

STRESS MANAGEMENT FOR DISASTER RECOVERY SUPPORT STAFF ASSISTING NUCLEAR DISASTER EVACUEES

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The residents of Town A have been taking shelter in various parts of Japan ever since the accident of Fukushima Daiichi Nuclear Power Plant. The staff members carry out their tasks in seven locations across the country under a great stress with the limited manpower. This study reports the present situation of the stress management for the disaster recovery support staff helping the evacuees living outside the prefecture. The subjects were the 19 members. The *T*-scores were calculated from Coping Inventory for Stressful Situations (CISS) by assessing their CISS before the mental health seminars commenced. There was a significant positive correlation between ‘task-oriented coping’ and ‘avoidance-oriented coping’ as well as ‘task-oriented coping’ and ‘amusement’. Between the genders, the male subjects expressed a significantly higher ‘amusement’ value.

OBJECTIVE

The Great East Japan Earthquake, which occurred on 11 March 2011, and the subsequent accident at the nuclear power plant inflicted enormous damage. It has been seven and a half years since that disaster, but there are an increasing number of cases of problem drinking, which was not significant just after the earthquake disaster, and isolation from local communities or family members, and it is necessary to help solve serious cases⁽¹⁾.

The residents of Town A have been taking shelter in various parts of Japan ever since the accident of Fukushima Daiichi Nuclear Power Plant. The disaster recovery support staff have been deployed by the town to enable the residents who were living outside Fukushima prefecture to access the social resources and to stay in touch with the fellow residents through transmission of information, house visits and organising exchange meetings for them.

The staff members carry out their tasks in seven locations across the country under a great stress with the limited manpower. The total number of staff members around Japan was 22 as of July 2017, and they take the role of connecting Town A, social resources and citizens by distributing information on the town, visiting each evacuee and holding exchange meetings for evacuees. As such continuous activities under a heavy burden threatens to cause burnout and other problems, Hirosaki University has been providing psychological supports to the staff since 2016 while trying to understand their psychological characteristics at the same time.

Since it is necessary to understand the psychological traits of subjects in order to offer effective

support, we studied the characteristics of their behaviours for coping with their stress.

This study reports the present situation of the stress management for the disaster recovery support staff helping the evacuees living outside the prefecture.

METHOD

The subjects were the 19 members (12 males and 7 females) of the disaster recovery support staff who attended the Conference for the Disaster Recovery Support Staff Promotion to which the staff members from all the centres have gathered. The *T*-scores were calculated from Coping Inventory for Stressful Situations (CISS) by assessing their CISS before the mental health seminars commenced. The mental health seminars were organised by clinical psychologists of Hirosaki Universities, and a total of 2 h and 45 min was spent for the mental health seminars and individual counselling. CISS was filled out before the mental health seminars so that advice could be given individually based on evaluation results. CISS is a self-administered questionnaire sheet created by Endler & Parker and translated into Japanese by Furukawa *et al.*, and the reliability and appropriateness of the Japanese version have been confirmed^(2, 3).

CISS is designed to assess an individual's coping behaviours under stressful situations and is evaluated by ‘task-oriented coping’, ‘emotion-oriented coping’, ‘avoidance-oriented coping’, ‘breath-fresher’ and ‘amusement’.

‘Task-oriented coping’ is an adaptive one in which they grasp their situation objectively and strive to solve problems. In ‘emotion-oriented coping’, they react

emotionally, for example, by venting their emotions. In 'avoidance-oriented coping', they look away from problematic situations and do not think about them. Each scale has 16 subscales, so that it is composed of a total of 48 items. The subjects rate each item with five levels, giving 16–80 points to each subscale, where a higher score indicates a subject use the coping behaviour concerned.

Since it was reported that methods for choosing coping behaviours vary between males and females, we also conducted analysis for each gender^(4, 5). SPSS21 was used for statistical analysis.

We employed Pearson's product moment correlation coefficient (** $p < 0.01$) as well as the two sample T -test (* $p < 0.05$) as our analysis methods. The study took place in October 2017.

ETHICAL CONSIDERATIONS

This project was commissioned by the Ministry of the Environment as part of its Research Project for Nuclear Power Disaster Influence (preparation of the unified supporting data regarding the health effect of the radiation and setting up the centres for risk communications). The subjects were contacted either verbally or in writing to explain the purpose of the study and the consents for publication were obtained. In publishing the findings, we shall strictly adhere to our confidentiality obligation regarding privacy and will do our utmost to maintain subject anonymity. The current research was carried out with the approval by the ethics committee (reference number: 2016-006).

