Chapter 2

Research Reports&Other Manuscripts

Research Report

Department of Preventive Psychiatry, Graduate School of Medicine, Tohoku University[1)]
Department of Psychiatric Disorders, Tohoku University Hospital[2)]
Department of Psychiatry, Graduate School of Medicine, Tohoku University[3)]
Wataru Shoji[1)], Hitomi Usukura[1)], Mikika Abe[1)], Yoko Takahashi[1)],
Atsushi Sakuma[2)], Hiroo Matsuoka[3)], Kazunori Matsumoto[1) 3)]

The Department of Preventive Psychiatry continuously conducts support and research activities for disaster areas as one of the psychiatry laboratories at Tohoku University, also including the Department of Psychiatric Disorders and the Department of Psychiatry. In FY2016, we conducted survey and research activities as reported below in collaboration with the Miyagi Disaster Mental Health Care Center (MDMHCC) and other relevant institutions.

1. Survey of the Mental Health of Supporters in Disaster Areas and Research Support Methods

(1) Issues and Aims

People of diverse professions are involved in the restoration and reconstruction that follows large-scale disasters. Previous studies that have looked at the mental health of people working in disaster areas have primarily been concerned with professional rescuers during the emergency phase. At the same time, supporters engaged in highly public work, such as local authority staff, medical professionals, social welfare service workers, and teachers, play an important role in long-term support activities, which includes the restoration and reconstruction phase that follows the emergency phase. Most of these people are residents of the disaster-struck area, who are thus not only subject to stress as disaster victims but continuously receive stress from the long post-disaster support, which likely leads to a high risk of mental health issues. However, research on the mental health of such supporters in highly public occupations has been insufficient. Thus, we are conducting a health survey involving local authority staff and Social Welfare Council (SWC) staff in areas affected by the Great East Japan Earthquake one year or more after the disaster. We are also doing a longitudinal research study to not only provide support from a psychiatric standpoint, but also to clarify the reality of the health of these staff members and help implement the necessary support.

In particular, restoration work is ongoing long after the disaster hit and its contents are changing by the year. Moreover, the circumstances of local support is constantly changing, for example because of the gradual decrease in supporters coming in from all over Japan. This study uses the results of a health survey involving SWC staff conducted in FY2016 to examine what primary factors are relevant to poor mental health, and we wish to investigate what policies are needed to protect the mental health of people engaged in long-term support activities.

(2) Research Methods

The survey involved SWC staff from disaster areas along the Tohoku coast. We conducted the survey on 608 staff members from several SWCs within Miyagi Prefecture between October 2015 and March 2018 and collected data from 539 (88.7%) of them (We analyzed the data in FY2016 and reported the results to each SWC in June 2016).

The survey used self-administered questionnaires. The survey items included current work situation and personal disaster situation, current health condition, a questionnaire screening for depression and anxiety disorders (Kessler Psychological Distress Scale: K6), a questionnaire on

mental and physical health (Patient Health Questionnaire: PHQ-9) to assess symptoms of depression and their severity, and a 17th question with a PTSD Checklist (PCL) to assess PTSD severity.

The questionnaire explicitly stated the optional nature of participation, and the samples were collected after being sealed by the participants themselves so as to maintain the confidentiality of the results from bosses and colleagues. After the questionnaire, we offered participants the chance to have a consultation with a clinical psychologist or a psychiatric certified nurse specialist, and we also informed people that this would be available even if they did not submit the questionnaire. Furthermore, this study was conducted after approval by the Ethical Board of the Graduate School of Medicine, Tohoku University.

(3) Study Results

We conducted the survey with several SWCs in disaster areas along the coast of Miyagi Prefecture. The 539 respondents consisted of 26.9% men and 73.1% women with an average age of 48 years. The results of the self-administered questionnaire for the 2015 survey showed 8.0% at high risk on the K6, 13.7% at high risk on the PHQ-9, and 3.3% at high risk on the PCL.

