Part II

Research reports and other journal articles

Research reports

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The Department of Preventative Psychiatry has conducted ongoing work on support and research activities that are useful for disaster areas as part of the Tohoku University Department of Psychiatry, which includes the Department of Neuropsychiatry and the Department of Hospital Psychiatry at the Tohoku University Graduate School of Medicine. For FY 2015, we have conducted investigations and research activity in collaboration with the Miyagi Disaster Mental Health Care Center and associated institutions, as reported below.

1．Investigations on the mental health of care workers in disaster areas and research on support methods

（1） Issues and objectives

Individuals with various occupations are involved in the restoration and recovery of regions from large-scale disasters. Police officers and firefighters Individuals such as police officers and firefighters, who provide support primarily as emergency occupational rescue workers, have been the subject of previous research that focused on the mental health of working individuals following a disaster, which reported that illnesses resembling depression or PTSD have lingered in these individuals over a long period.

Meanwhile, care workers engaged in works of public interest (e.g., municipal officials, health care providers, social services staff members, teachers) serve an important role in long-term support activities during the post-emergency period (including restoration/recovery periods). Many of these people are residents of the affected area and are thought to be at high risk of having mental health problems due to being continuously exposed to long-term stresses involved in post-disaster support in addition to the stresses of being a victim themselves. However, there has been insufficient research on the mental health of care workers who are engaged in such duties with the high public interest. With this in mind, we conducted health surveys for municipal officials, Social Welfare Council (henceforth, SWC) staff members, and nursing staff members in the area affected by the Great East Japan Earthquake one year after the event. We are conducting longitudinal studies and research to provide support from the academic perspective of psychiatry, clarify the actual state of staff member health, and provide useful results for providing necessary support.

Five years on from the earthquake, problems directly facing local care workers qualitatively shift during the recovery process, going from assuring the reconstruction and use of recovery-period housing, providing support for socially vulnerable individuals such the disaster-affected elderly and those with mental disorders, building communities in temporary housing; to providing support for regions and individuals that have been left behind due to disparities in recovery and handling problems between residents which accompany residence relocation. Furthermore, these individuals gradually must take on their pre-disaster duties in addition to those that are directly related to the earthquake, which is thought to further exacerbate the physical and mental stresses imposed on the care worker. The prolonging of the recovery process is connected to the increased stresses in the care worker, so even more than before, it is important to prevent the worsening of mental health in these individuals.With this in mind, the results of

the FY 2015 annual report will show the mental health indicators in each region and report on investigations on the causes relating to poor mental health. Through these investigations, we will determine the optimal policies for protecting the mental health of individuals working on long-term support activities.

（2） Methods

Subjects were ① municipal officials and ② SWC staff members in the coastal Tohoku regions of the disaster area. Research on ①focused on several municipal officials in the coastal regions of Miyagi Prefecture, with a total of 1918 individuals from August – September 2015, and data was extracted from 1575 individuals (82.1%). Research on ②focused on several SWC staff members in Miyagi Prefecture, with a total of 719 individuals from October 2014 to March 2015, and data was extracted from 631 individuals (87.8%). Data was analyzed in FY 2015 and results were reported to the SWC in each region in June 2015.

Self-administered questionnaires were used for the research. Research categories included the nature of the current work, personal damage from the earthquake, current health status, the Kessler Psychological Distress Scale (K6), evaluations of depression symptoms and severity using the patient health questionnaire (PHQ-9) and a PTSD Check List (PCL) for evaluating PTSD severity.

Arbitrary cooperation was recorded in the questionnaires and results were retrieved after the individual placed them in a sealed envelope to ensure that privacy from workplace superiors or colleagues. Consultations from psychiatrists, clinical psychologists, or psychiatric nurses were offered to participants who desired them after the survey and we offered these services even when questionnaires were not submitted. This research was conducted with the approval of the Tohoku University Graduate School of Medicine Ethics Committee.

