Proceedings of 2022 Asian Conference on Crisisonomy
(20 ~ 23 July, 2022; Jeju National University; Asian Association for Crisisonomy)

Measuring the Psychological Impact for Disaster-experiencers

- Proposal of a Common Scale that can by used by all Ministries in Korea -

Jeong Ryu[1], Jandi Kim[2], Hyun Young Jang[1 3], Yongrae Cho[4], Jeongyee Bae[5], Jaiho Oh[6], Min Yeong Kwak[7], Yunkyeung Choi[8]

[1]College of Humanity and General Education, Seokyeong University, 124 Seokyeong-ro, Sungbuk-gu, Seoul, Korea
[2]College of Nursing, Seoul National University, 103 Daehak-ro, Jongno-gu, Seoul, Korea
[3]Knowledge Circulation Cooperative Alternative College, Shiheung-daero 150-gil 69, Geumcheon-gu, Seoul, Korea
[4]NDepartment of Psychology, Hallym University, 1 Hallymdaehak-gil, Chuncheon, Gangwon-do, Korea
[5]DCollege of Nursing & Institute for Safe Community, Inje University, 75 Bokji-ro, Busanjun-gu, Busan, Korea
[6]Nano C & W, 815 Daewnagpangyo-ro, Sujeong-gu, Seongnam-si, Gyeonggi-do, Korea
[7]BK21 Education & Research Team for Disaster and Trauma Intervention, Department of Psychology, Keimyung University, 1095 Dalgubeoldaero, Dalseo-gu, Daegu, Korea

A B S T R A C T

The Ministry of the Interior and Safety handles all aspects related to disaster, disaster response disaster recovery, disaster management, and disaster psychological support, while the Ministry of Health and Welfare oversees public health including mental health, especially disaster mental health. When a disaster occurs, the two ministries specializing in disaster psychological support use different psychological measurement scales for disaster-experiencers, so the effort of disaster-experiencers and field workers is doubled. The scales used by each ministry, the scales of the Ministry of the Interior and Safety, have strengths in the sense of confirming posttraumatic stress and identifying the characteristics of posttraumatic stress seen in Koreans, while the scales of the Ministry of Health and Welfare are the measures of mental health that can be seen by disaster-experiences. It has the advantage of being able to measure the whole. This study aims to propose to reduce the effort of disaster-experiencers and field workers, to accumulate common data between ministries, and to measure the psychological shock caused by disasters more effectively.

Key words: the Ministry of the Interior and Safety, the Ministry of Health and Welfare, psychological support, intra-ministerial trauma measurement

1. Introduction

As the Disaster Psychological Support Center under the Ministry of the Interior and Safety, the National Trauma Center, and Mental Health Welfare Center under the Ministry of Health and Welfare are charge of the disaster psychological support service (or disaster mental health service), a smooth division of work and establishment of a cooperative system between the two organizations is required. As an example, as a large-scale wildfire occurred in Yeongdong, Gangwon-do, in April-May 2019, counselors from both organizations provided disaster psychological services at the site for more than one month. In the process, some limitations were exposed in collaboration and role sharing. In particular, there was a problem in that the psychological support service was duplicated at the initial stage of the disaster, the activity manual and psychological scale between related organizations were different, and there was a difference in the criteria for judging the risk group, resulting in confusion in the treatment linkage process for the risk group. In this regard, as the amended Disaster Relief Act came into force in July 2020, the establishment of central and metropolitan disaster psychological support group under Ministry of the Interior and Safety is required. Through the formation and clarification of the roles of the psychological support group, the necessity of establishing a cooperative system between related ministries and between private experts has increased.