Next, we conducted a longitudinal examination of the primary factors relevant to those at high risk according to the K6, the PHQ-9, and the PCL. We assigned K6, PHQ-9, and PCL high risk as the response variable, and the following items as the explanatory variables: “Basic attributes” (age, sex, occupation), “Individual factors” (single household, illness treatment history prior to the earthquake, mental health treatment history prior to the earthquake, lack of sense of local solidarity), “Factors caused by the earthquake” (emergency temporary housing, dead or missing family members, life-threatening experiences, self-condemnation for actions taken at that time), and “Workplace factors” (evacuating one’s home, not being able to recuperate, lack of workplace communication, seemingly unending workload). We then conducted a logistic regression analysis. We conducted a simple linear regression for each item and conducted multiple regressions for those found to be significant, examining their correlation (Table 1).

The primary factor with the highest odds ratio for those aware of high stress levels of at least 13 points in the K6 was “I have a mental health treatment history after the earthquake.” Those with a history were about 9.1 times more likely to be aware of high levels of stress than those without a history. Next, those who ticked “I am struggling with workplace human relations” were about 4.4 times more likely to be at risk of being aware of high stress levels than others. Those who ticked “I feel I have a seemingly unending workload” were about 2.9 times more likely than others.

Table 1. Primary factors relevant to the mental health of SWC staff 55–60 months after the earthquake

Primary factors relevant to psychological stress (K6)	I have a mental health treatment history after the earthquake
	I am struggling with workplace human relations
	I feel I have a seemingly unending workload
Primary factors relevant to symptoms of depression (PHQ)	I had a mental health treatment history prior to the earthquake
	I have a mental health treatment history after the earthquake
	I have not been able to recuperate
	I am struggling with workplace human relations
	I feel I have a seemingly unending workload
Primary factors relevant to symptoms of trauma (PCL)	I feel guilt over actions that I took at the time of the earthquake

The primary factor with the highest odds ratio for those requiring special attention with symptoms of depression of at least 10 points in the PHQ-9 was “I have a mental health treatment history after the earthquake.” Those with a history were about 4.0 times more likely to exhibit strong symptoms

of depression than those without a history. Next, those who ticked "I had a mental health treatment history prior to the earthquake" were about 3.5 times more likely to exhibit strong symptoms of depression than others. Those who ticked "I am struggling with workplace human relations" were about 3.4 times more likely than others, those who ticked "I feel I have a seemingly unending workload" were about 2.2 times more likely than others, and those who ticked "I have not been able to recuperate" were about 2.1 times more likely than others.

The primary factor with the highest odds ratio for those requiring special attention with PTSD symptoms of at least 44 points in the PCL was "I feel guilt over actions that I took at the time of the earthquake." Those who feel so were about 7.9 times more likely to exhibit strong PTSD symptoms than those who do not. Additionally, while not statistically certain, those who ticked "I am struggling with workplace human relations" were about 8.3 times more likely to exhibit strong PTSD symptoms than others. Those who ticked "I have a mental health treatment history after the earthquake" were about 3.2 times more likely than others, and those who ticked "I have not been able to recuperate" were about 3.0 times more likely than others.

The above suggested that workplace factors such as "I am struggling with workplace human relations," "I have not been able to recuperate," and "I feel I have a seemingly unending workload" have a considerable impact on mental health. Moreover, we also saw that having a "mental health treatment history" prior to and after the earthquake increases the risk of mental health deterioration. Furthermore, "I feel guilt over actions that I took at the time of the earthquake" had a considerable impact on PTSD.

(4) Discussion

A chronological comparison of these SWC survey results and the results of other longitudinal surveys over a three-year period (FY2012, FY2013, FY2014) shows little change in the proportion of those with K6 high risk at 8.4% → 7.9% → 8.7% → 8.0%, while it is higher than the level for all of Miyagi Prefecture before the earthquake (about 6% for the prefecture in the 2010 national census). Moreover, those with PHQ-9 high risk remained at a high level at 13.1% → 13.7% → 14.9% →13.7%. Those with PCL high risk showed a downward trend at 4.1% → 4.1% → 3.7% → 3.3%, but there was no major improvement.

It became clear that SWC staff had a proportion of persons with mental unhealth larger than in normal times to some extent even five years after the earthquake. Normally, the indicators for mental health should gradually improve as time passes after the earthquake, but the mental health situation here has not improved significantly since the first survey, suggesting the possibility of plateaued improvement. The SWC staff are in a position of continuously supporting the weakest victims, and it is possible that the long duration and difficulties of that support are causing chronically high levels of stress.