（3） Results

① Research on municipal officials

We researched municipal officials (municipality A, municipality B) in two regions. We compared the research results of each municipality with the mental health status of regular staff members in disaster-affected municipalities and support staff sent for fixed periods to post-disaster municipalities from the earthquake to the restoration/recovery period to shore up their labor shortages (e.g., staff from other municipal organizations working full-time in the affected municipality, fixed-term employees who directly work in the affected municipality or who are hired by non-affected municipalities and dispatched there and part-time staff members who are hired by the Reconstruction Ministry).

＜ Results for Municipality A＞

Questionnaires were distributed to 1494 officials in Municipality A, with 1154 responses received (77.2% retrieval rate). Subjects were 46.3% male and 53.7% female, with an average age of 44.3 years. 85.9% comprised regular staff members and 14.1% comprised support staff. Investigations in FY 2015 utilizing K6, which is a general indicator of mental health conditions, showed that the percentage of staff with stresses above a total score of 13 was 8.5% among regular staff and 3.1% among support staff, with a total percentage of 7.8%. Those with a total PHQ-9 score of above 10, which indicates high depression risk, was 15.9% for regular staff and 3.7% for support staff, with a total percentage of 14.1%. The percentage of staff with a total PCL score of over 44, which indicates high PTSD risk, was 5.0% for regular staff and 0% for support staff, with a total percentage of 4.3%. Across all evaluation metrics, regular staff had poorer mental health than support staff.

Next, we conducted logistical regression analyses with high K6, PHQ-9, and PCL risk as to the objective variables; and characteristics related to family, the extent of damage, and work, as the explanatory variables; to analyze the causes that influence mental health in regular staff members. We did not conduct analyses on support staff because there were few high-risk individuals for each symptom. Cases, where the odds ratio (OR) was above one, indicate high risk which can exacerbate

symptoms, and cases, where OR is less than one, indicates causes that alleviate symptoms.

Risk factors that exacerbated symptoms for mental problems measured by K6 included “I have had poor mental health that has been treated since before the earthquake” (OR = 2.77), “I have received criticism from residents, and I am struggling mentally” (OR = 2.38) and “I have a family member that requires care” (OR = 1.66). On the other hand, categories that reduced the risk of exacerbating symptoms included “the individuals residing in the region trust one another” (OR = 0.45) and “I have support from parents, families, and friends” (OR = 0.38).

The highest risk factor for depression symptoms measured by PHQ-9 was “I have received criticism from a work associate and I am struggling mentally” (OR = 4.08), with other risk factors including “I have had poor mental health that has been treated since before the earthquake” (OR = 2.77), “I have a family member that requires care” (OR = 2.69) and “I felt like my life was in danger due to the earthquake, tsunami, and evacuations” (OR = 1.55). Categories that reduced the risk of exacerbating symptoms included “employment following the disaster” (OR = 0.40), “I have support from parents, families, and friends” (OR = 0.56), and “the individuals residing in the region trust one another” (OR = 0.59).

The highest risk factor for PTSD symptoms measured by PCL was “family members died or are missing” (OR = 4.37), followed by “I have received criticism from residents and I am struggling mentally” (OR = 3.12) and “I have a family member that requires care” (OR = 2.58), whereas categories that reduced the risk of exacerbating symptoms included “I have support from parents, family and friends” (OR = 0.36).

＜ Results for Municipality B＞

Questionnaires were distributed out to 424 officials from Municipality B, with 421 responses received (99.3% retrieval rate). Subjects were 62.0% male and 38.0% female, with 67.9% comprising regular staff members and 32.1% comprising support staff and the average age was 44.8 years. Investigations in FY 2015 with K6, which is a general indicator for a subject’s mental health condition, showed that the percentage of staff with stresses above a total score of 13 was 8.2% among regular staff and 3.7% among support staff, with a total percentage of 6.7%. When all staff members are evaluated, this is virtually the same level as that of citizens in Miyagi Prefecture according to the 2010 census (average level of 6%). However, it cannot be said that the mental health of regular staff has recovered to that of pre-disaster levels. Those with a total PHQ score of above 10, which indicates high depression risk, was 14.5% for regular staff and 3.8% for support staff, with a total percentage of 11.1%. Additionally, the percentage of staff with a PCL score of over 44, which indicates high PTSD risk, was 5.5% for regular staff and 0.8% for support staff, with a total percentage of 4.0%. Across all evaluation metrics, regular staff had poorer mental health than support staff.

