

Energy Saving Behavior after the Great East Japan Earthquake

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Back ground

Great East Japan Earthquake occurred in 11th March 2011, which caused unimaginable damage to the northern parts of Japan. Power shortage was caused by stop of the nuclear power plants. Large scale campaign was carried out to ask people to save electricity.

Research question

- Did the electricity saving behaviors differ between the areas?
 - Tohoku area had the severest damage by the earthquake. Is the electricity saving behavior highest in Tohoku area?
- What are the determinants of electric saving behavior after the Great East Japan Earthquake ?
 - Which of the mass media and personal communication have stronger effects on the behavior?

Results

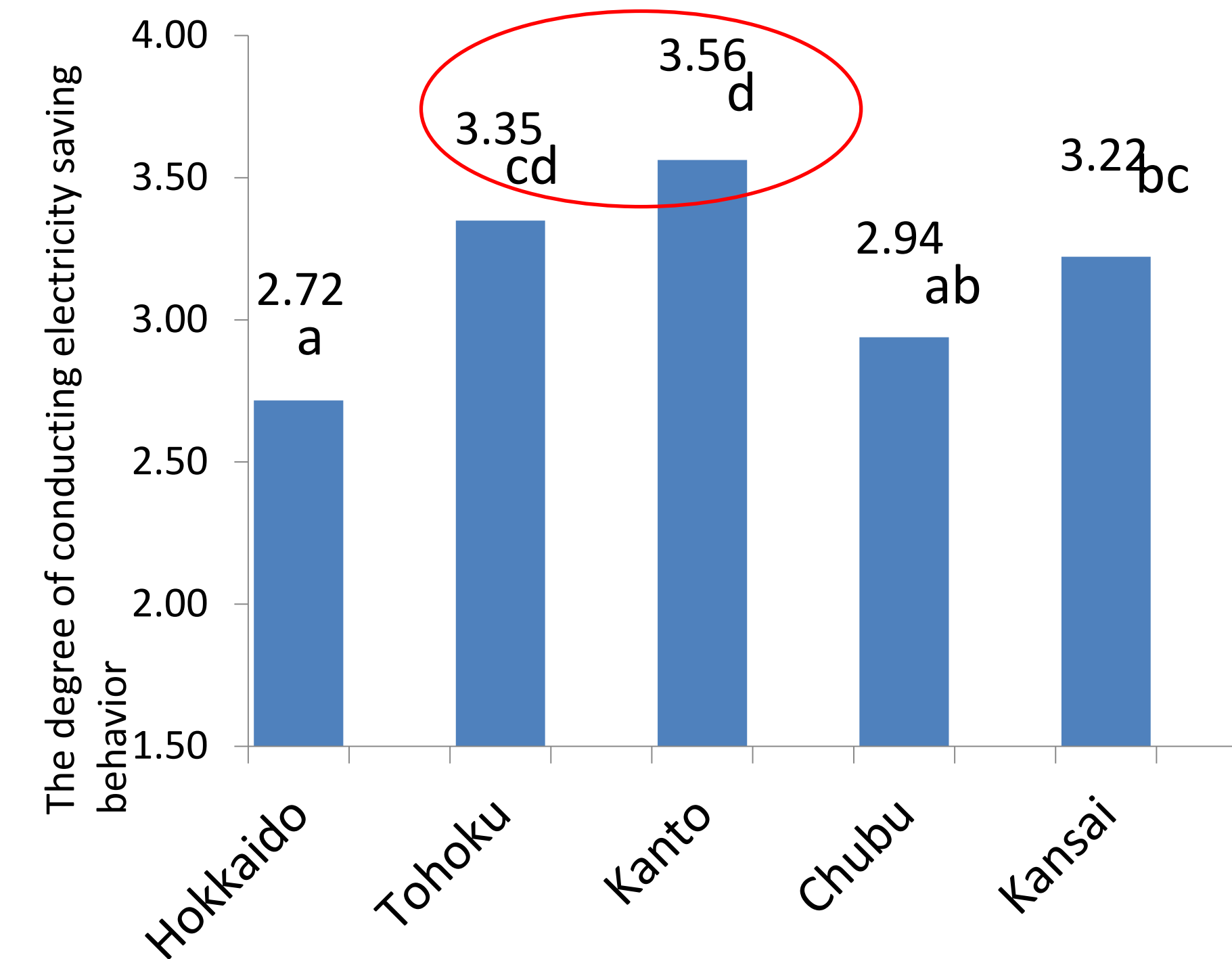


Fig.2 Mean of electricity saving behaviors

Table.2 Determinants of electricity saving behaviors : Regression analysis

	β
Cognition of the shortage of power supply	.15 ***
Cognition of the electricity saving in public space	.21 ***
Estimation of others' behaviors	.16 ***
Personal communication	.21 ***
Communication via mass media	.08 *
Negative Attitudes toward nuclear power plants	.12 ***
Grade	.03
Sex	.04
<i>F Value</i>	29.40
<i>R²</i>	.27