Investigating the primary factors impacting mental health 56 months after the earthquake, we found that the workplace factors "I am struggling with workplace human relations," "I have not been able to recuperate," and "I feel I have a seemingly unending workload" have a major impact on mental health. In addition to their restoration work, their work to support local welfare is returning to pre-earthquake levels, which is placing an excessive burden on the workplace as a whole, and this is thought to be one cause. In order to maintain individual mental health, we believe that initiatives for improving the working environment as a whole in normal times are more needed than mental health measures adapted to disaster recovery. The former includes improving workplace communication, creating a working environment that makes it easy to recuperate, and efforts to alleviate work difficulties and negative feelings.

Furthermore, we also saw that answering "I have a mental health treatment history" before or after the earthquake increases the risk of mental health deterioration. Moreover, "I feel guilt over actions that I took at the time of the earthquake" had a major impact with regard to PTSD. We see the need for measures that allow staff to share and talk about struggles relating to their support work within the workplace and that let them attend work-related conferences or receive work-related supervision as a way to help those with risk factors.

2. Studies of Skills for Psychological Recovery in Disaster Areas

(1) Study of the Possibility of Implementing Skills for Psychological Recovery (SPR) to Help Disaster Victims during the Restoration Phase in Japan

<Issues and Aims>

SPR represents the latest in practical psychological support techniques and can be applied to a broad range of mental issues that many disaster victims are likely to experience in the restoration and reconstruction phase. It was developed by the U.S. National Center for PTSD and the U.S. National Child Traumatic Stress Network and was announced in 2010. A Japanese version was created by the research team at Hyogo Disaster Mental Health Care Center in June 2011.

After the Great East Japan Earthquake we held study meetings and made DVDs in Miyagi to communicate knowledge about SPR and improve skills among specialists in disaster areas. We saw indications that the spread of SPR-related knowledge and skills had a certain effect, such as the growing demand for SPR among specialists providing support to residents of disaster-stricken areas. At the same time, in order to actually apply SPR in Japan, we need to examine whether this program can be safely implemented in disaster areas. Thus, this study was conducted in collaboration with local governments in disaster areas and constituted an intervention study about applying SPR in Japan. It involved the actual application of SPR to disaster victims and examined its feasibility.

<Research Methods>

A. Subjects and recruitment

The study involved persons 18 years or over who are aware of their own mental unhealth and either live or work in Miyagi Prefecture. Persons receiving treatment at mental health institutions or those suffering from serious mental disorders were excluded. Moreover, they had to be Japanese native speakers and provide the necessary written consent for participation in the study in person after understanding the aims and contents of the study. We publicly recruited participants for the program after exchanging memoranda with the local governments in the disaster areas, and also solicited participants using leaflets posted with permission in public facilities and non-profit offices.

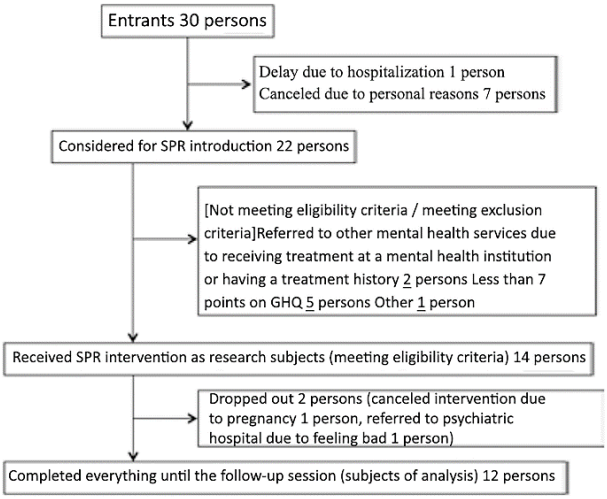

Figure 1. Study flow chart

B. SPR practitioners (interveners)

All mental health professionals providing support (nurses, public health nurses, psychologists, doctors, etc.) had received instruction from SPR trainers at the Hyogo Disaster Mental Health Care Center and conducted SPR under the supervision of those trainers and psychiatrists at the Department of Psychiatric Disorders, Tohoku University Hospital.