Next, we conducted χ^2tests on the relationships between high risk of K6, PHQ-9, and PCL and characteristics related to family, the extent of damage, and work to determine the causes that influence the mental health of regular staff members. We did not conduct analyses on support staff members since there were few high-risk individuals for each symptom.

Risk factors that exacerbated symptoms for mental problems measured by K6 included “regional residents do not trust one another”, “I have no support from my spouse, family, or friends”, “I feel guilt over my words or actions during the earthquake”, “I have received criticism from residents, and I am struggling mentally” and “I have received criticism from a work associate, and I am struggling mentally”.

Risk factors that exacerbated symptoms for depression measured by PHQ-9 included “regional residents do not trust one another”, “I have no support from my spouse, family, or friends”, “I have physical illnesses since before the earthquake that is still in the process of treatment”, “I have a family member that requires care”, “I had to relocate due to the earthquake”, “I felt like my life was in danger due to the earthquake, tsunami, and evacuations”, “I feel guilt over my words or actions during the earthquake”, “I am busy with work and I have not been able to rest enough”, “I have been

employed since before the earthquake", "I have received criticism from residents, and I am struggling mentally and "I have received criticism from a work associate and I am struggling mentally".

Risk factors that exacerbated symptoms for PTSD measured by PCL included "I live alone", "regional residents do not trust one another", "I have no support from my spouse, family, or friends", "I have physical illnesses since before the earthquake that are still in the process of treatment", "family members died or are missing", "I felt like my life was in danger due to the earthquake, tsunami, and evacuations", "I feel guilt over my words or actions during the earthquake", "I am busy with work and I have not been able to rest enough", "I have been employed since before the earthquake", "I have received criticism from residents and I am struggling mentally" and "I have received criticism from a work associate, and I am struggling mentally".

② Research on SWC staff members

SWC staff members were 26.3% male and 72.9% female (0.8% unknown), with an average age of 48.0 years. According to the FY 2014 research, 8.7%, 14.9%, and 3.7% were high-risk individuals according to K6, PHQ-9, and PCL, respectively.

Next, we conducted longitudinal studies to determine the factors associated with high-risk individuals according to K6, PHQ-9, and PCL. Logistical regression analyses were conducted, with a high risk of K6, PHQ-9 and PCL set as target variables; and the categories of "basic attributes (age, gender, occupation)", "individual factors (single households, pre-disaster illness / mental illness treatment history)", "factors influenced by the earthquake (container type temporary housing, decreased or missing persons within the family, life-or-death experiences, guilt over actions taken at the time of the disaster)" and "workplace factors (criticism from residents, excessive work on earthquake-related activities, increases in earthquake-related work, no leave taken, lack of communication in the workplace)" set as the explanatory variables.

"Lack of sufficient rest" was the highest OR for individuals with a K6 score above 13 and is aware of his or her high level of stress and were 6.7 times higher than those who had sufficient amounts of rest. Next, individuals who felt "guilt over the actions they took during the earthquake" and "had a hard time due to criticism from residents" were approximately 3.2 and 2.6 times, respectively, more likely to be at risk of high levels of stress than those who did not. "Lack of sufficient rest" was the highest OR for individuals with a PHQ-9 score above 10 and is at risk of depressive symptoms and were 5.1 times higher than those who had sufficient amounts of rest. Next, individuals who "had a history of mental health treatment since before the earthquake", who felt "guilty over the actions they took during the earthquake" and who "received criticism from residents and had a hard time" were approximately 2.8, 2.7, and 1.9 times, respectively, more likely to be at risk of high levels of depression than those who did not.

