with construct and convergent validity. To determine the final version of the questionnaire, 483 health care rescuers were selected using a consecutive sampling method. Other resilience-related questionnaires were used to assess concurrent validity. All quantitative data analyses were conducted using SPSS 22 and Jamovi 2.3.28 software.

Results: The content validity and reliability were indicated using Scale's Content Validity Ratio (S-CVR) = 0.92 and Scale's Content Validity Index (S-CVI) = 0.93. The comprehensiveness of the measurement tool = 0.875%. Cronbach's α = 0.89 and the test re-test reliability using interclass correlation coefficients (ICC) = 0.68 to 0.92. Exploratory factor analysis determined 4 factors which accounted for more than 58.54% of the variance among the items. Confirmatory factor analysis determined 12 factors. The concurrent validity between the DRMT-C19 and the Connor-Davidson Resilience Scale (CD-RISC) was $r = 0.604$ ($P \leq 0.0001$).

Conclusions: The DRMT-C19 has satisfactory psychometric properties and is a valid, reliable, and valuable tool for assessing resilience against disasters in Iran's Persian-speaking health care rescuers.

Natural and man-made disasters are unpredictable and inevitable events that take a devastating toll on the health, economy, and society of people and governments.¹ In 2021, about 432 natural disasters, including earthquakes, volcanoes, floods, landslides, droughts, and fires, were reported across the globe which claimed 10 492 lives, affected 101.8 million people, and resulted in economic losses approaching \$252 billion.²

High-risk occupations, such as those involving health care workers who provide emergency rescue services (i.e., “first responders”), are often associated with significant mental and physical stress. Emergency health care rescue workers frequently encounter potentially traumatic events as part of their job. They triage thousands of victims, and negotiate destroyed buildings and devastated communities, while working with limited resources³. As a result of these repeated and upsetting exposures, health care first responders are at high risk of developing stress-related mental health issues such as anxiety disorders (e.g., acute Stress Disorder; ASD and Post-Traumatic Stress Disorder; PTSD), depressive disorders, and other mental health problems, some of which may become chronic.⁴ In some reports, mental health problems in first responders have rendered them passive victims of their occupations and ineffective in their work.^{5,6}

However, all is not bleak when it comes to the work of health care first responders. A recent qualitative survey of these health care providers found that some rescuers actually experienced positive feelings after completing disaster missions. These positive outcomes were described as greater “personal maturation, “self-confidence,” and “altruism.”⁷ According to social science research, first responders with positive outcomes may be those who apply certain effective coping strategies when dealing with disasters. This group of rescuers who use effective ways of coping are reported as less likely to experience negative psychological outcomes following a rescue event.⁸ For example, they use approaches such as supportive strategies (e.g., psychological, social, and equipment support), on-stage strategies (e.g., deviation of thought, use of knowledge and

experience, and adherence to moral-religious principles), and reconstruction strategies (e.g., psychological arrangements, self-soothing skills, and reassessment) which have been shown to be helpful and promote a level of resilience in rescuers who respond to disasters.

The phenomenon of “resilience” is understood as a hallmark of positive psychology. It is described as the ability of a person to cope well, manage, and maintain a sense of control, well-being, and life satisfaction without negative psychological symptoms in the face of adversity.⁹ Resilience can also be thought of as a person’s ability to bounce back following hardships and life’s inevitable difficulties. It has been empirically investigated and is considered to be a protective factor against professional burnout in health care.¹⁰ Further, resilience has been reported to play an important role in reducing or even preventing mental distress such as PTSD and depression.¹¹ Thus, resilience in health care first responders is critical to the health and well-being of both rescuers and impacts the survivors for whom they are providing emergency services.¹² As a result, researchers in the area of resilience have suggested a need for the development of interventions to help health care first responders increase their resilience by integrating known resilience protective factors such as social support and other coping strategies into training and selection processes.^{13,14}

The Connor-Davidson Resilience Scale (CD-RISC)¹⁵ and the Resilience Scale¹⁶ are currently available non-specific assessment instruments, based on the general population, which could be used to measure first responders’ resilience in disasters.

A valid and reliable tool for measuring the resilience of emergency health care rescuers could help rescue organizations better identify and recruit health care first responders who are most likely to be successful in their jobs. Moreover, a psychometrically sound resilience assessment tool also could identify current first responders who might benefit from additional support and subsequently provide interventions specifically targeted to increase their resilience.¹⁷

Because there was no readily available scale to measure the resilience of health care rescuers, Mao *et al.* designed an instrument specific to this group. The scale included a variety of dimensions including, optimism, altruism, disaster preparedness, social

support, perceived control, self-efficacy, coping strategies, and positive growth.¹⁷

After a number of iterations and psychometric re-evaluations of this tool, it was condensed to 4 dimensions including, self-efficacy, altruism, positive growth, and social support.¹⁸ Considering the social and psychological vulnerability of health care rescuers in Iran and the lack of a specific scale to measure their resilience, the present study aimed to translate and validate a Persian language version of the Disaster Resilience Measuring Tool (DRMT-C19) for health care first responders in Iran.