C. Timing and instances of intervention

We conducted a pre-intervention assessment of all participants meeting the selection criteria after explaining the meaning of the study and obtaining written consent. The interveners visited the participants to conduct interviews taking about 60 minutes once every one or two weeks on a total of no more than eight occasions. We conducted a post-intervention assessment after the intervention and a follow-up assessment two months later.

D. Course of the intervention

Figure 1 shows a flow chart for the study. We introduced SPR intervention for 30 persons in order of application as follows. Excluding those who canceled due to personal reasons or has to delay intervention, we considered introducing SPR for 22 persons. We conducted assessment interviews with them, screened them by using a General Health Questionnaire (GHQ-30), and evaluated them according to eligibility and exclusion criteria. As a result, we found 14 persons who met the research criteria. The interveners performed SPR interventions on these 14 persons during every session under the supervision of their SPR trainers.

Of the 14 persons, 2 canceled midway. 1 was found to be pregnant during the intervention and we had to cancel her SPR intervention and subsequently lost contact with her (finished after 5 interventions). There were 12 persons who completed everything until the follow-up session, and their data was used for our analysis.

E. Assessment contents

We set the GHQ[4,5] total score as the primary endpoint. We set QOL (SF8 Health Survey: SF-8),[6] PTSD (Impact of Event Scale-Revised: IES-R),[7,8] resilience (Tachikawa Resilience Scale: TRS),[9] self-efficacy (Self-Efficacy Scale: SES),[10,11] and satisfaction with the program (Client Satisfaction Questionnaire: CSQ-8J)[12] as secondary endpoints. Moreover, we qualitatively surveyed participants' thoughts on the program and each skill as well as their later use of them.

<Study Results>

The average number of SPR sessions was 5.5 times. 12 out of 14 cases completed the intervention (14.3% suspension rate) and the follow-up. The average age of the 12 persons subject to analysis was 45.25 years (SD 10.48) and the sex ratio was 2 men to 10 women, making the majority women. Most of the subjects lived in areas affected by the Great East Japan Earthquake, so the earthquake had greatly impacted them, including damages to home and workplace as well as deaths and persons missing among people close to them.

The analysis showed significant improvements to GHQ, TRS, and SES by the end of intervention (Figures 2–4). However, we could only confirm improvement for SES when comparing the follow-up to pre-intervention (Figure 4). We saw no significant difference for other indicators.

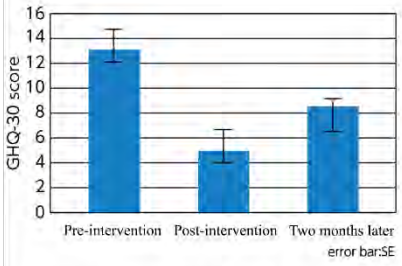

Figure 2. Changes in GHQ-30 scores by SPR intervention (N = 12)

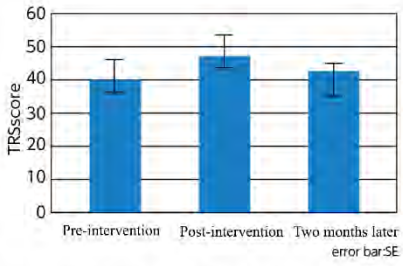

Figure 3. Changes in TRS scores by SPR intervention (N = 11)

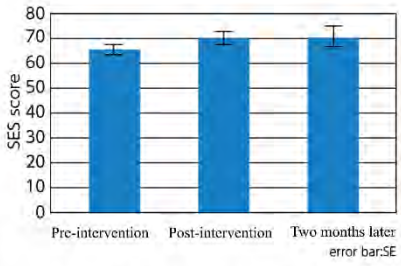

Figure 4. Changes in SES scores by SPR intervention (N = 10)

<Discussion>

We saw that mental health improved after SPR intervention, which had an effect of increasing resistance (TRS) and self-efficacy (SES). Self-efficacy is known to suppress depression and resilience is thought to assist recovery from mental difficulties. Thus, the results showing mental health improvements in parallel with these indicators suggests the possibility that these factors are correlated. However, this study could not methodologically verify the effects or investigate inter-factor correlation, so any interpretation of the results requires care. Moreover, of the three indicators

that improved post-intervention, we could confirm sustained improvement for self-efficacy also at the follow-up, suggesting the possibility of a sustained effect of intervention.