"A history of mental illness treatment since before the earthquake" was the highest OR for individuals with PTSD symptoms that have a PCL score above 44 and were 7.9 times higher than those who did not have such a history. Other than this, individuals who felt "guilt over the actions they took during the earthquake", who "thought they might die in the earthquake", who "did not have rest", and who "received criticism from residents and are struggling mentally" were approximately 5.9, 5.5, 4.1 and 3.5 times, respectively, more likely to be at high risk for PTSD symptoms.

From the above results, the three factors of "guilt over the actions they took during the earthquake", "receiving criticism from residents and struggling mentally" and "insufficient rest" were thought to be negative influences on mental health 44 months following the earthquake. Additionally, the factor of "having a treatment history of mental health since before the earthquake" is thought to greatly influence depression and PTSD symptoms.

（４） Discussion

① Research on municipal officials

The percentage of individuals in Miyagi Prefecture with a K6 score of higher than 13 points in the 2010 census was approximately 6% on average and support staff members in both Municipalities A and B have averages that are lower than this, whereas regular staff members have percentages above this. Over time, the percentage of individuals with high stress has decreased, but we can see that there are many individuals among regular staff members who have continued to work in disaster activities immediately after the earthquake for long periods who are conscious of their high-stress levels.

The higher levels of chronic stress among regular staff members, as they worked for long periods of time since immediately after the disaster, is thought to have been a reason for why poor mental health among regular staff members is prominent relative to that of support staff members. It is also thought that there are individuals who have received significant damage as residents in a disaster area. Furthermore, the prolonged duration of the disaster recovery activities may be concentrating larger stresses on regular staff members.

Analysis of causes relating to the high risk of mental health showed that criticism from residents or work associates has significant effects on mental health among regular staff members in both Municipality A and B. Additionally, a history of physical illness treatment or mental illness since before the earthquake was related to poor mental health. Meanwhile, the fact that residents trust one another and that individuals have support from their spouse, family, or friends, have the potential to prevent the exacerbation of mental health. These results correspond with those relating to post-earthquake mental health1-2) and this highlights that the effects of the disaster still have a large role in mental symptoms, even four years after the earthquake. It is thought that countermeasures at the workplace level, such as initiatives to support staff members receiving criticism at work or to support individuals going through various difficulties using workplace teams, to ensure that staff members who are having difficulty due to criticism do not become isolated.

② Research on SWC staff members

Longitudinal comparisons of prior research results (FY 2012, FY 2013) and current results showed that the percentages of high-risk individuals as determined by K6 score shifted sideways from 8.4% → 7.9% → 8.7% and has been changing at a percentage higher than pre-disaster standards (percentages in Miyagi Prefecture in the 2010 census was approximately 6%). Additionally, percentages of high-risk individuals as determined by PHQ tended to increase from 13.1% → 13.7% → 14.9%. No major changes were observed in high-risk individuals as determined by PCL, with shifts from 4.1% → 4.1% → 3.7%.

Many staff members who conduct ongoing work alongside victims maintain their mental health while working, but it was clear that the higher-than-normal percentage of individuals who continue to provide support while suffering from some form of poor mental health has continued at a fixed level even four years after the earthquake. Under normal conditions, mental health indicators should be gradually improving with time since the disaster, but the mental health situation these past few years has not shown significant change since the time of prior research and it may be the case that improvements have already reached their zenith. Staff members are in the position of conducting ongoing work with the most vulnerable victims and the prolonged aspects and difficulties of providing support for these individuals may be connected to chronically high levels of stress.

Analysis on causes that influence mental health 44 months after the disaster showed that the categories of “guilt over the actions they took during the earthquake”, “receiving criticism from residents and struggling mentally” and “insufficient rest” were thought to be risk factors that exacerbate a wide range of mental health aspects. In particular, insufficient rest was correlated to various symptoms, so it is thought that various initiatives that target the improvement of the overall workplace environment, such as ongoing human resource support in disaster areas, improvements in workplace communication and the maintenance of easy-to-rest workplace environments, are necessary to reduce the risk factors that emerge following a disaster.

