

The Living Situation, and Social Capital and Its Related Factors of Adults Taking Shelter for a Long Time after the Catastrophic Earthquake

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Abstract

This study focused on the adults taking extended shelter after the catastrophic earthquake in March 2011, and aims to reveal their living situations, and social capital and its related factors. We examined the living situations including the existence of people with whom to cohabit, occupation, participation in community activities, and social support. We also examined the following relevant factors of social capital: area of residence, age, the existence of people with whom to cohabit, occupation, participation in community activities, social support, mental health status, and income change after the earthquake. Help in rebuilding their community is a key factor that affects the mental sanity of refugees. Given the changes brought by the earthquake, this group of people merits government support.

Keywords: social capital, refugee, catastrophic earthquake

1. Introduction

After the Great East Japan Earthquake, many people had to leave their homes to spend a long time in refuges. Those who took shelter now face the task of rebuilding their own life and their communities. The social capital concept refers to "networks, norms, and trust, which are the characteristics of social activities" (Motohashi, Kaneko, & Yamaji, 2005). Motohashi (2007) has reported that social capital is relevant to suicide prevention. Therefore, social capital is a critical concept for health and suicide prevention in communities.

We conducted this study on adults who took shelter for a long time after the earthquake. We examined their current living situations, and social capital and factors predicted to be relevant to social capital so as to identify the actual relevant factors after the earthquake.

2. Research Methodology

2.1 Participants and Procedures

The participants were 1,595 people who applied for the general health check carried out by Town A at a venue in the prefecture. We asked participants to complete the survey form only if they agreed to cooperate in the study. The collection rate was 92.7%.

2.2 Variables/measurements

The question items on their attributes were the following: area of residence, presence of housemate, gender, age, marital status, and employment status. The items regarding refugees' living situations were the following: the existence of people with whom to cohabitate, occupation, participation in community activities, and social support. We also examined the following factors predicted to be relevant to social capital: change in economic situation.

To determine the mental sanity, we used the Japanese version of k6 (Kawakami, 2005; Furukawa, 2003), which was developed to screen mood and anxiety disorders. The respondents could choose their answers from a five-point Likert scale: 0-Not at all, 1-Seldom, 2-Sometimes, 3-Usually, and 4-Always. The total scores from the six items (0 to 24 point range each) was calculated. A higher score indicates a lower level of mental sanity.

We also inquired on the experience of stress in the last month, availability of ways to relieve stress, as well as feeling the desire to die in the last month and/or in the past, all of which provided indices of mental sanity.

We used the scales developed by Motohashi et al. (2005) as measurement items for social capital. The questions were the following five items: ① Are neighbors willing to help one another? (mutual assistance and trust), ② Do people in town warn children when they happen to see the latter engaging in unsafe playtime by themselves? (sense of social responsibility), ③ Do you have an attachment to your community? (community attachment and identity), ④ Do you often speak to your neighbors? (interpersonal bond) ⑤ Are people in town kind to the elderly? (kindness of the community). The answers were given in a four-point Likert scale: 0-Not at all, 1-Seldom, 2-Sometimes, and 3-Often. In this study, the total scores were calculated by adding the scores of the five items (0 to 15 point range each). The scores were interpreted as follows: a higher total score indicated a stronger social capital level.

2.3 Data Analyses

We calculated the numbers and percentages of each answer regarding living situation before and after the disaster.

We studied whether there was a difference in social capital depending on basic attributes, participation in community activities, the existence of social support, the existence of stress, availability of ways to relieve stress, the existence of suicide consideration, mental sanity, and change in economic situation.

We used a *t*-test to compare the two groups, and a one-way analysis of variance or Kruskal-Wallis test for more than three groups, according to the distribution. We calculated Pearson's product-moment correlation coefficient for age and mental sanity level.

We used IBM SPSS Statistics 19 for statistical analysis. The two-tailed test was conducted at a significance level of 0.05.

3. Findings

3.1 Living situation

The results of refugees' living situations are shown in Tables 1-4 below.