2. Scales of two Ministries

2.1. The Need to Compare usage Scales

The Disaster Psychological Support Center of the Ministry of the Interior and Safety (MOIS), and the National Trauma Center of the Ministry of Health and Welfare (MOHAW) have continued to support the psychological recovery of those who have disaster-experiencers. The two ministries have measured the psychological impact of disaster-experiencers and recorded the extent of the impact, but communication was limited by using different measurement tools. MOIS had in mind the psychological shock felt by the disaster-experiencers immediately after the disaster and the possibility of PTSD. Therefore, the PTSD symptoms were divided into acute phase (within 1 month after the disaster) and chronic phase (after 1 month after the disaster) and measured based on the psychological impact of disaster-experiencers, whereas the MOHAW various symptoms such as PTSD, depression, and anxiety, physical symptoms caused by psychological causes such as dizziness and vomiting, and suicide risk were measured.

The scale chosen by the two ministries according to the purpose and period of support for psychological recovery at the disaster site appears to be reasonable in terms of theoretical and field applicability. When a disaster occurs, the two ministries arrive first to the disaster area and come in close contact with the disaster-experiencers, so it is possible to quickly and simply screen the disaster-experiencers' condition and measure the psychological impact. If a unified tool is used, the effectiveness of acute psychological support can be increased. As much as the size of the disaster, the response at the sit must be urgent, complex, and immediate, and anyone who has experienced a disaster in the acute stage is inevitably confused and emotionally awakened or suffering. Therefore, the evaluation conducted at the disaster site should be directly connected to intervention and support, and it may not be realistically possible to implement a complex and lengthy measurement tool for disaster-experiencers. If measurement tools are unified, it is possible to provide systematic and efficient support for victims, such as the severity of psychological impact and smooth communication and connection/request between the MOIS and MOHAW. Above all, it can save you the trouble of having to answer similar questions multiple times as a person who has experienced disasters

2.2. Comparison of two Scales;MOIS and MOHAW

According to the <table 1>, as for the number of items on the scale used by the two Ministries, the scale of MOIS is 30 items and that MOHAW is 40 items, showing no significant difference. Although there are not many questions compared to the scales used in general hospitals and clinics or counseling centers, it may be difficult for disaster-experiencers to be shocked.

Looking at the scale of MOIS, it seems that the main purpose is to check the symptoms of disaster-experiencers are measured by dividing them into acute and chronic phases. The strength of this is that it adds dissociation symptoms and risk factors to the scale so that the factors attributable to the PTSD symptoms can be identified later. The scale of MOHAW has a total 40 items, which seems to have 10 more items than the scale of MOIS; PTSD symptoms, which are the core symptoms of disaster survivors, are conveniently measured with five items, the same scale is used regardless of the acute and chronic phases of the disaster.

Since we are asking about symptoms within the last month, if you want to know the status of the disaster at the time you should keep in mind that the question my not fit the situation. Nevertheless, the strength of the scale used by MOHAW is that it can obtain various information in a short period of time, such as including a scale that takes into account other emotional and physical characteristics in addition to PTSD symptoms, as well as an assessment of the risk of suicide that my occur after a disaster.

<Table 1> Comparison of scales used two ministries for psychological support

	MOIS	MOHAW
Items	30	40
Scales	For Acute phase 10 items: NSESS-ASD + PTD For Chronic phase 20 items: NSESS-PTSD + risk factors	PTSD symptoms 5 items: K-PC-PTSD) Depression 9 items: PHQ-9 Anxiety 7 items: GAD-7 Somato-symptom 15 items: PHQ-15 Suicidal risk 4 items: GAD-4
point	It can be measured by dividing it into acute phase (less than 1 month) and chronic phase (after 1 month) Measurement of symptoms of PTS Difficulty measuring other symptoms; depression, anxiety, etc.	No time division Simple scale It can be measured multiple aspects; PTSD symptoms, it is possible to measure depression, anxiety, suicidal thoughts, and physical symptoms
	This is a scale developed for Korean disaster-experiencers	Using foreign scales

2.3. The Need to MOIS's Scales

To develop a scale and activity record for MOIS and MOHAW to communicate smoothly, opinions on the scale of MOIS. To three activists working at Disaster Psychological Support Center and two people in charge of the Disaster Psychological Support Center at the Korean Red Cross, the overall opinions and needs for the scale were sent via email. The contents of the investigation are summarized in <table 2> below.