2． Research on psychological support methods in a disaster area

（1） Research on the feasibility of skills for psychological recovery (SPR) for Japanese victims during disaster recovery periods

＜ Issues and objectives ＞

SPR was developed by the US National Center for PTSD and the US National Child Traumatic Stress Network as a psychological support method that can be widely applied to various mental problems experienced by victims during disaster restoration and recovery periods. It is a new psychological support method that was published in 2010 and a Japanese version was created in June 2011 by the Mental health care center research group in Hyogo prefecture. SPR, which is a support program specialized for recovery and restoration periods of disasters, has been used in several international disasters to date but has not been seriously implemented in Japan.

After the Great East Japan Earthquake, we have conducted workshops and created DVDs to raise the public awareness of skills for SPR for specialists in the disaster areas of Miyagi prefecture. It is thought that these resulted in the higher demand for SPR among specialists working to support residents in affected regions and the public awareness of knowledge and skills relating to SPR. Meanwhile, the feasibility of SPR in disaster areas must first be confirmed for this program to be applied in our country. With this in mind, in the present research, we collaborated with municipalities in the disaster area to apply SPR to actual victims and conducted intervention research on the application of SPR in Japan. Below, we report on the intervention research results regarding the feasibility of SPR in Japan.

＜ Methods ＞

A. participants and recruitment

Subjects included individuals who reside or work in Miyagi Prefecture above the age of 18 and those who have poor mental health are receiving treatment from mental medical institutions or who have serious mental symptoms, were excluded. Additionally, subjects included those whose native language was Japanese, who understood the purpose and content of the present research, and had provided the necessary research participation approval in writing. We exchanged memorandums with affected municipalities and recruited program participants and sent out flyers in public facilities where flyers were permitted and in non-profit organization offices to call for participation.

B. SPR practitioners (interveners)

All mental health care staff who provided support (nurses, public health nurses, psychologists, doctors, etc.) all received training for becoming SPR trainers at the mental health care center in the Hyogo Prefecture and conducted SPR with the same trainers under the supervision (SV) of psychiatrists at the Tohoku University Hospital Department of Psychiatry.

C. Duration and frequency of intervention

Research objectives were explained to participants who met the selection criteria, and a pre-intervention assessment was conducted following the receipt of written consent. Interveners conducted visit-based interviews (60 minutes per session) with participants at a frequency of once every one to two weeks, with a maximum of 8 sessions conducted. A post-intervention evaluation as well as a follow-up evaluation two months later were conducted after the end of the intervention.

D. Content of evaluation

The total score of the general health questionnaire (GHQ-30) was selected as the primary endpoint. QOL (8-item short-form health survey (SF-8)), PTSD symptoms (The impact of event scale-revised (IES-R)), resilience (Tachikawa resilience scale (TRS)), self-efficacy (SE), and program satisfaction (program satisfaction questionnaire (CSQ-8)) were chosen as the secondary endpoints. We also conducted qualitative research on the opinions of the program and each skill as well as their subsequent applications.

＜ Results ＞

We started recruiting participants in July 2013. We received a total of 34 applicants by March 2016. Of these, seven individuals were excluded, seven canceled before interventions, one postponed, and one individual was before research explanations and intake, so we started interventions on the remaining 18 individuals. Of these, five individuals were pre-intervention cases, and 13 were intervention cases after the start of research.

Of the 13 individuals who started intervention, 12 had completed their sessions at present, of these, 10 had completed their follow-up sessions. When we analyzed the pre- and post-intervention evaluations as a preliminary analysis, we observed that the primary endpoint of GHQ score had all decreased during post-intervention relative to pre-intervention. We plan to conduct detailed analyses once we reach the target number of subjects but we expect to see a certain effect in our results.