Methods

This was a methodological psychometric study, to evaluate of the validity and reliability of the DRMT-C19 for health care rescuers as translated into the Persian language (Figure 1). The Institutional Review Board (IRB) of Aja University of Medical Sciences (AjaUMS) evaluated and approved the research protocol.

Sample and Sample Size Calculation

To evaluate the final version of the questionnaire, 483 individuals ($n = 253$ for Exploratory factor analysis, $n = 230$ for Confirmatory factor analysis) were identified using a consecutive sampling method. This strategy entailed selecting all health care rescuers who consented to participate and satisfied inclusion criteria, up until the target number of participants was obtained. All participants signed an informed consent in accordance with the updated Declaration of Helsinki (2013). Participants were health care rescuers who had been referred to the Red Crescent Society of Tehran, a Non-Governmental Organization in Iran known for responding to natural disasters.

Criteria for the Inclusion and Exclusion of Disaster Health Care Rescuers

The inclusion criteria for the study were: current health care rescuers, 18 years or older, who have provided rescue services at

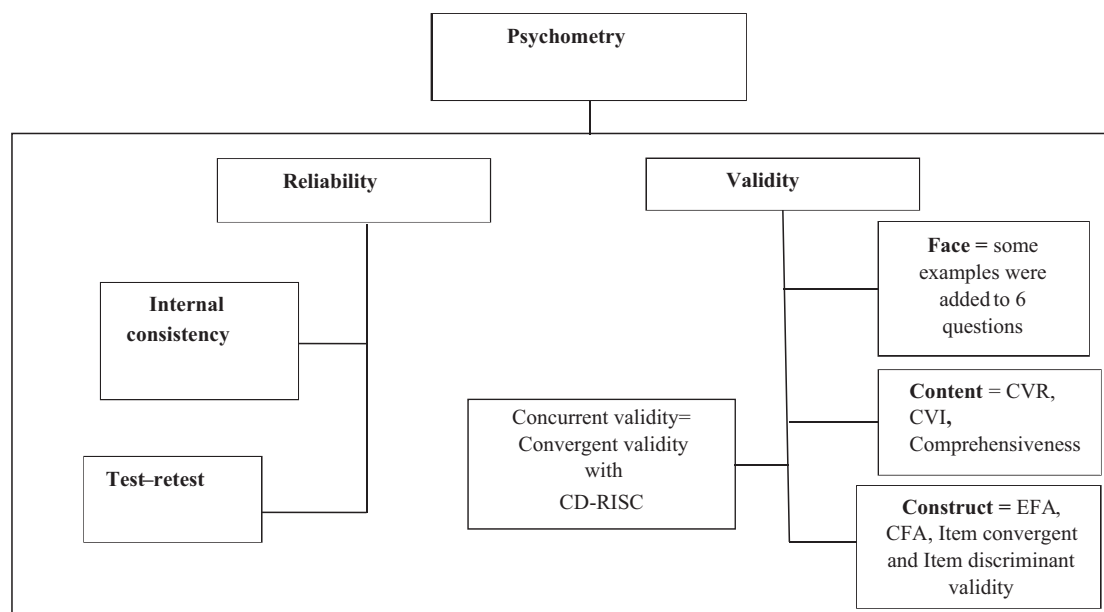


Figure 1. A summary of steps for determining reliability and validity of the Persian DRMT-C19 for health care rescuers.

the scenes of accidents and disasters for 3 years or more; have a university education; and are approved by the Ministry of Health of Iran. Retired or cognitively impaired participants were excluded.

The Measuring Instruments

DRMT-C19 for Health Care Rescuers

The DRMT-C19 contains 19 items among 4 subscales: self-efficacy, social support, positive growth, and altruism. Each item is scored on a Likert Scale of 1 to 4 (where strongly disagree = 1, disagree = 2, agree = 3, and totally agree = 4). The DRMT-C19 demonstrated adequate internal consistency (Cronbach's alpha = 0.84) and stability over the 2-week study period with an inter-class correlation coefficient = 0.85. The cut-off discriminative point of the DRMT-C19 was a score of 61 that differentiated between high and low levels of disaster resilience. Higher total scores on the DRMT-C19 indicate greater resilience in the health care worker.

Concurrent Validity

The CD-RISC was used to assess concurrent validity of the DRMT-C19. The psychometric properties of the CD-RISC have been evaluated across 6 different groups including, primary care patients, psychiatric outpatients, patients with generalized anxiety disorder, and 2 groups of patients with post-traumatic stress disorder. The developers of the CD-RISC report that this questionnaire can identify resilient people from non-resilient people in both clinical and non-clinical groups and that it can be used in research as well as clinical situations (Mohammadi, 2002). The CD-RISC has 25 items and uses a Likert scale where 0 means "completely false" and 5 means "always true."

Data Collection Procedure

The current researchers reached a use agreement with the corresponding author of the study who first described the development of the DRMT-C19 (Mao, et al. 2021) to translate the questionnaire into Persian. Standard translation processes from English to Persian were followed. This involved independent translation into Persian by 2 writers who are proficient in English (i.e., forward translation). A third translator then reviewed their translations. The questions were then translated back into English (i.e., backward translation) and again evaluated by 2 English-fluent translators. The English and Persian version of the DRMT-C19 was thought to be comparable. A final comparison of the translations, along with handling the discrepancies, yielded a final Persian version of the DRMT-C19 for health care rescuers to be psychometrically evaluated.

