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Psychometric Properties of the Persian Version of the Crisis Information Seeking and Sharing in Health Crisis Scale

Hadi Sepahvand [1], Shahin Raoufi[2]*, Mandana Sakin[2], Rasool Mohammadi[3]

[1] Student Research Committee, School of Nursing and Midwifery, Lorestan University of Medical Sciences, Khorramabad, Iran
[2] Social Determinants of Health Research Center, School of Nursing and Midwifery, Lorestan University of Medical Sciences, Khorramabad, Iran
[3] Nutritional Health Research Center, School of Health and Nutrition, Lorestan University of Medical Sciences, Khorramabad, Iran

ABSTRACT

The COVID-19 pandemic has underscored the necessity for reliable and accurate information to address the disease effectively. Consequently, there has been an increased effort among individuals to seek and disseminate information related to the prevention and treatment of COVID-19. This study aimed to evaluate the psychometric properties of the Persian version of the Crisis Information Seeking and Sharing Scale (CISS) during health crises. The study's statistical population comprised residents over the age of 18 in Khorramabad, Lorestan Province, Iran. A sample of 165 individuals was selected using the convenient sampling method. The Persian version of the CISS was administered following translation. The validity of the scale was assessed through face, content, and construct validity measures. Reliability was determined using test-retest and Cronbach's alpha methods. The content validity of the CISS was confirmed, and exploratory factor analysis indicated that the Persian version of the scale comprises nine factors. The internal consistency (Cronbach's alpha) and test-retest reliability coefficients were 0.889 and 0.646, respectively. The Persian version of the CISS demonstrates appropriate validity and reliability for application in health research within an Iranian context.

Keywords: Information seeking; Information sharing; Crisis; Health crisis

Introduction

Crises such as floods, earthquakes, terrorist attacks, and other natural disasters inherently disrupt the normal flow of human life [1], leading to various health, economic, and social challenges for individuals and governments [2]. In response, the World Health Organization's 2009 motto, "Health in Disasters and Disasters," emphasized preparation, management, coordination, education, and other measures, with all member nations committing to these principles [1].

The ability of individuals to access information from their communities or external sources is often compromised immediately following such incidents. Isolation can rapidly ensue if communication is hindered for physical or virtual reasons. Therefore, during crises, the rapid acquisition and dissemination of information are crucial for those affected by disasters, as it mitigates stress, suffering, and mortality, as well as the long-term impacts on individuals and the environment. It also facilitates relief operations by reducing anxiety and unnecessary care among affected populations [3, 4]. According to Spence et al., the desire to acquire more information is a common response to distressing situations, particularly during crises [5]. Zhuang and Yang assert that information seeking and sharing are fundamental communication activities that individuals engage in daily [6].

Information search behavior encompasses all human activities related to information sources and channels [7]. Information sharing involves

* *Corresponding* author *Shahin Raoufi*. Social Determinants of Health Research Center, School of Nursing and Midwifery, Lorestan University of Medical Sciences, Khorramabad, Iran. e-mail: r822003@yahoo.com
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the exchange of information among community members, rather than a one-sided provision of data [8]. With technological advancements and the emergence of social media, these platforms have become the most significant, active, rapid, and popular means of communication [9]. Social networks are web-based applications that enable users to create and share communication-related content, with the primary advantage being easy access to information.

During the COVID-19 quarantine in China, social networks served as a platform for discussing the rationale behind the quarantine, disseminating scientific advice to the public, and managing rumors. From the onset of the outbreak, social media actively informed the public about the disease [10]. Trust in social media resources has become increasingly critical in the media sector, as data indicates that fake news and misinformation are frequently disseminated on these platforms [6]. Unreliable communication and sources pose risks during critical events, as there is insufficient time to verify information during a crisis, and the veracity of messages—whether factual, rumored, or malevolent—remains uncertain [11]. Few studies have simultaneously analyzed search behavior and information sharing in online social networks within the context of crises [8]. Moreover, limited research has explored individuals' information behavior and sharing practices across all sources and formats, both before and after disasters. Previous studies have primarily focused on examining and sharing crisis information within the context of local social media [3, 12].

The investigation of this issue is fragmented, and there is a lack of understanding regarding the sources and types of information individuals receive when confronted with calamity. Additionally, the information generated from this field's information search lacks a theoretical framework, which may hinder organizations' ability to engage with the community and individuals [3].

In an effort to develop a scale for measuring communication behavior during public health crises, Lee and Jin examined a 12-point scale of crisis information sharing (CISS) in public health crises, and a 21-point scale of CISS was validated using online survey data. The study's findings, based on samples of 279 and 280 individuals in the United States, demonstrated high reliability and validity. Cronbach's alpha coefficient for the entire scale ranged from 0.84 to 0.93, indicating strong internal consistency. The CISS scale assesses information search and sharing in two dimensions: searching for information through social media and interpersonal channels, encompassing seven types of critical information search behavior, and three dimensions of information sharing through non-Facebook platforms, interpersonal channels, and Facebook, with 17 types of crisis information sharing behavior. Databases, channels, and sources of information were also collected [13]. The study group examined the CISS scale for cultural adaptation, localization, and presentation to authorities and the public to manage the crisis by utilizing social media before, during, and after the crisis. The CISS scale may assist organizations in identifying various routes and media platforms for gathering and disseminating information regarding health emergencies and their responses. It may also aid health organizations in determining the extent and measurement of individuals' crisis information sharing and communication [12].