<table 2> comments on the MOIS's scale

	Contents
Advantages	It can be a careful diagnosis because it measures the condition of disaster-experiencers.
	The scale for dividing acute and chronic phases was developed through research services and was developed based on the criteria for diagnosing acute stress disorder and PTSD. It's very reliably.
Limitations	Due to the limited content of the scale, it is difficult to measure other than posttraumatic symptoms, such as suicidal thoughts of the bereaved family. There were many disaster-experiencers who complain ed of physical symptoms, but it was difficult to recorded them.
	As this scale is a measuring tool for the purpose of screening for PTSD, it is difficult to see depression or anxiety.
	It is difficult to use the scale for non-Korean speakers living in disaster area.
Needs	For smooth communication and collaboration between MOIS and MOHAW at disaster site, it is necessary to use a unified scale.
	It is necessary to educate the activists of the Disaster Psychological Support Center on the use of scale and counseling attitudes.

3. Suggest a Unified Scale

3.1. Purpose

The purpose of the to unify the scale currently used by MOIS and MOHAW to facilitate communication between the two ministries and to have a developmental impact on the psychological support model for disaster-experiencers. The purpose is to increase the connectivity by unifying the activity scales of each ministry and for this purpose, the following items were focused on.

- Make it easy to understand and use by non-professional activists in the field.
- Use scales with high credibility, accuracy, and reliability.
- The answers should be simple.

3.2. Composition of the Scale

Based on the above results, MOIS and MOHAW propose a unified scale to enable communication at disaster sites. An institution using various scale is MOHAW's, which operates the National Trauma Center. It is suggested that the scale of the National Trauma Center be mainly used. Considering that disaster sites are urgently progressed at any time, 'brief-version' are performed first. In cases where a score above the reference point was obtained, they were called 'observation groups' and a full-version scale was run. In case of screening evaluation at the disaster site, a brief scale is carried out, and when you want to make a more accurate evaluation for disaster-experiencers, or to measure changes in symptoms through continuous counseling or therapeutic intervention for disaster-experiencers.

If the scales selected as brief scales are listed, 5 items of post-traumatic stress symptom scale (PC-PTSD), 3 items of dissociation symptom scale, 2 items of depression, 2 items of anxiety, and just 1 item of suicidal ideation risk scale; a total 13 items were selected as a brief-version and this is proposed as the primary screening scale. It is expected that the efforts of the Disaster Psychological Support Center activists and those who have disaster-experiencers will not be too much to measure the risk of psychological impact at urgent and complex disaster site.

In the second step, full-version should be carried out. If the cutoff point is exceeded, a full-version is performed. For depression scale were performed on two brief-version, so 7 questions were answered. As for anxiety scale, two were performed in brief-version, so they can answer 5 questions. For suicidal ideation risk scale, if the answer is 'yes,' full-version is implemented.

The list of brief-version and full-version are shown in <table 3>.

<table 3> composition of the scale

Brief – version	
13 items	PC-PTSD (5 items)
	Dissociation (3 items)
	Depression (2 items of PHQ-9)
	Anxiety (2 items of GAD-7)
	Suicidal thoughts (1 item of P4)
Full - version	
16 items	Depression (PHQ-9)
	Anxiety (GAD-y)
	Suicidal thoughts (P4)

3.3. Evaluation Criteria of the Scale

Table 4 below summarizes the reference point of each scale. PC-PTSD is no full-version and cut-off point is 3 points. 3 or higher score on PC-PTSD can be used to diagnose risk. The dissociation symptom

scale does not yet have a cut-off point. After validating the validity analysis to verify how well dissociative symptom scale can explain the PTSD symptoms, a cut-off point can be suggested. After about 3 years, we expect to propose a cut-off point for the dissociative symptom scale. Both the depression scale and anxiety scale have a cut-off points.