As the results showed how intervention can improve mental health and resistance, this suggests that it may have a positive effect on a wide range of mental health indicators. At the same time, we could see not sustained improvement effect for mental health and resistance. A possible reason why the effect was not sustained long-term is that sustained mental health improvement was obstructed by participant dispositions and chronic post-earthquake issues. Moreover, it is possible that the lack of regular meetings with interveners after the end of intervention contributed to the intervention effects not being sustained.

12 out of the 14 cases that underwent SPR intervention completed the intervention and participated in a follow-up survey. The reasons for the 2 canceled cases were pregnancy and work-related stress, and none of the cases exhibited any serious harmful effects accompanying the SPR. Furthermore, we saw no indicators worsening pre-intervention, post-intervention, or at follow-up, showing that SPR is safe to implement in Japan as well.

The results of this study showed that it is safe to implement SPR in Japanese disaster areas and that it is a useful support program suitable for the restoration and reconstruction phase. Future studies will need to include comparative research with control groups to check the long-term effects of SPR.

(2) Study of Mental Exercise Training for General Citizens and Supporters in Areas Affected by the Great East Japan Earthquake with the Aim of Raising Public Awareness about Cognitive Behavioral Therapy

<Issues and Aims>

The coastal areas of Miyagi Prefectures sustained considerable damage from the Great East Japan Earthquake. Victims suffered physical and mental pressure. Thus, we can expect them to need mental health care for an extended period of time ranging from years to decades. Past studies have shown that residents of areas struck by large-scale disasters not only suffer from PTSD, depression, and other mental diseases, but are also likelier to face subsyndromal mental issues that do not go as far as mental diseases.

Cognitive behavioral therapy is a psychotherapeutic method that aims to increase self-control as well as improve or solve various problems related to social life by approaching issues both cognitively and behaviorally. Cognitive behavioral therapy can be applied to a variety of mental diseases, including depression and anxiety disorders, and is reportedly effective. Moreover, cognitive behavioral therapy is not only used to treat mental diseases but has also been shown to have an effect on subsyndromal mental issues that are not quite mental diseases; reportedly, it has a preventive effect on mental diseases as well, which is why it is applied in a broad range of settings, apart from medical settings. However, compared to other advanced countries, the awareness of cognitive behavioral therapy has not advanced so far in Japan.

Thus, the National Center for Cognitive Behavior Therapy and Research of the National Center of Neurology and Psychiatry has been conducting “Mental Exercise Trainings” since 2012 in order to disseminate the basic ideas and skills of cognitive behavioral therapy widely in society (no longer on-going). The program was developed by the National Center for Cognitive Behavior Therapy and Research of the National Center of Neurology and Psychiatry to teach the general population the basic ideas and skills of cognitive behavioral therapy through seminars and experiences so that they can apply them in stress care in daily life.

We expect that the spread of basic ideas and skills of cognitive behavioral theory can play a major role in the prevention of mental issues after large-scale disasters. In the past, we held workshops for the general population and supporters in disaster areas about everyday stress care based on the basic ideas and skills of cognitive behavioral therapy as a form of primary prevention. We also conducted a pilot study to verify the efficacy and feasibility of a training program for a general audience (February 2013 to June 2014 in Miyagi Prefecture). We modified the sixth “Mental Exercise Training” program to make it into a pilot study for 46 members of the general public who had given consent for the study. The results showed a significant increase in self-efficacy after the training. The participants rated the program highly and we confirmed its safety. High self-efficacy is correlated

with weak depression symptoms and high self-esteem,[11] so it possibly helps prevent the kinds of mental issues that easily occur after large-scale disasters. Thus, this study involved a randomized controlled trial based on the results of the pilot study.