The face validity and content validity were approved by 10 professors (4 faculty members of the School of Nursing and 6 faculty members of the School of Health). Ten health care rescuers also evaluated face validity of the translated questionnaire. Most of the rescuers and experts were uncertain about 7 items, thus researchers added some examples to help clarify (see Appendix 1). All questionnaires were completed online.

Data Analysis

Means (with SDs) were used to represent continuous variables, while percentages were used to summarize categorical variables. Cronbach's alpha, ICC, and Pearson product-moment correlation

coefficients (r) were used to evaluate the questionnaires' internal consistency, test-retest (temporal) reliability, and convergent and concurrent validity. SPSS 22 and Jamovi 2.3.28 were the statistical program used for the analysis.

Results

The results describe the demographic characteristics of the participants, the item analysis, and the validity and reliability of the Persian version of the DRMT-C19.

Characteristics of the Participants

In this study, 483 health care rescuers participated and completed the questionnaires. The mean age was 32.99 (SD = 7.46) years. Table 1 shows the demographic and baseline characteristics of the participants.

Table 1. Characteristics of the participants

Variables		N (%) (used in factor analysis)*	N (%) (used in confirmatory analysis)**
Age (year)	20–30	117 (46.1)	71(30.8)
	31–40	96 (37.8)	112(48.8)
	41–50	34 (13.4)	46 (20)
	51≤	6 (2.4)	1(0.4)
Sex	Female	87 (34.4)	79(34.4)
	Male	167 (65.6)	151(65.6)
Marriage status	Divorced	3 (1.2)	1 (0.4)
	Married	134 (53)	149(69.8)
	Single	116 (45.8)	80 (34.8)
Number of child	Without child	148 (58.5)	108(46.9)
	1 Child	50 (19.8)	57(24.8)
	2 or More children	55 (21.7)	65(28.3)
Educational status	Technician	51(20.2)	23(10)
	Bachelor	156(56.7)	138(60)
	Master of science	49(19.4)	43(18.7)
	Doctor or higher	7(2.8)	26(11.3)
Job experience (months)	60≥	109(43.1)	99 (43.1)
	120–61	68(26.9)	70(26.9)
	180–121	40(15.8)	35(15.8)
	240–181	22(8.7)	17(8.7)
	300–241	11(4.3)	7(4.3)
	360–301	3(1.2)	2(1.2)
Job status	Nurse	95(37.5)	145(63)
	Medical emergency	41(16.2)	43(18.7)
	Practitioner	1(0.4)	4(1.7)
	Other	116(47.8)	38(16.6)
Department	Emergency	57(22.5)	66(28.8)
	Intensive care unit	43(17.0)	56(24.3)
	Other	153(60.5)	108(46.9)
Trained for disasters	Yes	224(88.5)	194(84.3)
	No	29(11.5)	36(15.7)

(Continued)

Table 1. (Continued)

Variables		N (%) (used in factor analysis)*	N (%) (used in confirmatory analysis)**
Shift work	Circulating	170 (67.2)	145(63)
	Night	9 (3.6)	9(4)
	Morning	34 (13.4)	61(26.5)
	Evening	2(0.8)	1(0.4)
	Morning and evening	38(15.0)	14(6.1)
Disaster type	Car accidents	89 (35.2)	31 (13.5)
	Earthquake	36(14.2)	19(8.2)
	Flood	9 (3.6)	8 (3.5)
	Infectious disease epidemic	42(16.6)	54(23.5)
	Other cases	77(30.4)	118(51.3)
Time to enter the Affected areas	Within 3 days	180(71.1)	175(76.1)
	Between 3 and 7 days	38(15.0)	27(11.7)
	8 to 14 days	14 (5.5)	7 (3.1)
	After 14 days	21 (8.3)	21 (9.1)
Facing human remains	Never	46(18.2)	37(16.1)
	Most of the time	49(19.4)	55(23.9)
	Rarely	43(17.0)	54(23.5)
	Sometimes	59(23.3)	75(32.6)
	Always	56(22.1)	9(3.9)
Commander of the rescue team	Never	46(18.2)	60(26.1)
	Most of the time	31(12.3)	41(17.8)
	Rarely	88(34.8)	18(7.8)
	Sometimes	74(29.2)	104(45.2)
	Always	14(5.5)	7(3.1)
Receive post-deployment counseling	Never	34 (13.4)	46 (20)
	Most of the time	40 (15.8)	34 (14.8)
	Rarely	82 (32.4)	21 (9.1)
	Sometimes	70(27.7)	121(52.6)
	Always	27(10.7)	8(3.5)

*253 people

**230 people

Validity

Content validity

The content validity using the Scale's Content Validity Ratio (S-CVR) = 0.92 and the Scale's Content Validity Index (S-CVI) = 0.93. The comprehensiveness of the tool = 0.875.

Construct validity

The Kaiser-Meyer-Olkin (KMO) sampling index = 0.89 which indicates that the data were suitable for factor analysis. Also, Bartlett's sphericity test was significant ($P \leq 0.0001$) and indicated there was sufficient correlation between the variables to perform factor analysis.