In light of the current situation in Iran, the methodologies for searching, obtaining, and exchanging information during health crises remain undetermined, and no specific questionnaire has been developed for this purpose. This study aimed to evaluate the psychometric properties of the scale, including face and content validity, exploratory factor analysis, internal consistency, and test-retest reliability.

Materials and Methods

The research employed a descriptive survey approach for applied purposes. The statistical population comprised all residents of

Khorramabad, with a sample of 165 individuals selected through a cluster sampling method.

Eligibility criteria included a minimum age of 18 years, literacy, ownership and proficiency in using a smartphone, access to mass communication devices, membership in either internal or external social communication networks, and no history of mental or anxiety disorders.

The Crisis Information Seeking and Sharing Scale (CISS), developed by American scholars Ian Lee and John Jane in 2019, was utilized in this study. The scale comprises two sections: the first with 12 questions on information acquisition and the second with 21 questions on information dissemination during a health crisis. Responses were measured on a seven-point scale ranging from strongly agree to strongly disagree, including a neutral option.

The principles of Wild et al. were used to translate the CISS [14]. The scale was translated into Persian and validated by experts in Persian language and literature, crisis and media services, and faculty members from the Lorestan School of Nursing and other academic institutions. Two English language specialists conducted a back-translation to ensure accuracy, and discrepancies were addressed. The instrument was piloted with 15 individuals to gather cognitive data, and any identified issues were corrected.

Face validity was assessed through interviews with ten participants from the research units, evaluating the difficulty, appropriateness, and clarity of each item. Content validity was evaluated by ten nursing professors from the Faculty of Medical Sciences and other faculties, with CVR and CVI indices calculated for final implementation [15]. The sample size for exploratory factor analysis (EFA) was determined based on the recommendation of at least five participants per scale item to be explored and factor structure to be investigated. [16].

Reliability involved examining internal consistency and test-retest, followed by validation of the exploratory factor analysis.

Data analysis was assessed using SPSS23 software, employing descriptive statistics, exploratory factor analysis, and Pearson correlation coefficient.

The present study obtained ethical code IR.LUMS.REC.1399.284 from the Ethics Committee of Lorestan University of Medical Sciences.

Results

The mean age was 31.29 years, with a standard deviation of 7.9.

The values of CVI and CVR of all items were more than 0.79 and 0.62, respectively, based on the results of the content validity analyses. Construct validity was investigated using exploratory factor analysis and the varimax rotation main component approach. Figure 1 provides an overview of the results of the factor analysis. According to the findings, all nine variables with Eagen values greater than one may account for 80.21 percent of the variance in the 32 items connected to the search scale and information sharing in health crises.

The nine-factor structure of the scale is regarded as acceptable because the variance is greater than 0.50. In explaining the variation of the 32 items, the first factor had the highest share (22.07 percent with a value of 7.06) and the ninth factor had the lowest share (3.324 percent with a value of 1.06).

Table 1 also shows the content of the items, as well as their factor load and the particular value of each dimension. It is worth noting that factors with fewer than three items were combined based on semantic load.

The scale's Cronbach's alpha coefficient was 0.889, and the test-retest reliability coefficient was 0.646, both significant at the 0.01 level