＜ Discussion ＞

The present research has not yet reached its target number of subjects. For this reason, we are not yet at the stage where we can test program feasibility. However, no adverse events were observed in the 18 subjects who have started interventions and preliminary analysis showed that GHQ scores have decreased when post-intervention levels are compared with pre-intervention levels. At the current stage, this indicates that SPR may be a safe and effective program for use in Japan.

In the future, we plan to increase the number of subjects, and once we reach this target, analyze changes in each endpoint and test program feasibility.

（2） Research on raising public awareness around cognitive behavioral therapy and on mental exercise training for the general public and care workers in disaster areas affected by the Great East Japan Earthquake

＜ Issues and objectives ＞

Massive amounts of damage were inflicted on the coastal areas of Miyagi Prefecture as a result of the Great East Japan Earthquake and victims have experienced heavy physical and mental pressure as a result. For these reasons, victims require long-term mental health care at an annual timescale. Previous research has indicated that subsyndromal mental illnesses that do not reach the extent of mental illness increases in addition to mental illnesses such as PTSD and depression among residents in areas affected by a large-scale disaster.

Cognitive-behavioral therapy is a psychological therapy that promotes self-control skills by addressing both cognition and behavior and seeks to improve or resolve the challenges of various social problems. Cognitive-behavioral therapy has been applied to various mental illnesses such as depression and anxiety disorders and its effectiveness has been demonstrated. Additionally, cognitive behavioral therapy is not only a treatment method for mental illness but also for subsyndromal mental illnesses that do not reach the level of mental illness and has been reported to affect mental illness prevention. As such, it is widely used in fields other than health care. However, relative to that in other developed countries, the current status in Japan is such that there is not much public awareness of cognitive-behavioral therapy.

Given this environment, the National Center for Cognitive Behavioral Therapy and Research and the National Center of Neurology and Psychiatry has hosted “mental exercise workshops” since FY 2012 (now ended) to raise public awareness on basic concepts and skills of cognitive-behavioral therapy. This program was developed by the two centers to learn the basic concepts and skills of cognitive-behavioral therapy, by mixing exercises with experience and to apply stress management in day-to-day activities.

It is thought that the role of raising public awareness of basic concepts and skills in cognitive behavioral therapy plays a large role in the prevention of mental problems following a large-scale disaster. With this in mind, the present research conducted workshops on stress care for daily life activities for general residents and care workers in disaster areas, focusing on basic concepts and skills in cognitive behavioral therapy from a primary prevention standpoint and tested the effectiveness and feasibility of the training programs designed for the general public. Our objective was to raise public awareness of future cognitive behavioral therapy and to clarify the possibilities and challenges surrounding public awareness.

＜ Pilot study ＞

Until now, we have conducted a “mental exercise workshop” program for general residents in disaster areas once a week for a total of six times as a pilot study and conducted five courses in the disaster area. There was a total of 180 participants (19 males, 161 females, the average age of 45.7± 14.4 years), of which 98 were from the general public.

Research approval was obtained; we posed questions to 46 members of the general public who attended more than 5 sessions (2 males, 44 females, the average age of 47.8± 13.7) to measure self-efficacy, comprehension of the workshops, and attendance rate, and we analyzed changes before and after the workshops.

Results showed that self-efficacy (score range: 23-115 points, average score: 77.9 ± 13.9 points for men, 75.3 ± 13.4 points for women) significantly increased from 69.2 before the workshops to 73.4 afterward ($Z = 2.73$, $p < 0.01$). Additionally, four out of the seven criteria of the workshop comprehension scores showed significant increases when pre- and post-intervention scores were analyzed with the Wilcoxon signed-rank sum test (“I am aware of my thinking tendencies”, ($Z = -3.43$, $p < 0.01$); “I am aware of what thought processes contribute to depression or anxiety”, ($Z = -2.08$, $p = 0.04$); “I noticed that I am always making myself suffer, and I was able to switch my thought process”, ($Z = -2.95$, $p < 0.01$); “I carefully examine how the situation changed once I implemented solutions”, ($Z = -2.05$, $p = 0.04$)). Additionally, questionnaires that asked for opinions on the workshop were all favorable, with many saying they found the overall learning process enjoyable.