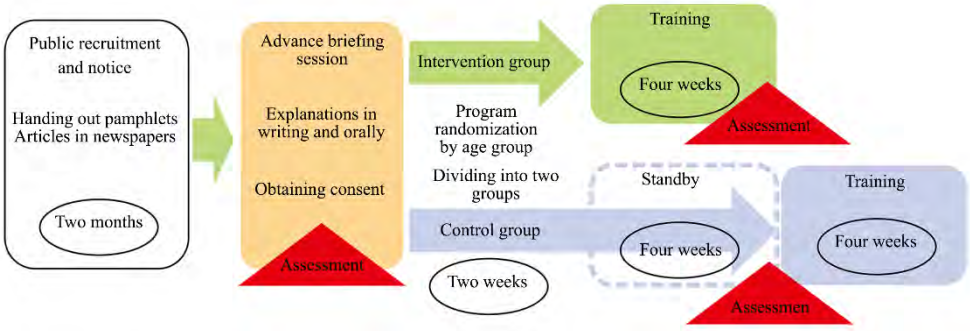

Figure 5. Overall course of the study

<Methods>

A. Study design

Randomized control trial (RCT) design. Participants were randomly divided into two groups: The intervention group receiving the training first and the control group (standby group) on standby before receiving the training. The intervention group underwent a training program spread over four sessions and a post-intervention assessment was done in the final session. The standby group had an assessment at the same time, after which they underwent the same training program.

B. Subjects and recruitment

They should be 18 years or over and 79 years or under as well as members of the general public in Miyagi Prefecture affected by the Great East Japan Earthquake. They should also wish to participate in the study, have understood the meaning of the study, and have consented to participate. Furthermore, we excluded persons receiving treatment at mental health institutions and persons with serious mental disorders who either had their treatment suspended or had received no treatment. We publicly recruited participants by handing out pamphlets and having articles published in newspapers and PR magazines.

C. Contents of the training program

Based on the results of the pilot study, we reduced the number of sessions for the "Mental Exercise Training" from six to four times and changed it to 90-minute sessions held once a week for four weeks. We tried to increase the participation rate by reducing the number of sessions. Moreover, we gave the participants homework after each session to help them learn more experientially (e.g., illustrating stress situations experienced in daily life by using the cognitive behavioral therapy model). We changed the program contents so that it centered on cognitive restructuring and assertion.

D. Assessment contents

We set the primary endpoint as the total score of the Self-Efficacy Scale (SES).[10,11] A high sense of self-efficacy is expected to have a preventive effect on post-disaster mental diseases, and past studies have suggested that it can be improved through a cognitive behavioral approach. We would consider the program effective if there was a positive significant difference in SES scores pre- and post-intervention.

We set the respective total scores of the K6 measuring general mental health,[13–15] the GHQ-30 measuring stress-related symptoms,[4,5] and the Automatic Thoughts Questionnaire-Revised (ATQ-R) measuring negative and positive automatic thoughts[16,17] as secondary endpoints. Moreover, we also examined ten original items related to subjective stress and understanding of the training contents.

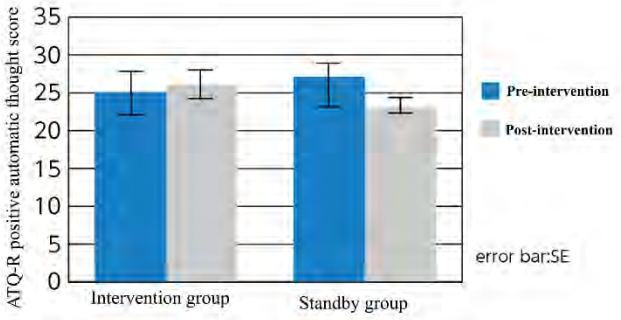

Figure 6. Changes in positive automatic thought scores

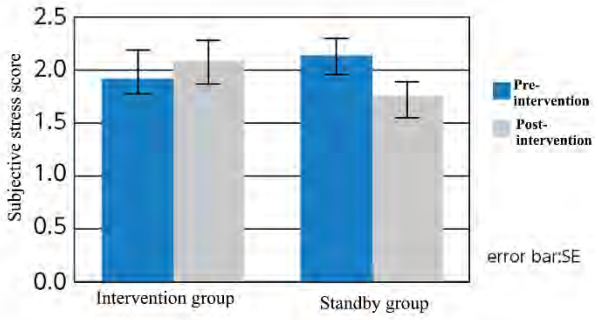

Figure 7. Changes in subjective stress scores

<Results>

We held the program a total of three times: January–March 2015 in Ishinomaki City, and June–August 2015 and January–March 2016 in Sendai City. A total of 76 general participants (9 men, 67 women, average age 54.3 ± 12.3 years) took part. Of these, 63 (9 men, 54 women, average age 52.8 ± 12.5 years) were study subjects. These subjects were divided into an intervention group of 32 persons (5 men, 27 women, average age 52.8 ± 12.0 years) and a control group of 31 persons (4 men, 27 women, average age 52.9 ± 13.2 years). The average number of program sessions participated in was 3.47 (± 0.92) for the intervention group, with 87.5% participating in at least 3 sessions.