*** $p < .001$ ** $p < .01$ * $p < .05$

Table.1 Means of behavioral and cognitive variables in each area

		Hokkaido (n = 121)	Tohoku (n = 43)	Kanto (n = 128)	Chubu (n = 125)	Kansai (n = 194)
Cognition of the shortage of power supply	<i>M</i>	2.36 a	2.72 ab	3.34 b	2.64 b	2.81 c
	<i>SD</i>	0.98	0.98	1.02	0.93	1.05
Cognition of the electricity saving in public space	<i>M</i>	3.37 a	4.12 ab	4.36 cd	3.62 bc	3.91 d
	<i>SD</i>	1.11	0.98	0.77	1.24	1.00
Estimation of others' behaviors	<i>M</i>	2.26 a	2.26 a	2.33 a	2.34 a	2.39 a
	<i>SD</i>	0.56	0.57	0.64	0.56	0.58
Personal communication	<i>M</i>	2.14 a	2.73 b	2.57 c	2.31 ab	2.35 bc
	<i>SD</i>	0.87	1.00	0.90	0.93	0.90
Communication via mass media	<i>M</i>	2.76 a	3.19 b	3.11 b	3.05 b	3.19 b
	<i>SD</i>	0.98	0.98	0.94	0.98	0.89
Negative Attitudes toward nuclear power plants	<i>M</i>	3.33 a	3.62 a	3.73 a	3.60 a	3.72 a
	<i>SD</i>	1.33	1.24	1.04	1.16	0.99



Part of the lights was turned off for electricity saving at the office



Part of the escalators was stopped for electricity saving at the station

Discussion

- The results showed that the electricity saving behavior was the highest in Kanto area, which experienced the severest power shortage after the Earthquake. Tohoku area was the second highest in behavioral level.
- Personal communication was the stronger determinant of the behavior than communication via mass media.
- Cognition of the electricity saving in public space had impact on the behavior. It suggests that observing the electricity saving in public space may served as descriptive norm, that many people think electricity saving is necessary and desirable behavior.

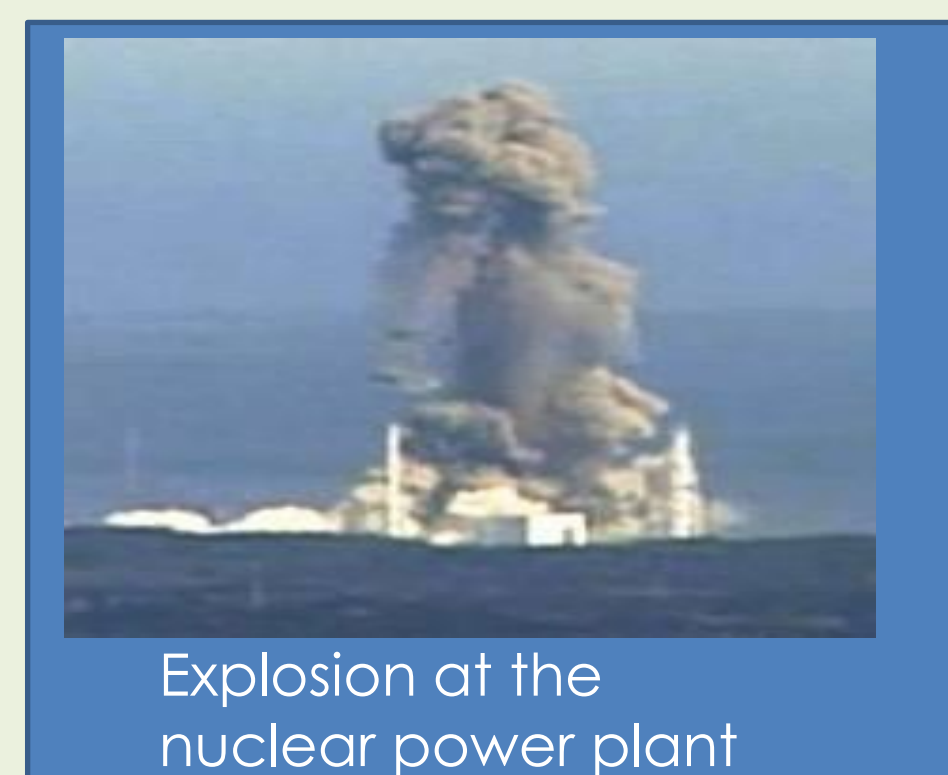
Method

Research period: April-June 2012

Procedures: The study was conducted in 5 areas in Japan (Hokkaido, Tohoku, Kanto, Chubu and Kansai Fig.1).