A scree plot of the eigenvalues of factors was used to determine the number of factors to retain in an exploratory factor analysis and to identify the principal components to keep in a principal component analysis (Figure 2).

A factor extraction method was used to form uncorrelated linear combinations of the observed variables. The first component has maximum variance are in Table 2. Exploratory factor analysis

determined 4 factors which accounted for more than 58.54% of the variance among the items. The varimax method was utilized for rotation, with a maximum iteration for convergence of 25 times. A correlation matrix analysis based on an Eigenvalue larger than 1 was used for extraction. On the other hand, using confirmatory factor analysis method, the compatibility of the desired model to evaluate the factors affecting the resilience of health care rescuers, which was formulated in the questionnaire, was done with the relevant data and the fit of the model was checked. Because the strength of the relationship between the factor (hidden variable) and the observable variable (questionnaire questions) is shown by the factor load, this value should be between -1 and 1 and the value higher than 0.4 or lower than -0.4 was acceptable (Figure 3).

In addition, the modified model of first-order confirmatory factor analysis according to standardized coefficients is available in the attached file (Appendix 2). The fit test of the second-order confirmatory factor analysis model using different fit indices showed that before correcting, the model included a P value less than 0.05 (for chi-square), comparative fit index (CFI) = 0.80 (which should be more than 0.9), and root mean square error of approximation (RMSEA) = 0.11 (should be less than 0.1). After correcting the model, it included a P value more than 0.05 (for chi-square), CFI = 0.91 (more than 0.9), and RMSEA = 0.09 (less than 0.1).

Furthermore, item discriminant validity and item convergent validity were tested for the level of divergence between an individual item and other scales, excluding its own scale (see Table 3).

Criterion-Related Validity

Criterion-related validity was determined using Pearson product-moment correlation coefficient. There was a strong, positive relationship between the 2 measures (i.e., DRMT-C19 and CD-RISC), $r = 0.604$ ($P \leq 0.0001$).

Reliability

Internal consistency was evaluated using Cronbach's alpha. For the overall DMRT-C19, Cronbach's $\alpha = 0.89$, with 4 factors ranging from 0.70 to 0.84, indicating satisfactory internal consistency for the resilience measure. Test re-test reliability was assessed using the interclass correlation coefficient (ICC) and 48 health care emergency rescuers. The ICCs were all higher than 0.7 (ranging from 0.68-0.92), suggesting that DRMT-C19 had adequate stability. The final questionnaires (Persian version and backward translation) are in Appendix 3 and 4.

Discussion

The present study aimed to investigate the psychometric characteristics of a Persian version of the DMRT-C19 to assess the resilience of health care workers responding to disasters in Iran. This resilience tool has 4 subscales: altruism, social support, self-efficacy, and positive growth. For the face and content validity, the rescuers and experts found that some items need examples to be understood and they added them to 7 items. Some research cited that to understand the words and terms in the target language, the items or questions can be modified, if the original meaning does not change.^{19,20}

This scale analyzed a technical focus which is knowledge application and tool use. It was a special and valuable scale for evaluating disaster resilience in health care rescuers. To validate the

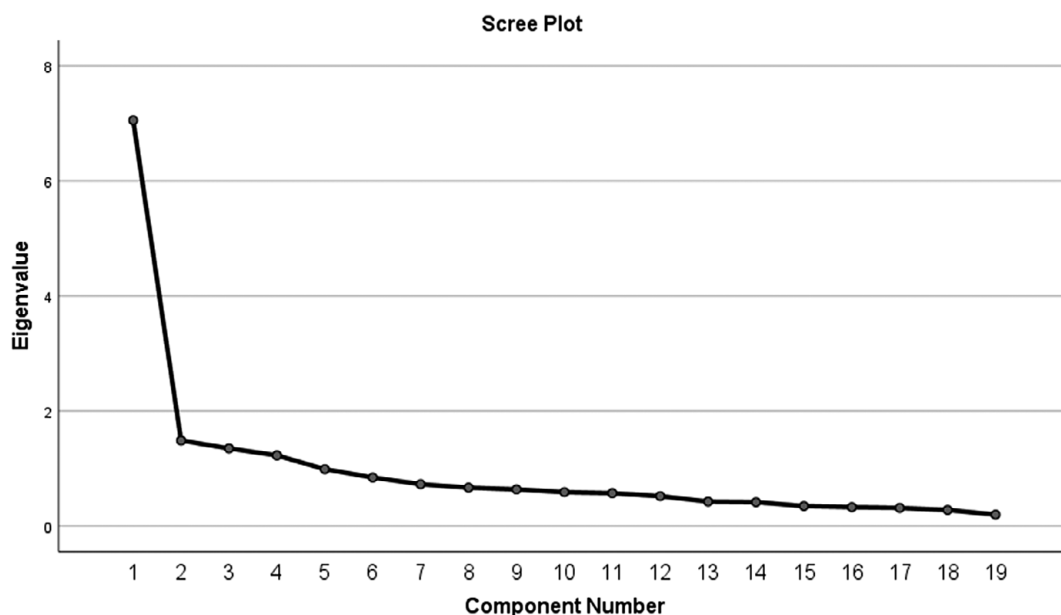


Figure 2. Screen plot of the principal axis factor analysis of the DRMT-C19.

