

The experiences of people  
with functional needs in  
times of disasters:  
Results from the 2013 Sendai  
grass-root assessment  
workshop

Presentation for UNU-IAS Fukushima Global Communication  
Programme Panel Debate @ WCDRR2015:

“Disaster Risk Reduction and the Transition from Response to  
Recovery”

Sendai, March 16, 2015

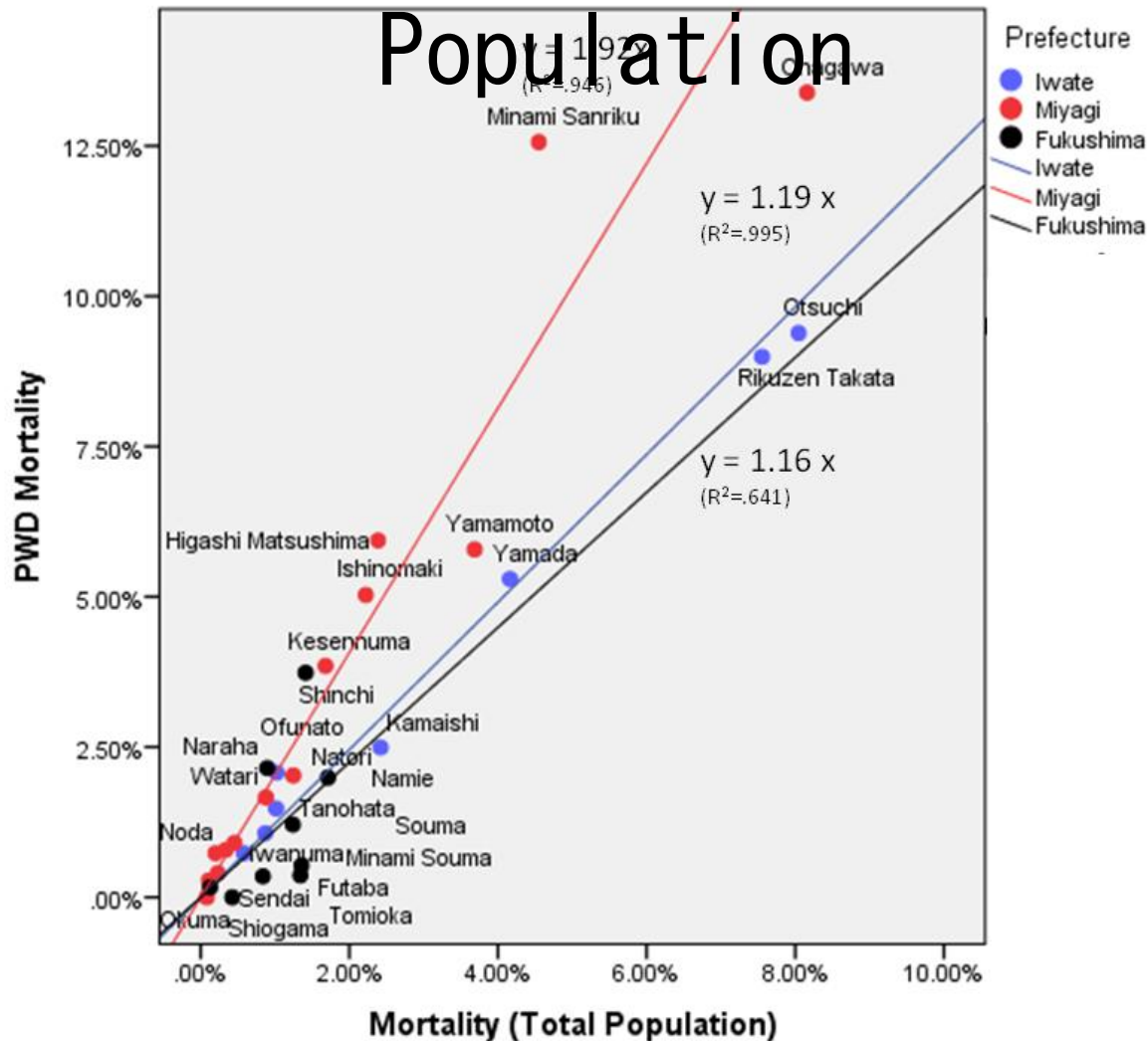
Shigeo Tatsuki

Department of Sociology, Doshisha University

# Background of the Problem

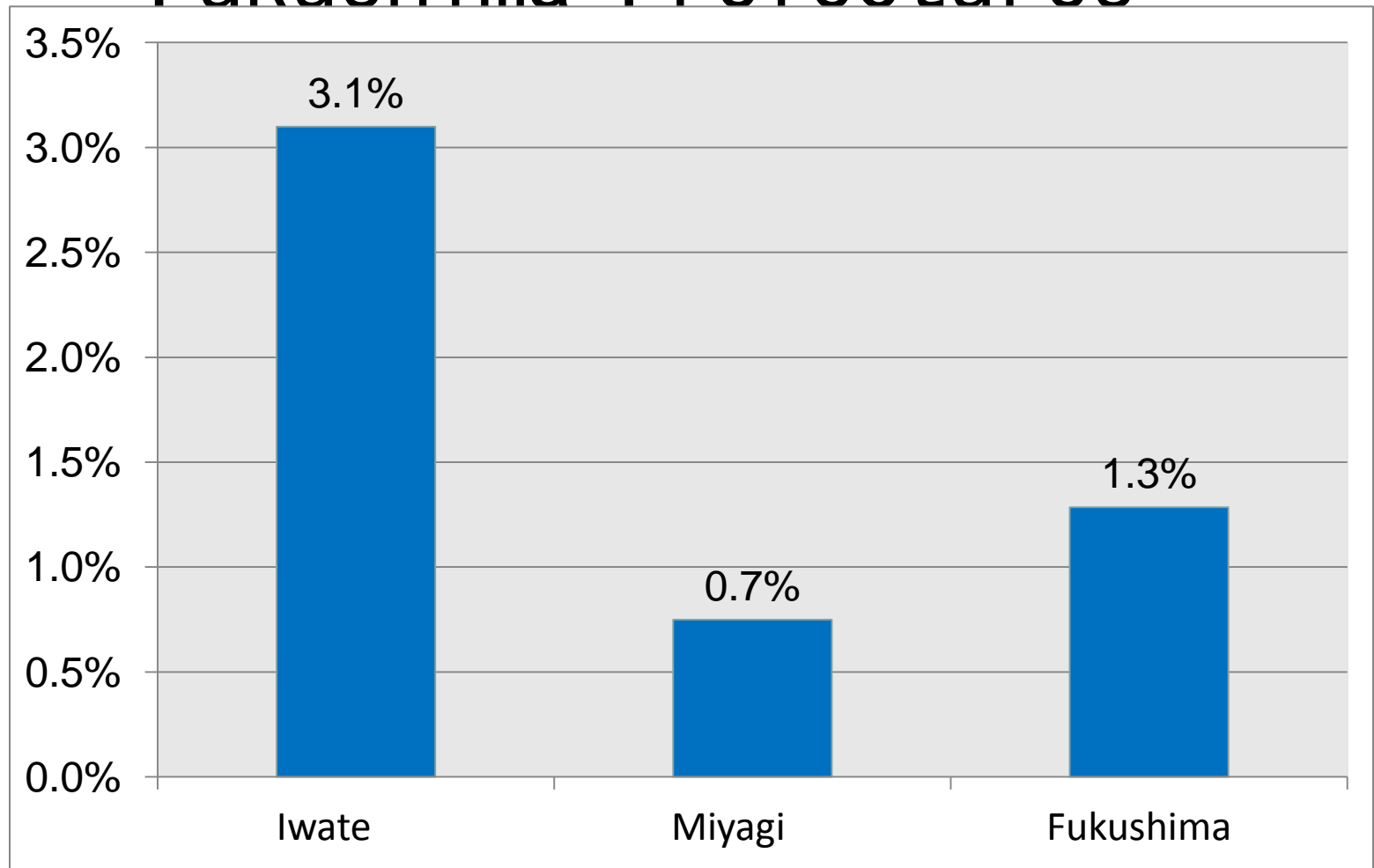
Miyagi PWD died at a rate almost twice  
higher than the general population