In the intervention group, 27 persons participated in at least three sessions and answered the pre- and post-intervention questionnaires. In the control group, 27 persons answered the pre- and post-intervention questionnaires. We used the data of these persons for our analysis of basic attributes, which showed no significant differences in terms of attribute data (age, sex, education, employment history, household size, moving due to the earthquake, whether they had deaths or missing persons among close ones, life-threatening experiences) between the two groups. This demonstrated that the randomization of the two groups had been done appropriately.

We found no significant difference between the groups before or after intervention for general self-efficacy, the primary endpoint. We found a significant increase for the secondary endpoint of positive automatic thoughts according to the automatic thoughts scale in the intervention group. Among the original items, we also found a significant increase in the score for the item related to subjective stress ("I feel a lot of stress in daily life").

<Discussion>

This study is the first randomized controlled trial to show that a training program based on cognitive behavioral therapy for a general audience following a disaster can help increase positive automatic thinking. It appears that participating in a program focused on cognitive restructuring can increase the cognitive capacity to deal with everyday stress and increase positive automatic thoughts. We know that positive automatic thoughts correlates with depression recovery[18] and it is hoped that it can have a suppressive effect on symptoms of depression.[19–23] The kind of training program used in this study has the potential of being an effective means of intervention for members of the general public after large-scale disasters. Future studies should examine if positive automatic thoughts taught during training can improve mental health or prevent mental diseases.

We found no significant difference for self-efficacy, for which an effect was suggested in the preliminary study and which was the primary endpoint of this study, between the intervention group and the standby group. Since the program in this study consisted of four sessions, a modification of the pilot study's six sessions, it is possible that an increase in general self-efficacy, meaning trust in oneself, was not achieved due to the time required for such skills to be acquired and established.

Moreover, we found an increase in subjective stress, which was one of the original question items. This was possibly due to an increased awareness of one's psychological stress through the training, but neither of the assessment scale K6 and GHQ-30 showed any mental health deterioration, thus supporting the safety of the program. When implementing this kind of program with members of the general public, there is a need to take into consideration the risk of heightened subjective stress post-intervention.

References

1) National Child Traumatic Stress Network and National Center for PTSD. (2012) *Skills for Psychological Recovery Field Operations Guide* [www.nctsn.org; www.ptsd.va.gov] (Japanese translation by the Hyogo Disaster Mental Health Care Center [2011] [http://www.j-hits.org/spr/index.html]).

2) Matsumoto, K., Takahashi, Y., and Osawa, T. (2013) The Situation in Disaster Areas and *Initiatives* to Spread Cognitive Behavioral Psychological Support. J*apanese Journal of Cognitive Therapy*, 6: 118–120. [in Japanese]

3) Ueda, I., Nagao, A., Takahashi, Y., et al. (2016) Applications for Cognitive Behavioral Therapy for Disaster Victim Support: Initiatives for Victims of the Great East Japan Earthquake. *Japanese Journal of Psychiatric Treatment*, 31: 157–162. [in Japanese]

4) *Goldberg*, D., and Huxley, P. (1980) *Mental Illness in the Community. Pathway to Psychiatric Care*. Tavistock Publications.

5) *Nakagawa*, Y., and Daibo, I. (1985) *Procedures for GHQ (Japanese Version)*. [in Japanese]

6) *Fukuhara*, S., and Suzugamo, Y. (2005) Health-Related QOL Scales: SF8 and SF-36. *Igaku no Ayumi*, 213: 133–136. [in Japanese]

7) Weiss, D. S., and Marmar, C. R. (1997) The Impact of Event Scale-Revised. In: Wilson, J. P., and Keane, T. M. (Eds.) *Assessing Psychological Trauma and PTSD* (pp. 399–411). Guilford Press, New York.