Table 2. Factor extraction method to form uncorrelated linear combinations of the observed variables

Factors	Items	Rotated Sums of Squared Loadings		Rotation component matrix			
		Variance %	Cumulative	Factor1	Factor 2	Factor3	Factor 4
Altruism	s1	6.476	58.548			0.846	
	s2					0.835	
	s3					0.569	
Social support	s6	7.832	44.958		0.466		
	s7				0.584		
	s8				0.682		
	s9				0.844		
Self-efficacy	s4	37.126	37.126	0.654			
	s5			0.739			
	s10			0.471			
	s11			0.725			
	s12			0.831			
	s13			0.715			
	s14			0.615			
Positive growth	s15	7.114	52.071				0.702
	s16						0.489
	s17						0.736
	s18						0.423
	s19						0.508

Extraction Method: Principal Component Analysis

4 constructs, exploratory factor analysis was performed. From the factor analysis, 4 main and significant factors were extracted. The percentage of variance explained for altruism was 6.48%, social support was 7.83%, self-efficacy was 37.13%, and the positive growth factor was 7.11%. Exploratory factor analysis confirmed

that 4 factors adequately explained 58.54% of the total variance. No factor was deleted because all the factors' loadings were higher than 0.40 with an eigenvalue higher than 1. The results of factor analysis in this study were consistent with those from a recent study by Mao et al. They found that the first factor (self-efficacy)

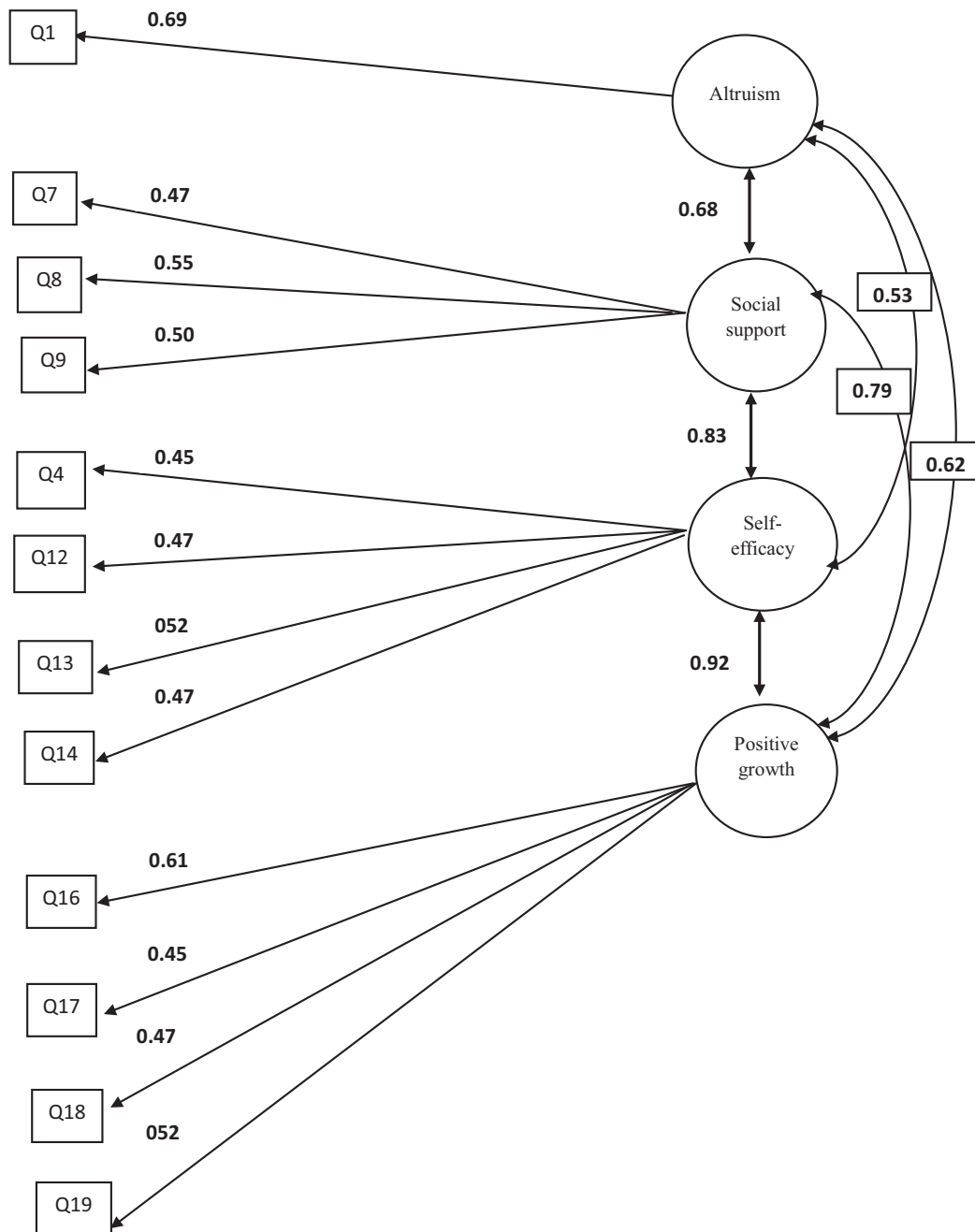


Figure 3. Modified model of second-order confirmatory factor analysis according to standardized coefficients.