＜ Revision of the training program ＞

We reduced the number of mental exercise workshops from 6 to 4 as a result of the pilot study, changing it to a format where we present content in a weekly 90-minute session over 4 weeks. We sought to increase the research participation rate by decreasing the number of events. Additionally, we assigned homework for each session so that workshop participants could learn experientially. The program content was changed to focus on cognitive behavioral therapy and assertion.

＜ Methods ＞

A． Study design

The study is a randomized controlled trial (RCT). Subjects were randomly divided into an intervention group where they received the training beforehand and a control group who is on standby during this period and received the training over time. The intervention group conducted four rounds of the training program and we conducted post-intervention evaluations at the final program round. We conducted evaluations with the control group at the same time as well and the group subsequently conducted the same training program.

B． Participants and recruitment

Subjects included those over the age of 18 and under the age of 79 who were victims of the Great East Japan Earthquake in Miyagi Prefecture and who wished to participate in these workshops, understood the research objectives, and provided consent for research participation. We excluded individuals who were visiting psychiatric medical institutions, whose treatment was suspended, and who have serious untreated mental symptoms. We recruited research participants by distributing flyers and publishing articles in newspapers and public relations magazines.

C． Training program content

The revised program mentioned above was used.

D． Evaluation content

The generalized self-efficacy scale (SES) total score was used as the primary endpoint. High self-efficacy is thought to have preventative effects on mental illness following a disaster, and previous research has shown that this can be improved with a cognitive-behavioral approach. The program was conducted and this workshop program would be considered effective if significant improvements in SES score were observed between pre- and post-intervention.

The total scores of K6, which measures general psychological stress; the GHQ mental health questionnaire (GHQ-30), which measures stress-related symptoms; and the automatic thoughts questionnaire-revised (ATQ-R), which measured negative and positive automatic thoughts, were used as the secondary endpoints.

＜ Results ＞

Programs have been implemented a total of three times: Ishinomaki City from January – March 2015; and Sendai City in June – August 2015, and January – March 2016. There were a total of 86 participants (14 men, 72 women, the average age of 52.5 ± 13.2 years) with a total of 61 research subjects (9 men, 52 women, the average age of 52.7 ± 12.7 years). Of these, there were 31 individuals in the intervention group (5 men, 26 women, the average age of 52.9 ± 11.9 years) and 30 were in the control group (4 men, 26 women, the average age of 52.5 ± 13.4 years). The average participation rate in the intervention group was 3.58 times (± 0.67), and the percentage of individuals who attended at least 3 meetings was 90.3%.

There were a total of 27 individuals in the intervention group who participated in at least 3 sessions and who responded to both pre- and post-intervention questionnaires and there were also 27 individuals in the control group who responded to both pre- and post-intervention questionnaires as well. Analysis of their basic attributes showed no significant differences in attribute data (age, gender, education, profession, household size, relocation due to earthquakes, deceased or missing persons within the family, life-or-death situations) between the two groups, which indicated that the randomization between the two groups was effective.

Provisional analyses did not show significant differences in the primary endpoint of generalized self-efficacy between the two groups but significant improvements in the secondary endpoint of the positive automatic thoughts in the automatic thoughts list in the intervention group. Since the present program was changed from 6 sessions in the pilot study to 4 sessions, a certain period was required for skills to be learned and retained and it was possible that this did not sufficiently improve generalized self-efficacy, which is a measure of self-trust. Meanwhile, positive automatic thoughts are thought to have increased by creating program content that focuses on cognitive behavioral therapy.

In the future, we intended to analyze the obtained data in detail and report on program effectiveness and feasibility.

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