# PWD Mortality Rates in Miyagi Prefecture: Two Times Higher Than General Population



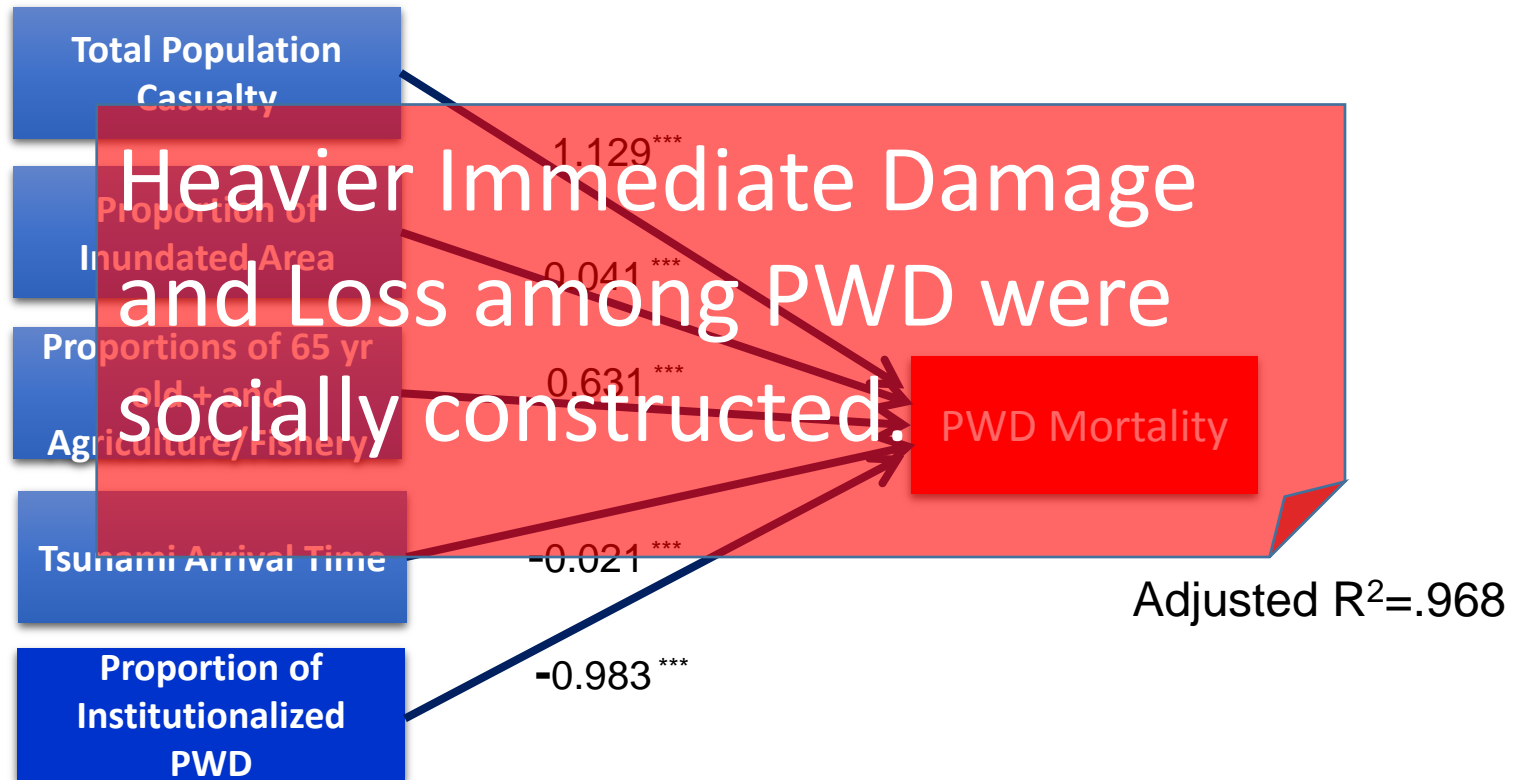
Tatsuki, S. (2013). Old Age, Disability, and the Tohoku-Oki Earthquake, *Earthquake Spectra*, 29(S1), pp. S403–S432.

# PWD Institutionalization Rates among Iwate, Miyagi and Fukushima Prefectures



Tatsuki, S. (2013). Old Age, Disability, and the Tohoku-Oki Earthquake, *Earthquake Spectra*, 29(S1), pp. S403–S432.