explained 20.89% of the variance with 7 items. Then, social support explained 15.93% of the variance with 4 items. Next, positive growth explained 15.72% of the variance with 5 items, and finally, altruism explained 13.39% of the variance with 5 items. All of them had an eigenvalue higher than 1. In total, the 4 factors explained 65.93% of the cumulative variance.¹⁸

In addition, confirmatory factor analysis was performed for construct validity. It determined 12 factors which showed a highly satisfactory goodness fit for the 4-factor model. This result was similar to study of Mao *et al.*¹⁸

In the current study, the validity indicators of the resilience scale show alignment of this study with previous ones.¹⁸ The newly translated tool has demonstrated good theoretical and

experimental validity and the results are aligned with the psychometric characteristics of most of the research reported in this field.^{21–23}

The CD-RISC-25 was used to test the criterion-related validity of the DRMT-C19 on measuring psychological resilience. There was a significant and moderate correlation between the 2 instruments, indicating a good criterion-related validity of the DRMT-C19. The CD-RISC-25 was also used as a criterion in Mao *et al.*'s study and the results were similar.^{18, 24}

The Alpha coefficients were adequate and expressed the good internal consistency of the entire tool and its 4 subscales. The results were similar to Mao *et al.*'s study. They showed that the Cronbach's alpha for the whole tool (DRMT-C) was 0.92 and

Table 3. Item discriminant validity and item convergent validity with each question

Factors	Items	Correlation with related factor	Factor 1	Factor 2	Factor 3	Factor 4
Altruism	s1	1.000	0.392	0.378	0.787	0.353
	s2	0.747	0.459	0.373	0.784	0.419
	s3	0.444	0.314	0.309	0.864	0.358
Social support	s6	1.000	0.597	0.726	0.410	0.455
	s7	0.630	0.573	0.777	0.471	0.491
	s8	0.451	0.451	0.797	0.268	0.420
	s9	0.301	0.341	0.757	0.183	0.259
Self-efficacy	s4	1.000	0.733	0.468	0.365	0.389
	s5	0.503	0.725	0.426	0.354	0.446
	s10	0.341	0.587	0.408	0.338	0.481
	s11	0.493	0.773	0.445	0.327	0.469
	s12	0.484	0.796	0.428	0.318	0.414
	s13	0.520	0.789	0.407	0.321	0.498
	s14	0.427	0.685	0.436	0.188	0.457
Positive growth	s15	1.000	0.113	0.098	0.148	0.514
	s16	0.227	0.610	0.487	0.401	0.736
	s17	0.289	0.392	0.254	0.225	0.695
	s18	0.116	0.540	0.415	0.380	0.751
	s19	0.083	0.517	0.489	0.376	0.672

Colored columns indicate item convergent validity and uncolored columns represent item discriminant validity for each factor.

4 factors ranging from 0.84-0.87, suggesting that DRMT-C has good internal consistency in the population of health care rescue workers in China.¹⁸

The ICCs in the 48 Iranian health care emergency rescuers were all higher than 0.7, suggesting that the Persian version of the DRMT-C19 had adequate stability. This result was similar to Mao et al.'s study. They did the test-retest among the 27 health care rescuers. The ICC of the scale was higher than 0.85 (ranging from 0.85-0.95), indicating that the DRMT-C19 has adequate stability.¹⁷⁻¹⁸

Aid workers with high resilience can show less vulnerability when faced with stressful events. In fact, there are numerous reviews that report that those with resilience seem to better deal with life's problems and are less affected by daily events. These resilient people try harder when facing difficulties and even when managing successes.^{24, 25} Therefore, examining the psychometric properties of a comprehensive scale to assess the resilience of health care first responders across different dimensions can open the way to provide better services to this group of health care rescuers and to potentially improve services provided to disaster victims.

The findings of this study can be more widely applied to investigate the resilience of other health care workers dealing with disasters. Recognizing the 4 characteristics of resilience allows a more comprehensive view of the resilience construct and can be a framework for studying resilience as a multidimensional construct that is likely related to other variables of interest. In addition, integrating these 4 factors into the general knowledge of relief organizations can help managers more clearly conceptualize how to support health care providers faced with disaster care, as well as stressful work demands. It is suggested that other rescue groups in

different organizations be investigated in future research to add to the overall knowledge base.

Limitations

This study had 2 potential limitations. Firstly, the only available questionnaires were online, so only those who had access to a smartphone or computer could participate in the research.

Secondly, the researchers acknowledge the potential impact of age as a confounding factor in this study. Due to the small sample sizes within different age groups, stratified sampling was not done specific to age groups in this study.