<table 4> composition of the scale

	Cut-off	Full-version
PC-PTSD	3	No-exist
Dissociation	-	-
Depression	3	PHQ-9
Anxiety	3	GAD-7
Suicidal thoughts	1	P4

After performing each step through the brief-version and full-version, the severe level of each scale can be classified according to the score as shown in <table 5> below. The scales to classify the degree are depression, anxiety, and the suicidal thoughts. Each scale was classified as mild, moderate, severe. This classification is the same as the standard for classifying symptom levels at the National Trauma Center. All scales meet the criteria for linking to specialized institutions in case of high level. After data using this scale has been accumulated for about 3 years, the validity of the scale should be verified, and then the possibility of re-adjusting the cut-off point and the criteria for classifying the risk levels of depression, anxiety, and suicidal thought should be left open.

<table 5> evaluation criteria

	range	Mild	Moderate	severe
Depression	0-27	0-4	5-9	Above 9
Anxiety	0-21	0-4	5-14	Above 15
Suicidal		None of history and suicidal plan	History or suicidal plan	Suicidal potential or no protective factors

4. Conclusions

The two ministries should be able to use the same measurement tool to select the degree of psychological shock of disaster-experiencers using the same criteria, and at least be able to give the same interpretation of the post-traumatic stress symptoms, and analyze the big data built in these fields. It will be possible to evaluate the performance of disaster psychological support and set future directions. Accordingly, after comparing and analyzing the scales and activity records currently used by the two ministries, a reasonable scale that meets the purpose of selecting the acute stage of a disaster was suggested, and manual for activity that was highly useful at disaster sites was developed.

The scale proposed through this study has several advantages as follows. The highest priority is that MOIS and MOHAW used the same scale to measure and observe the psychological impact of disaster-experiencers, making communication convenient and enabling the establishment of a database of disaster-experiencers at the national level. Next, it is divided into two stages, a brief-version and a full-version, and a measurement tool can be selected and used according to the purpose of the examination. At a disaster site, it is very difficult to ask a question to a person who has suffered a disaster and to get an answer. By dividing the steps of using the scale in the field, it was made easy for the activists to communicate with those who experienced disasters. In addition, by dividing the depression scale, the anxiety scale, and the suicidal ideation risk scale into two stages, the full-version was asked to the people who had experienced disasters. Not only did it eliminate the hassle for both the disaster-experiencers and the activists at the Disaster Psychological Support Center, but also when MOIS connects the disaster-experiencers with a specialized institution, the effect of reducing the hassle of re-inspecting the disaster-experiencers at a specialized institution is effective. Finally, the fact that the total number of items is not large is also a very big advantage. Even if you go through both the brief and full-version, it is relatively simple and easy to investigate various psychological characteristics with a total of 29 questions. In the case of brief-version, a cut-off point is presented despite the small number of items, so it is an advantage in that it can be connected to immediate intervention by classifying disaster-experienced persons in the field according to symptom severity.

In addition, as disaster types are diversified, it is necessary to categorize the disaster psychological support model in consideration of the differences between disaster types and to prepare an activity system. The need to strengthen communication and improve activity manuals and psychological scale for a cooperative system between related organizations and private experts is emerging. In order to provide high-quality disaster psychological support services, the need to strengthen the professional competence of counselors was raised.

References

Ahn Ryuyeon, Yongrae Cho. 2014. Psychosocial Risk Factors for Posttraumatic Stress Disorder Symptom Severity in Victims of Artillery Attack on Yeonpyeong Island. *The Korean Journal of Clinical Psychology, 33*(4), 875-890.

Dube, Priyanka, Kroenke Kurt, Matthew J. Bair, Dale Theobald, Linda S. Williams. 2010. *Primary Care Companion Journal of Clinical Psychiatry, 12*(6), PMC3067996.

Foa, Edna B., Laurie Cashman, Lisa Jaycox, Kevin Perry. 1997. The Validation of a Self-Report Measure of Posttraumatic Stress Disorder: The Posttraumatic Diagnostic Scale. *Psychological Assessment, 9*(4), 445-451.