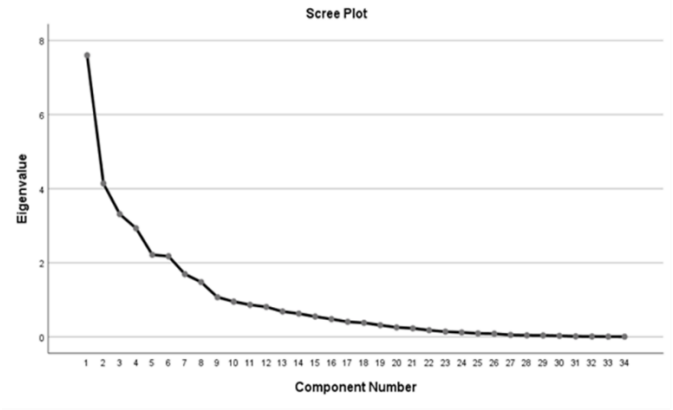

Figure1: Results of Exploratory Factor Analysis

Table 1: Content of items and their factor load in each factor

Factor	load	Items	o
١	0.878	I comment on the Red Crescent/Ministry of Health's Instagram post about the health crisis.	E18
	0.866	I share Red Crescent/Ministry of Health's Instagram posts about the health crisis on my profile.	E17
	0.832	I'm writing about the health crisis on Twitter.	E10
	0.805	I like the Instagram posts of the Red Crescent/ Ministry of Health about the health crisis.	E16
	0.687	I will republish the Red Crescent Tweet/ Ministry of Health.	E9
	0.640	I'm uploading pictures on Instagram about the health crisis.	E14
	0.450	I write the posts about the health crisis on the blog (your personal page or via WhatsApp Telegram, Soroush, Baleh, Ita, etc..	E11
٢	0.842	I like the Red Crescent's Facebook post on the health crisis.	E5
	0.825	I will comment on the Red Crescent Facebook page on the health crisis.	E7
	0.819	I share the Red Crescent Facebook post on the health crisis on my Facebook page.	E6
	0.696	I talk about the health crisis by e-mail (email) with people I know (e.g. family, friends and colleagues, etc.).	E2
٣	0.812	I make phone calls to people I know to talk about the health crisis.	E3
	0.809	I talk to people I know about the health crisis through face-to-face conversations or video calls.	E1
	0.794	I take message people I know about the health crisis.	E4
	0.575	I'm looking for more information by speaking in person or by phone with people I know.	J9
	0.575	I get the information I need through my local health center.	J12
	0.473	I look for more information by texting people I know.	J11
٤	0.928	I pin the posts that are about the health crisis.	E20
	0.910	I like Pinterest posts about the health crisis	E19
	0.708	I'll comment on Pinterest's post that's about the health crisis.	E21
٥	0.884	I'm looking to learn more from Twitter.	J4
	0.875	I am looking for more information from updated Facebook pages.	J3
	0.846	I am looking for more information, from traditional and conventional media such as newspapers, TV news, radio, newspapers, etc.	J1
	0.594	I look for more information by e-mail with people I know.	J10
٦	0.825	I comment on the health crisis on other people's blogs.	E12
	0.772	I comment on the comments section of other people's online videos about the health crisis.	E13
	0.694	I send health crisis information to my friends' profiles or Facebook groups.	E8
٧	0.724	I am looking for more information from sites containing online videos (Aparat videos, YouTube and	J2
	0.711	I am looking for more information from Snapchat or WhatsApp, Telegram, Online News, Soroush, Chat and...	J8
	0.636	I'm looking to learn more from Instagram.	J6
	0.544	I am looking to learn more from other people's blog (personal page).	J5
	0.434	I am looking for more information from Pinterest.	J7

Discussion

The results demonstrated that this scale possesses adequate validity and reliability. The factor analysis revealed that the structure of this scale comprises seven factors, with differences from the English version based on a more detailed examination of the items loaded on each factor. However, the researchers chose not to elaborate on these differences and opted to maintain the scale's structure. While current tool recommendations emphasize the use of a scale in a culture different from the one in which it was developed, critical issues such as the cultural relevance of each item in the translated version and the conceptual model being assessed are sometimes overlooked. This requirement is undeniable. Consequently, one explanation for the disparities between the primary and secondary groups may be that the phrases used in the two cultures have distinct meanings. Therefore, although the 7-factor structure developed in this study shared many similarities with the original version of the Yin Li and Yan Jin Crisis Search and Sharing Scale (CISS), the changes were not disregarded. The Cronbach's alpha value was 0.889, indicating that the items were internally consistent and the scale was highly reliable. The Cronbach's alpha coefficient ranged from 0.84 to 0.93 in the original edition. As observed, the Persian version's Cronbach's alpha coefficient range is close to that of the original version. The difference in Cronbach's alpha coefficient between the Persian and English versions may be attributed to the influence of the scale's number of items on Cronbach's alpha, and the Persian version's fewer items in each subscale compared to the English version. The test-retest reliability coefficient was employed in this study to further analyze the scale's reliability, which was not addressed in the original version. For crisis communication scholars and practitioners, the CISS provides a credible and reliable method for monitoring the search for information exchange in relation to public health emergencies. The CISS scale can be used to identify distinct channels and operating systems in the media, as well as to gather and share information on health issues and their effects. It may also assist health organizations and allied institutions in determining the extent and scope of public crisis information and communication. One limitation of this study is its confinement to the Khorramabad population, which restricts the generalizability of the findings to other communities. Therefore, it is recommended that this limitation be considered in future studies and tested in larger groups.

Conclusion

The present study showed that age, arterial oxygen saturation, intubation, disease outcome (death, discharge, and transfer to other units), and admission to the ICU were correlated to triage level. The assignment of patients to level 1 triage as the acute group had been correctly implemented, but more care should be taken in assigning patients to level 2 and 3 triages. Patients should be monitored more closely after categorization based on their clinical condition. Also, more studies on the accuracy of ESI triage are suggested. This study can be a basis for further research to create an accurate and efficient triage system in pandemics similar to Covid-19.

Conflict of Interests

Authors declare that they do not have any conflict interests.

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