Conclusion

The validity and internal consistency of the Persian-translated DRMT-C19 show that this questionnaire, comprised of 4 factors, has satisfactory psychometric properties. It is a valid, reliable, and useful tool for assessing resilience in dealing with disasters in Iran's health care first responders. The translated scale fits within the Iranian culture and is appropriately aligned with social characteristics and values. The tool had acceptable validity and reliability for Iranian health care rescuers and it can be used to inform psychiatrists, counselors, emergency managers, and supervisors about health care providers' level of resilience, examine their coping abilities, and identify areas in which extra support might be needed.

Data availability statement. The data that support the findings of this study are available from corresponding author, Mohammad Imanipour, upon reasonable request.

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Ethical standard. This research was approved by the ethics committee of Aja University of Medical Sciences with the code (IR.AJAUMS.REC.1401.158). Full informed consent (both verbal and written) to participate and to publish was obtained from all participants.

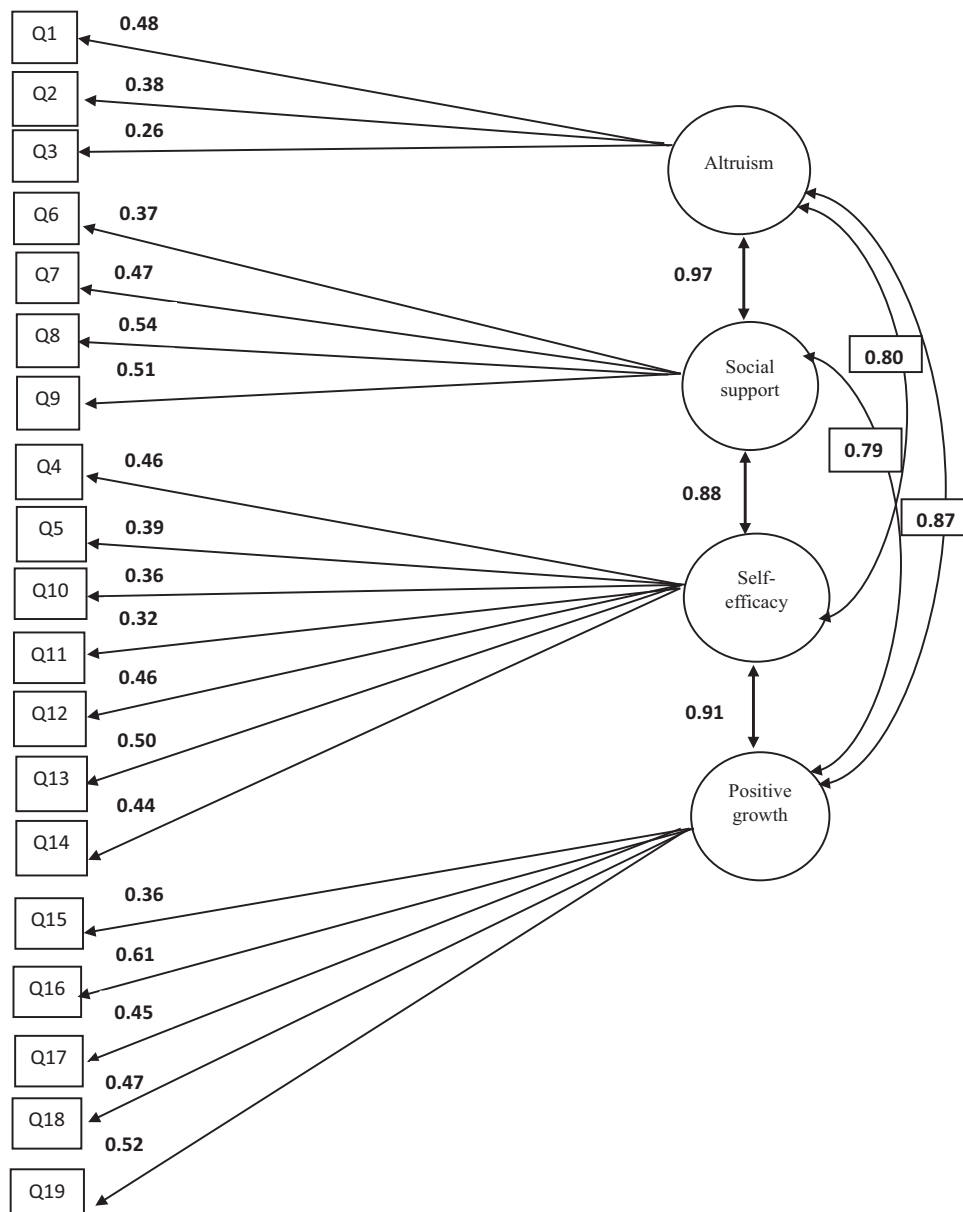
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Appendix 1 Modified items in Persian version of the DRMT-C19

Number	Modified sentence	Original sentence
4	I have adequate knowledge and skills in disaster risk assessment and disaster relief skills, like medical aid skills, knowledge of psychological first aid (PFA), ethical rules, and survival skills (e.g., surviving in difficult conditions) in the field.	I have sufficient knowledge and skills for disaster risk assessment and disaster rescue skills such as medical rescue skills, Psychological First Aid (PFA), ethical rules, and field survival skills.
5	I am emotionally prepared for disaster relief efforts (e.g., I don't cry or get angry easily)	I prepared emotionally well for disaster rescue.
7	My colleagues help me deal with the challenges at the disaster site.	Co-workers (will) help me overcome the challenges in the disaster site.
10	The way things progress during and after deployment depends on my own actions.	How things (will) go during and after deployment depends on my own actions.
18	My deployment makes sense to me (e.g., helping one's fellow man, motivation and interest in saving another person)	I find meaning from my deployment.
19	I have a more harmonious family life after returning from disaster deployment.	After returning from disaster deployment, I have a more harmonious family life.