Han, Changsu, Chi Un Pae, Ashwin A. Patkar, Prakash S. Masand, Ki Woong Kim, Sook Haeng Joe, In Kwa Jung. 2009. *Psychosomatics, 50*(6), 580-585.

Jung, Young-Eun, Daeho Kim, Won-Hyoung Kim, Daeyoung Roh, Jeong-Ho Chae, Joo Eon Park. 2018. A Brief Screening Tool for PTSD: Validation of the Korean version of the Primary care PTSD screen for DSM-5 (K-PC-PTSD-5). *Journal of Korean Medical Science, 33*(52): e338.

Kim, Dong-il, Yun-Hee Lee, Kyoung-Eun Kim, Jee-Young Ahn. 2015. Analysis of Disaster Psychological Support Guidelines: Introduction of Multiple Guidelines for PTSD. *Korean Journal of Counseling, 16*(3), 473-494.

Kroenke, Kurt, Robert L. Spitzer, Janet B.W. Williams. 2003. The Patient Health Questionnaire – 2: Validity of a Two – item Depression Screener. *Medical Care, 41*(11), 1284-1292.

Kroenke, Kurt, Robert L. Spitzer, Janet B.W. Williams. 2002. The PHQ-15: Validity of a new Measure for Evaluating the severity of Somatic Symptoms. *Psychosomatic Medicine, 64*(2), 258-266.

LeBeau, Richard, Emily Mischel, Heidi Resnick, Dean Kilpaatrickm Matthew Friedman, Michelle Craske. 2014. Dimensional Assessment of Posttraumatic Stress Disorder in DSM-5. *Psychiatry Research, 218*, 143-147.

Lee, Da Young, Joonho Na, Minyoung Sim. 2015. Psychological Reactions and Physical Trauma by types of Disasters: view from Man-made Disaster. *Journal of Korean NeuroPsychiatric Association, 54*(3), 261-268.

Manea, Laura, Simon Gilbody, Catherine Hewitt, Alice North, Faye Plummer, Rachel Richardson, Brett D. Thombs, Bethany Willimams, Dean McMillan. 2016. Identifying Depression with the PHQ-2: A Diagnostic Meta-analysis. *Journal of Affective Disorders, 203*, 382-395.

Park, Jemin, Byeong Moo Choe, Myungjung Kim, Hong Moo Hahn, Seung Yoon Yoo, Seong Hwan Kim, Young Hee Joo. 1995. Standardization of Dissociative Experiences Scale – Korean version. *The Korean Journal of Psychopathology, 4*(1), 11-21.

Park, Joo Eon, Suk-Hoon Kang, Sung-Doo Won, Daeyoung Roh, Won-Hyoung Kim. 2015. Assessment Instruments for Disaster Behavioral Health. *Anxiety and Mood, 11*(2), 91-105.

Park, Seung-Jin, Hye-Ra Choi, Ji-Hye Choi, Kunwoo Kim, Jin Pyo Hong. 2010. Reliability and Validity of the Korean Version of the Patient Health Questionnaire – 9 (PHQ-9). *Anxiety and Mood, 6*(2), 119-124.

Prins, Annobel, Michelle J. Bovin, Derek J. Smolenski, Brian P. Marx, Rachel Kimerling, Mechael A. Jenkins-Guarnieri, Danny G. Kaloupek, Paula P. Schnurr, Anica Pless Kaise, Yani E. Leyva, Quyen Q. Tiet. 2016. The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5): Development and Evaluation within a Veteran Primary Care Sample. *Journal of General International Medicine, 31*(10), 1206-1211.

Ryu, Jeong, Min Yeong Kwak, Jeongyee Bae, Minyoung Sim, Jaiho Oh, Kwang Joon Lee, Yongrae Cho, Yun-Kyeung Choi. 2020. *Development of Psychological Support Technology and of Cooperation System for each type of Disasters.* National Disaster Management Research Institute.

Spitzer, Robert L., Kurt Kroenke, Janet B.W. Williams. 2006. A Brief Measure for Assessing Generalized Anxiety Disorder: the GAD-7. *Archive International Medicine, 166*(10), 1092-1097.