Table 1: Presence of housemate

	Before the disaster		After the disaster	
	Number of people	%	Number of people	%
Yes	90	6.26	183	13.03
No	1347	93.74	1221	86.97
Total	1437	100	1404	100

Table 2: Occupation

	Before the disaster		After the disaster	
	Number of people	%	Number of people	%
Full-time	354	24.79	76	5.39
Part-time	271	18.98	68	4.83
Full-time homemaker	164	11.48	258	18.31
Cessation from work/ Layoff	5	0.35	98	6.96
Unemployed	287	20.10	829	58.84
Agriculture/Forestry/Fishery	176	12.32	8	0.57
Self-employed	144	10.08	45	3.19
Others	27	1.89	27	1.92
Total	1428	100	1409	100

Table 3: Participation in community activities

	Before the disaster		After the disaster	
	Number of people	%	Number of people	%
Community-based activity	319	31.96	122	22.63
Sports, hobby, entertainment activity	474	47.49	269	49.91
Volunteer, NPO, civic activity	109	10.92	86	15.96
Other groups' activity	96	9.62	62	11.50
Total	998	100	539	100

Table 4: Social support

	Before the disaster		After the disaster	
	Number of people	%	Number of people	%
The existence of people who listen to their frustrations				
Yes	1165	93.57	1077	86.51
No	80	6.43	168	13.49
Total	1245	100	1245	100
The existence of people who support them materially and/or financially				
Yes	1021	80.84	949	75.14
No	242	19.16	314	24.86
Total	1263	100	1263	100

3.2 The social capital and related factors

The mean of the social capital score is 13.64 (SD 3.70).

The factors relevant to social capital after the earthquake were resident area, age, occupation, participation in community activities, the existence of people who listen to their frustrations, the existence of people who support them materially and/or financially, stress experienced in the last one month, availability of ways to relieve stress, the existence of suicide consideration in the past and in the last one year, mental sanity, and economical change after the earthquake.

Those categorized in the following groups had significantly lower scores for social capital than the other groups: People who have evacuated to areas other than the designated shelters, those in the age range of 40 to 59, those with full-time employment, those who have not participated in community activities, those who stopped participating in community activities especially after the earthquake, and those who have no one to listen to their frustrations. They have no one to support them financially, are in a poor economic situation, had moderate or higher levels of stress in the last month, have no available ways to relieve stress, and have experienced the desire to die even if only slightly in the last year and in the past (Table 5).

Table 5: Comparison of scores for social capital with scores for attributes, participation in community activities, presence of social support, changes in economic situation, and mental sanity level (shown below are items with significant difference only).

		Number of people	Average score	SD	Test statistic
Area of residence	A	534	7.25 ^{1,2}	3.650	F=13.60**
	B	448	6.32 ¹	3.354	
	Other than A/B	228	5.97 ²	3.721	
	Total	1210	6.66	3.594	
Age	20s	44	6.20	3.085	χ ² =25.15**
	30s	120	6.74	3.670	
	40s	158	6.07 ¹	3.297	
	50s	227	5.95 ²	3.215	
	60s	386	6.79	3.726	
	70s	214	7.49 ^{1,2}	3.717	
	80s	57	7.25	3.925	
	90 and above	2	6.50	.707	
	Total	1208	6.66	3.590	R=0.10**
Occupation	Full-time	67	4.94 ^{1,2,3,4}	3.375	F=3.00**
	Part-time	60	6.60	3.295	
	Full-time homemaker	221	6.57 ¹	3.379	
	Cessation from work/ Layoff	84	7.15 ²	3.363	
	Unemployed	680	6.67 ³	3.653	
	Agriculture/Forestry/Fishery	6	8.67	5.354	
	Self-employed	33	7.33 ⁴	3.434	
	Others	22	7.27	4.142	
	Total	1173	6.62	3.584	
Participation in community activities	Yes	371	7.82	3.524	t=7.61**
	No	843	6.15	3.507	
Participation in community activities (Change before and after the earthquake)	Yes, before and after	330	7.82 ^{1,2}	3.513	F=24.86**
	Before only	294	5.50 ^{1,3,4}	3.514	
	After only	41	7.80 ³	3.655	
	Neither before nor after	549	6.51 ^{2,4}	3.456	
	Total	1214	6.66	3.594	
The existence of people who listen to respondents' frustrations	Yes	1077	6.91	3.533	t=6.92**
	No	137	4.70	3.471	
The existence of people who listen to respondents' frustrations (Change before and after the earthquake)	Yes, before and after	1073	6.91 ^{1,2}	3.536	F=16.96**
	Before only	77	4.29 ¹	3.448	
	After only	4	8.25	2.872	
	Neither before nor after	60	5.23 ²	3.456	
	Total	1214	6.66	3.594	
The existence of people who support respondents' materially and/or financially	Yes	949	6.94	3.509	t=5.15**
	No	265	5.67	3.722	
The existence of people who support respondents' materially and/or financially	Yes, before and after	937	6.95 ^{1,2}	3.500	F=9.78**
	Before only	80	5.15 ¹	3.472	
	After only	12	6.33	4.334	
	Neither before nor after	185	5.89 ²	3.812	
	Total	1214	6.66	3.594	
Change in economic situation	Worse	571	6.09 ^{1,2}	3.627	F=9.55**
	Better	65	7.88 ¹	3.044	
	No change	519	7.04 ²	3.509	
	Others	20	6.70	2.922	
	Total	1175	6.62	3.573	