Appendix 2 Modified model of first-order confirmatory factor analysis according to standardized coefficients



Appendix 3 Persian version of the DRMT-C19

کاملاً مخالف	مخالف	موافق	کاملاً موافق	گویه‌ها
				1- تمایل دارم پس از وقوع یک بلا/حادثه به قربانیان/بازماندگان کمک کنم.
				2- مقتدرم در خط مقدم به کسانی که تحت تأثیر بلا یا قرار گرفته اند، کمک کنم.
				3- احساس می‌کنم کمک کردن به بازماندگان پس از بلایا یک مسئولیت شخصی است.
				4- دانش و مهارت کافی در زمینه های ارزیابی خطر بلایا و مهارت های امداد رسانی بلایا همچون مهارت های امداد پزشکی، دانش کمک های اولیه و روانشناختی. قوانین اخلاقی و مهارت های بقا (مانند: زنده ماندن در شرایط سخت) در میدان را دارم (PFA).
				5- (من از نظر احساسی برای امداد رسانی در بلایا آماده هستم. (مثلا زود به گریه نمی افتم یا خشمگین نمی شوم.
				6- خانواده ام در حین و پس از امداد رسانی در بلایا از من قویا حمایت می کنند.
				7- همکارانم در زمان غلبه بر چالش های (دشواری های) محل حادثه به من کمک خواهند کرد.
				8- دوستان صمیمی دارم که ، دلگرمی بسیاری به من خواهند داد.
				9- در زمان کار در محل بلا، واحد کاری من، در صورت لزوم از من و خانواده ام حمایت می کند.
				10- چگونگی پیشبرد کارها در حین و پس از استقرار در محل حادثه، به توانایی عملکردی خودم بستگی دارد.
				11- توانایی مدیریت وضعیت در محل بلایا را دارم.
				12- می توانم در طول امداد رسانی بلایا آرامش و خونسردی خود را حفظ کنم.
				13- من می توانم به خوبی با مشکلات غیرمنتظره در حین امداد رسانی در بلایا سازگار شوم.
کاملاً مخالف	مخالف	موافق	کاملاً موافق	گویه ها
				14- امدادگر شایسته ای هستم.
				15- در صورت ناراحتی، تمایل دارم احساسات خود را به دیگران ابراز کنم.
				16- امداد رسانی فهم عمیقی در مورد زندگی به من داده است.
				17- من تمایل دارم بعد از اعزام به محل حادثه، امداد رسانی را به عنوان یک چالش مثبت ببینم.
				18- (من از اعزام خود معنا می یابم. (به عنوان مثال کمک به هموع، انگیزه و علاقه به نجات فردی.
				19- پس از بازگشت از ماموریت بلایا، زندگی خانوادگی سازگاری تری دارم.

Appendix 4 Backward translation of the Persian version of the DRMT-C19

Phrases	1 Strongly disagree	2 Disagree	3 Agree	4 Strongly agree
1- After a disaster, I want to help victims/survivors.	1	2	3	4
2- I am proud to be on the front lines to help those affected by disasters.	1	2	3	4
3- I consider it as a personal responsibility to help others after disasters.	1	2	3	4
4- I have adequate knowledge and skills in disaster risk assessment and disaster relief skills, like medical aid skills, knowledge of psychological first aid (PFA), ethical rules, and survival skills (e.g., surviving in difficult conditions) in the field.	1	2	3	4
5- I am emotionally prepared for disaster relief efforts (e.g., I don't cry or get angry easily)	1	2	3	4
6- My family strongly supports me during and after disaster relief efforts.	1	2	3	4
7- My colleagues help me deal with the challenges at the disaster site.	1	2	3	4
8- I have close friends who provide me encouragement.	1	2	3	4
9- When working in the disaster site, my work unit would support my family and me if necessary.	1	2	3	4
10- The way things progress during and after deployment depends on my own actions.	1	2	3	4
11- I can manage the situation at the disaster site.	1	2	3	4
12- I can keep calm during disaster relief efforts.	1	2	3	4
13- I can adapt well to unexpected problems during disaster relief efforts.	1	2	3	4
14- I am a qualified rescuer.	1	2	3	4
15- I feel comfortable showing my emotions to others when I am upset.	1	2	3	4

(Continued)

(Continued)

Phrases	1 Strongly disagree	2 Disagree	3 Agree	4 Strongly agree
16-Relief work has provided me with new perspectives on life.	1	2	3	4
17-After deployment, I like to see relief work as a positive challenge.	1	2	3	4
18-My deployment makes sense to me (e.g., helping one's fellow man, motivation and interest in saving another person)	1	2	3	4
19-I have a more harmonious family life after returning from disaster deployment.	1	2	3	4