Spitzer, Robert L., Kurt Kroenke, Janet B.W. Williams. 1999. Validation and Utility of a Self-report version of PRIME-ME: the PHQ primary care Study. *JAMA, 282*(18), 1737-1744.

Sugar, Jeff, Julian D. Ford. 2012. Peritraumatic Reactions and Posttraumatic Stress Disorder in Psychiatrically Impaired Youth. *Journal of Traumatic Stress, 25*, 41-49.

Profile

Jeong Ryu (ryujeong@skuniv.ac.kr)

She received her Ph.D. of Disaster Psychology, and Cognitive Sciences from Yonsei University, Korea in 2011. She is a professor at the college of Liberal arts in Seokyeong University in which she has taught from 2017. Her research interests are posttraumatic stress, posttraumatic growth, psychological support for victims, cognitive change of traumatic experiences, relationship between cognition and emotion.

Jandi Kim (jandi109@gmail.com)

She graduated from the department of Nursing at Seoul National University and worked in the Emergency Room in Seoul National University Hospital. She received her MA. in health policy management from Graduate School of Health, Seoul National University. She is Ph.D. candidate in psychiatric and mental health Nursing, College of Nursing, Seoul National University. Her research interests include alcohol addiction, addiction recovery, trauma and addiction, and community intervention.

Hyun Young Jang (gusdud6164@naver.com)

She studied at Knowledge Circulation Cooperative Alternative College (KCCAC), Korea in 2018. Her interesting subject and area of research is art theory, psychoanalysis and alternative society.

Yongrae Cho (yrcho@hallym.ac.kr)

He received his B.A., M.A., and Ph.D. from Seoul National University, Korea in 1998. He had worked as a professor at Chosun University and clinical professor at Chosun University Hospital. He has been working as a professor of the department of psychology at Hallym University since 2003. His research interests are anxiety and related disorders, posttraumatic stress disorder, positive mental health, cognitive behavioral therapy, and mindfulness-based interventions. He has published 154 articles in journals and written 13 books.

Jeongyee Bae (jibai0220@hanmail.net)

She received her B.S., and M.S. from Seoul National University and her Ph.D. from Ewha Womans University. She is a professor of the department of nursing at Inje University, in which she has taught since 1996. Her interesting subject and area of research and education are injury prevention and safe promotion, the promotion of mental health, PTSD, and health informatics. She has published 186 articles in journals and written 81 books.

Jaiho Oh (jhoh@nano-weather.com)

He is a professor emeritus in the department of environmental atmospheric sciences of the Pukyong National University. Also, he is one of the founders of Nano C & W Co., Ltd. in 2018. His primary field of research is disaster prevention, early warming, and the regional impact of climate change. He has published more than 150 research papers and 28 books. He had been the president of Asia Oceania Geosciences Society, Atmospheric Science Section, and Editor-in-chief of advances in Geosciences for 2008-2010. He had also been the president of the Korean Meteorological Society and the president of the KOREN/APII/TEIN user group for 2008-2009. He served as the president of the Korean Quatermary Association for 2007-2008.

Min Yeong Kwak (mykwak@ks.ac.kr)

She received her B.S., M.S., Ph.D. at Inje University, Korea in 2018. She is a professor of the department nursing science at Kyungsung University, in which she has taught since 2018. Her interesting subject and area of research and education is mental health, injury prevention, PTSD, PTG, etc., with the most recent thesis named “An Integrative Literature Review on Psychological Intervention Research for Firefighters (2021).”

Yunkyeung Choi (ykchoi@kmu.ac.kr)

She received her Ph.D. from Korea University in 2006. She had worked as a clinical psychologist at Korea University Medical Center. She is a professor of the department psychology at Keimyung University, in which she has taught since 2007. Her research interests are traumatic stress, posttraumatic growth, and psychological intervention such as cognitive behavioral therapy. She has published 78 articles in journals.