Respondents: University students from 7 universities in 5 areas in Japan.

The total number of the valid answers were 611.



Explosion at the nuclear power plant

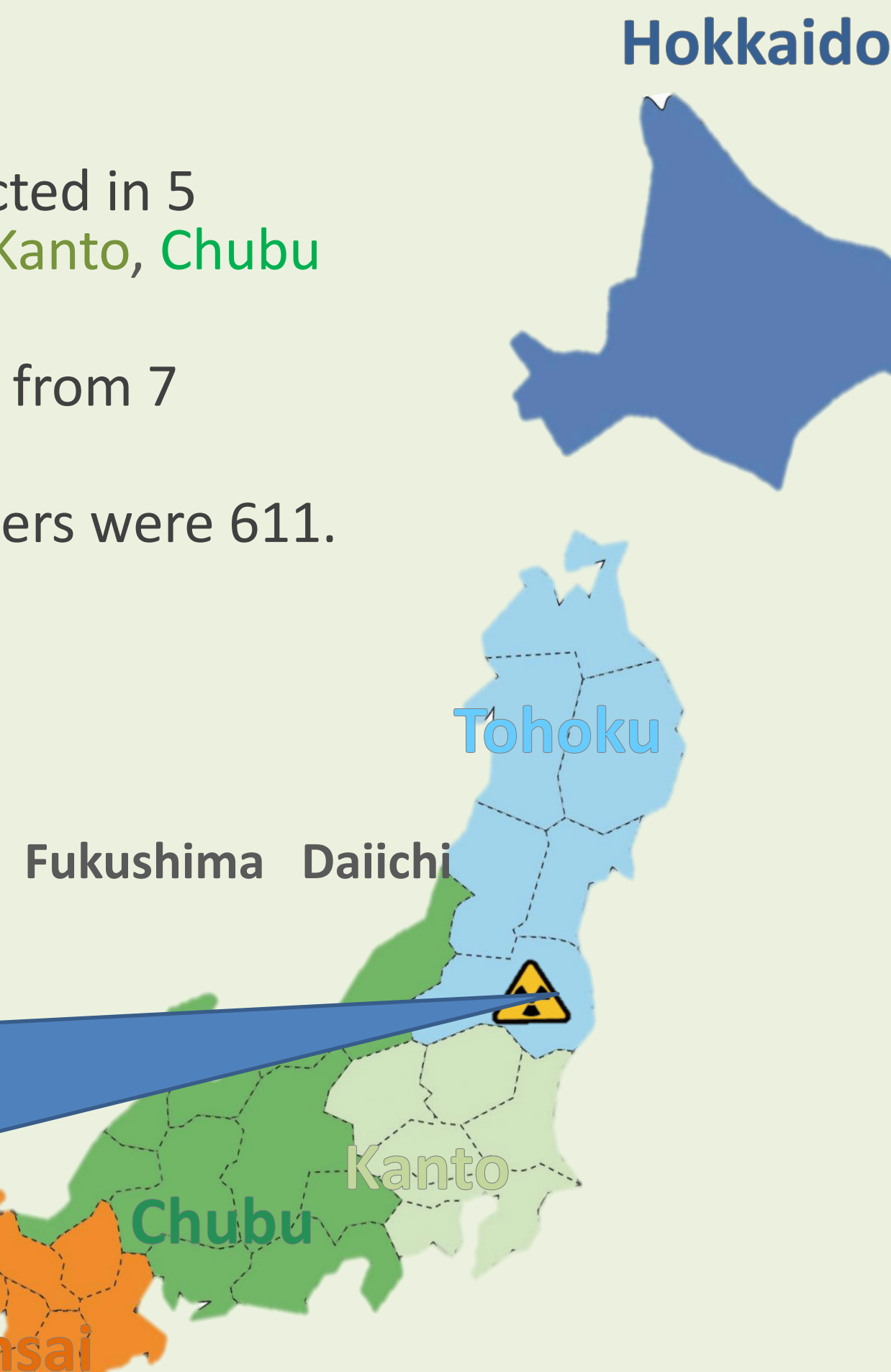


Fig.1 Map of JAPAN and research area