8) Asukai, N. (1999) Post-Traumatic Stress Disorder (PTSD). *Journal of Clinical Psychiatry*, special issue, 28: 171–177. [in Japanese]

9) Nishi, D., Uehara, R., Yoshikawa, E., Satoh, G., Ito, M., and Matsuoka, Y. (2013) Culturally Sensitive and Universal Measure of Resilience for Japanese Populations: Tachikawa Resilience *Scale* in Comparison with Resilience Scale 14-Item Version. *Psychiatry and Clinical Neurosciences*, 67: 174–181.

10) Sherer, M., *Maddux*, J. E., Mercandante, B., Printice-Dunn, S., Jacobs, B., and Robers, R. W. (1982) The Self-Efficacy Scale: Construction and Validation. *Psychological Reports*, 51: 663–671.

11) Narita, K., *Shimonaka*, Y., Nakazato, K., Kawaai, C., Sato, S., and Osada, Y. (1995) Examination of the General Self-Efficacy Scale: Exploring the Possibilities of Lifelong Developmental Use. *Japanese Journal of Educational Psychology,* 43: 306–314. [in Japanese]

12) Naganuma, Y., and Ito, H. (1999) Examination of the Reliability and Validity of the 8-Item Client Satisfaction Questionnaire (Japanese Version). *Clinical Psychiatry*, 41(7): 711–717. [in Japanese]

13) Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mrczek, D. K., Normand, S. L., Walters, E. E., and Zaslavsky, A. M. (2002) Short Screening Scales to Monitor Population Prevalences and Trends in Non-Specific Psychological Distress. *Psychological Medicine*, 32: 959–976.

14) Furukawa, T. A., Kessler, P. C., Andrews, G., and Slade, T. (2003) The Performance of K6 and K10 Screening *Scales* for Psychological Distress in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine*, 33: 357–362.

15) Furukawa, T. A., Kawakami, N., Saito, M., Ono, Y., Nakane, Y., Nakamura, Y., Tachimori, H., Iwata, N., Uda, H., *Nakane*, H., Watanabe, M., Naganuma, Y., Hata, Y., Kobayashi, M., Miyake, Y., Takeshima, and T., Kikkawa, T. (2008) The Performance of the Japanese Version of the K6 and K10 in the World Mental Health Survey Japan. *International Journal of Methods in Psychiatric Research*, 17(3): 152–158.

16) Kendall, P. C., Howard, B. L., and Hays, R. C. (1989) Self-Referent Speech and Psychopathology: The Balance of Positive and Negative Thinking. *Cognitive Therapy and Research*, 13: 583–598.

17) Kodama, M., Katayanagi, K., Shimada, H., and Sakano, Y. (1994) The Correlation between Stress Coding and Automatic Thoughts, State Anxiety, and Symptoms of Depression in University Students. *Journal of Human Sciences* (Advanced Research Center for Human Sciences, Waseda University), 7: 14–26. [in Japanese]

18) Dozois, D. J. (2007) Stability of Negative Self-Structures: A Longitudinal Comparison of Depressed, Remitted, and Nonpsychiatric Controls. *Journal of Clinical Psychology*, 63(4), 319–338.

19) Nishikawa, D., Matsunaga, M., and Furutani, K. (2013) Effects of Rumination on Automatic Thoughts and Depression. *Japanese Psychological Research*, 84(5): 451–457. [in Japanese]

20) Ingram, R. E., Kendall, P. C., Greg, S., Jeannine, G., and McLaughlin, S. C. (1995) Psychometric Properties of the Positive Automatic Thoughts Questionnaire. *Psychological Assessment*, 74(4): 495–507.

21) Burgess, E., and Haaga, D. A. F. (1994) The Positive Automatic Thoughts Questionnaire (ATQ-P) and the Automatic Thoughts Questionnaire Revised (ATQ-RP): Equivalent Measures of Positive Thinking? Cognitive *Therapy and Research*, 18(1): 15–23.

22) Lightsey, O. R. Jr. (1994) Positive Automatic Cognitions as Moderators of Negative Life Event–Dysphoria Relationship. *Cognitive Therapy and Research*, 18, 353–365.

23) Qong, S. S. (2010) Balanced States of Mind in Psychopathology and Psychological Well-Being. *International Journal of Psychology*, 45(4): 269–277.