Stress in the last month	Much	455	5.91 ^{1,2}	3.852	$\chi^2=41.41^{**}$
	Moderate	559	6.92 ^{1,3}	3.295	
	Not much	134	8.00 ^{2,3}	3.347	
	None	17	7.24	4.161	
	Total	1165	6.66	3.602	
Availability of ways to relieve stress	Yes	1093	6.85	3.568	$t=5.54^{**}$
	No	121	4.97	3.393	
Experience of the desire to die in the last year	Not really	858	7.06 ^{1,2}	3.509	$F=22.87^{**}$
	Somewhat	231	5.95 ^{1,3}	3.475	
	Yes	105	4.92 ^{2,3}	3.852	
	Total	1194	6.66	3.598	
Experience of the desire to die in the past	Not really	766	6.95 ¹	3.650	$F=8.43^{**}$
	Somewhat	282	6.36	3.370	
	Yes	140	5.71 ¹	3.575	
	Total	1188	6.66	3.599	

Significant differences were observed between the same numbers.

* P < 0.05

** P < 0.01

The significant relationships were seen between the scores for social capital and mental sanity level (K6) in all sub-items and total scores (Table 6).

Table 6: Correlation coefficients between social capital and mental sanity level

		Mental sanity level (K6)						
		Nervous	Desperate	Uneasy	Depressed	In pain	Sense of worthlessness	Total score
Social capital (before and after the earthquake)	Mutual assistance	-.157**	-.168**	-.154**	-.199**	-.207**	-.150**	-.217**
	Give children appropriate warning	-.099**	-.140**	-.132**	-.153**	-.168**	-.151**	-.170**
	Community attachment	-.161**	-.190**	-.159**	-.208**	-.244**	-.164**	-.226**
	Conversation with neighbors	-.137**	-.147**	-.151**	-.230**	-.233**	-.183**	-.221**
	Kindness to the elderly	-.140**	-.185**	-.160**	-.200**	-.217**	-.170**	-.226**
	Total score	-.171**	-.216**	-.186**	-.254**	-.274**	-.210**	-.271**

** P < 0.01

4. Discussion

The results showed a significant association between social capital and mental sanity levels. Associations were also seen between social capital and stress level, availability of ways to relieve stress, experience of suicide consideration, and deterioration in economic situations. Various factors are considered relevant to suicide, such as stressful daily life events in the last six months, a lack of social network, economical factors, health conditions, awareness of the people in the community, and mass media influence (Kawakami et al., 2007; Sakamoto, 2006). Recently, reports from Japan and abroad suggest that a thriving community based on trust positively affects the health of its members (Mamada, 2010; Uebuchi et al., 2008). In other words, they suggest the possibility of community members elevating the mental sanity level and preventing suicide by enriching the social capital, which is also supported by the result of this study.

According to Hiroshima et al. (in press), those who stopped participating in community activities after the earthquake had a significantly lower level of mental sanity compared with those who performed no community activities before and after the earthquake. Because those who were in a worse economic situation after the earthquake had significantly lower social capital, it is necessary to support them in view of the changes that occurred after the earthquake.

5. Conclusion

In this study we examined the living situation as well as the social capital and its relevant factors for adults taking extended shelter after the catastrophic earthquake in March 2011. Social capital was strongly relevant to mental sanity levels. In addition, it was associated with economic changes after the earthquake. Providing support in rebuilding their community is a key factor that affects the mental sanity of refugees. They must be given support in view of the changes that occurred after the earthquake.

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