RESULT

- The mean age \pm standard deviation (SD) of the subjects was 59.5 ± 5.6 for males and 48.3 ± 9.2 for females.
- The mean T -score \pm SD of stress coping criteria was 52.5 ± 10.9 for 'task-oriented coping', 53.1 ± 11.1 for 'emotion-oriented coping', 54.8 ± 10.2 for 'avoidance-oriented coping', 54.8 ± 10.2 for 'breath-fresher' and 52.4 ± 11.9 for 'amusement' (Table 1).
- Between the genders, the male subjects expressed a significantly higher 'amusement' value ($p < 0.05$) (Table 2).
- There was a significant positive correlation between 'task-oriented coping' and 'avoidance-oriented coping' ($r = 0.706$, $p < 0.01$) as well as 'task-oriented coping' and 'amusement' ($r = 0.728$, $p < 0.01$) (Table 3).

DISCUSSION

- Characteristics of disaster recovery support staff's methods for coping with their stress.

The T -scores of disaster recovery support staff's coping behaviours were all over 50. It was found that they cope with their stress, without

Table 1. CISS T -scores ($N = 19$).

	Mean	SD
Task-oriented coping	52.5	10.9
Emotion-oriented coping	53.1	11.1
Avoidance-oriented coping	54.8	10.2
Breath-fresher	54.8	10.2
Amusement	52.4	11.9

Table 2. CISS T -scores in males ($n = 12$) and females ($n = 7$).

	Male ($n = 12$)		Female ($n = 7$)		p
	Mean	SD	Mean	SD	
Task-oriented coping	55.0	12.2	48.0	6.6	0.21
Emotion-oriented coping	51.1	12.4	57.9	7.7	0.20
Avoidance-oriented coping	58.5	11.4	49.6	4.2	0.26
Breath-fresher	56.3	11.1	52.7	8.7	0.65
Amusement	57.2	11.0	44.1	8.5	0.04

belong lopsidedly included toward any of 'task-oriented coping', 'emotion-oriented coping' and 'avoidance-oriented coping'.

If the score of 'emotion-oriented coping' is high, mild mental disorder tends to break out. Accordingly, it was considered necessary to treat stress while preventing the excessive increase in the degree of 'emotion-oriented coping' in order to keep the mental conditions of disaster recovery support staff healthy after their tasks.

- Regarding the difference in 'Amusement t -score' between sexes

'Amusement t -score' vary between men and women. It was found that men rely on amusement for coping with stress than women. According to the research by Kawazoe *et al.*⁽⁶⁾, the concrete behaviour of 'Amusement t -score' is assumed to be drinking. If they drink alcohol to relieve their stress, they may become alcoholic. Accordingly, it is considered necessary to grasp how disaster recovery support staff will cope with their stress and keep supporting them.

- Regarding the relation between task-oriented coping and pastimes

As a positive correlation was observed between task-oriented coping and pastimes, it was inferred that disaster recovery support staff strive to solve problems for evacuees, but if they are faced with difficulty in dealing with some problems, they give up and take a pastime.

It is considered that many problems related to the nuclear cannot be dealt with by the individual

Table 3. Intercorrelations for T-scores on stress coping criteria (N = 19).

	Task-oriented coping	Emotion-oriented coping	Avoidance-oriented coping	Breath-fresher	Amusement
Task-oriented coping	—			0.398	0.728**
Emotion-oriented coping	0.321	—		0.112	0.138
Avoidance-oriented coping	0.706**	0.076	—	—	—

** $p < 0.01$.

skills of disaster recovery support staff, so they take a pastime for getting rid of their stress.

- Necessity to support each disaster recovery support staff member

It is said that coping behaviour varies from person to person and has time stability^(7, 8). Therefore, by grasping the traits of individual members, it is possible to measure the patterns of coping with stress at the individual level. It is considered that by knowing the patterns of coping with stress at the individual level, they can relieve their stress appropriately.

Disaster recovery support staff are suffering from a great deal of stress. It is impossible to predict the degree of stress that would cause adverse effects on the mental health of individual members.

In order to maintain the mental health of disaster recovery support staff, it is necessary to support them while keeping in mind that they have the risk of a mental disorder.

CONCLUSION

As a characteristic of disaster recovery support staff's behaviour for coping with stress, they use 'Task-Oriented Coping', 'Emotion-Oriented Coping', 'Avoidance-Oriented Coping', 'breath-fresher' and 'amusement' in a balanced manner.

It was found that 'Task-Oriented Coping' is positively correlated with 'Avoidance-Oriented Coping' ($r = 0.706$, $p < 0.01$) and 'amusement' ($r = 0.728$, $p < 0.01$). Through the comparison between male and female subjects, it was found that male have a significantly higher score of 'amusement' ($p < 0.05$).

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