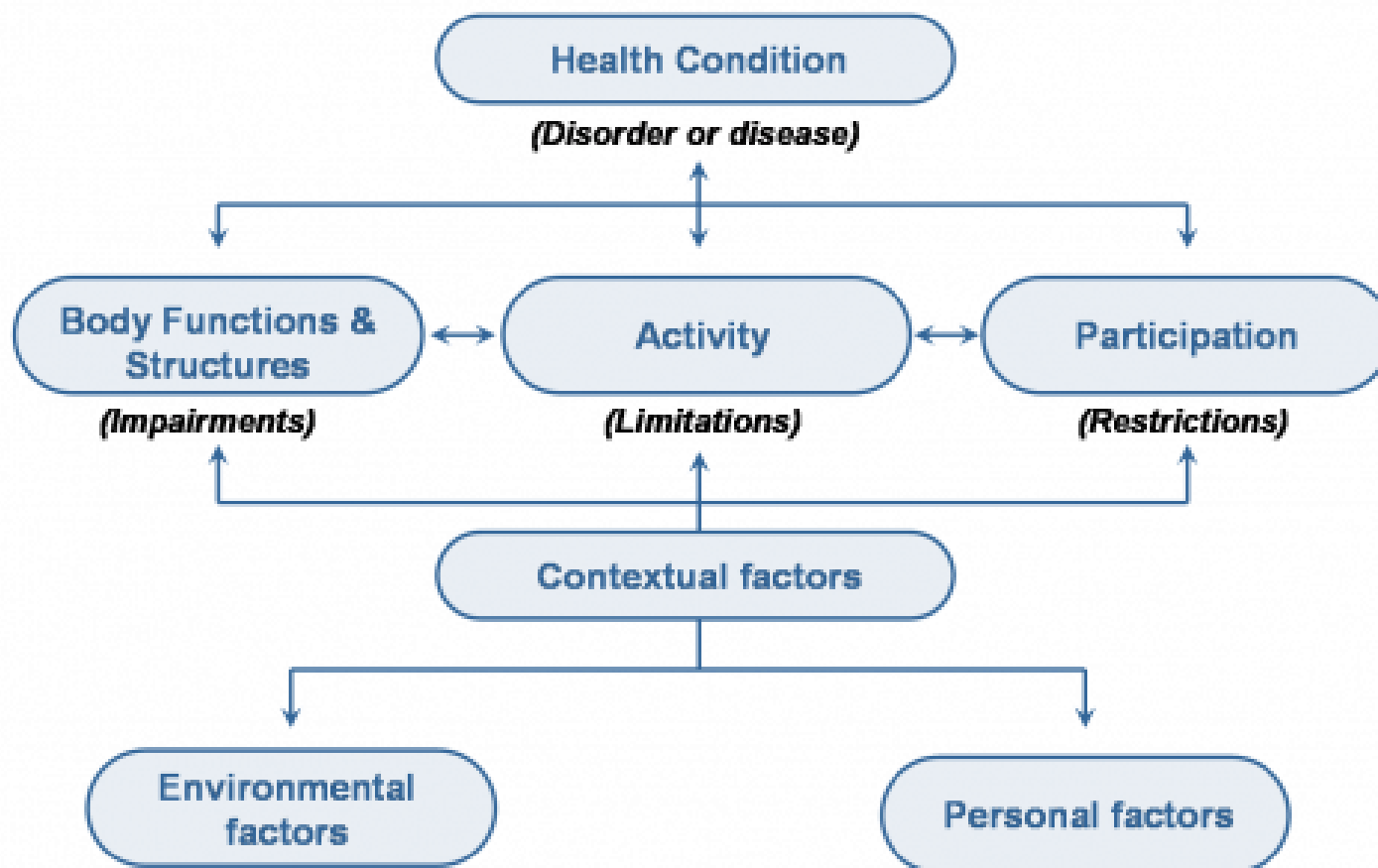
# Multiple Regression of PWD Mortality



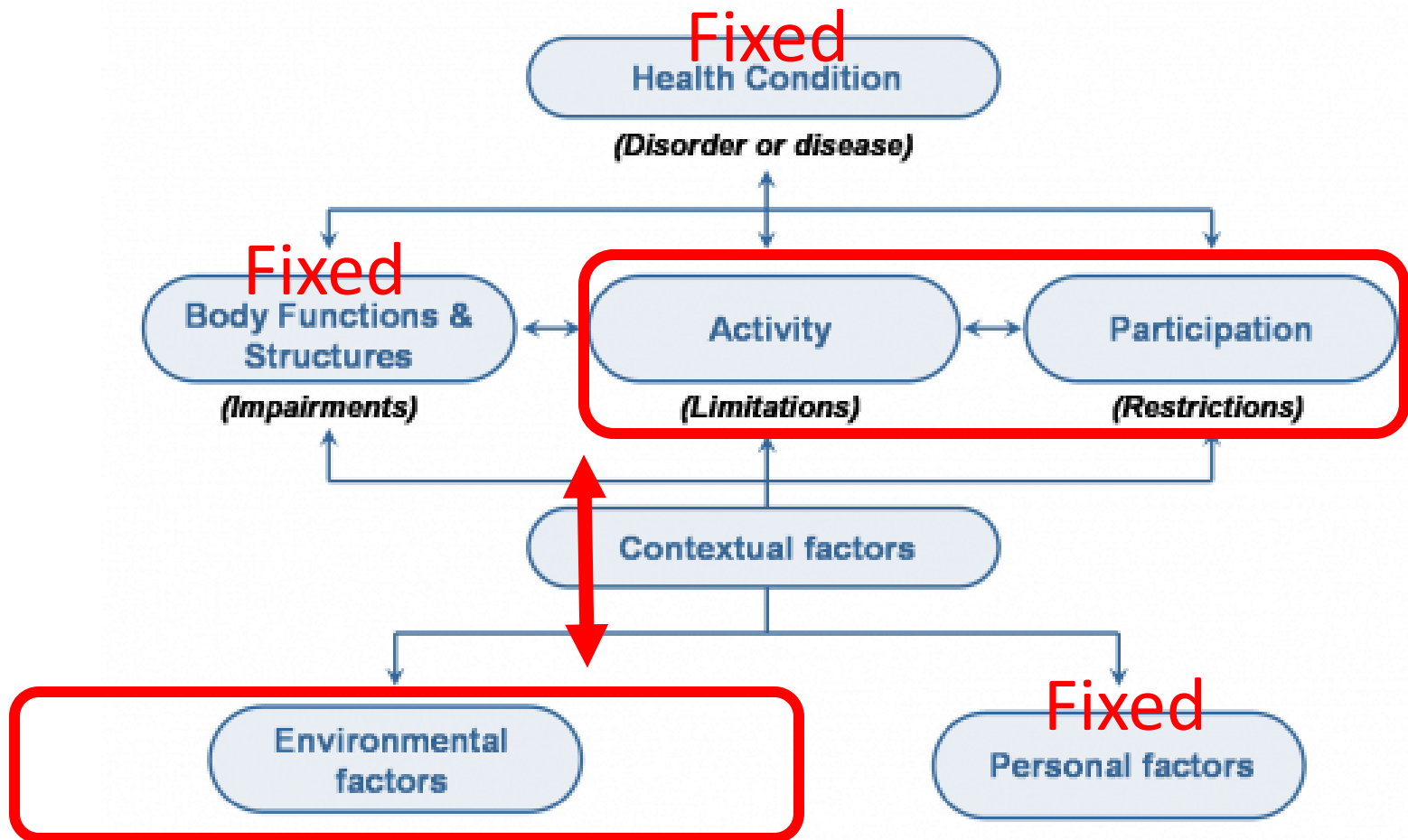
# Research Question: What about life difficulties for Surviving PWDs

1. What difficulties did PWD experience due to the disabilities?
2. Were the difficulties caused due to their impairments or to socially constructed reasons?
3. If the difficulties were the social production, what can a society do in order to solve the problems?

# Disability in Social Context



# Disability & Disaster in Social Context







# Sendai PWD Grass-Roots Assessment Workshop



October 14, 2013

# Method: Grass-Roots Assessment Workshop

- *Participants:* 41 PWD from 16 different disability organizations (people with visual, auditory, speech, physical, mental, developmental/intellectual disabilities, with internal organ disorders, and with paraplegia and quadriplegia)
- *Procedure:* Asked life difficulties after 0hr, 10hr, 100hr, 1,000hr (Hayashi, 2003) after the event
- *Instrument:* ICF or International Classification of Functioning, Disability and Health (WHO, 2002)  
Body Functions (b), Body Structure (s), **Activity and Participation (d)**, and **Environmental Factors (e)**

# ICF Activity/Participation & Environment Domains

## Activities & Participation (d)

- Learning & Applying Knowledge
- General Tasks & Demands
- Communication
- Mobility
- Self-Care
- Domestic Life
- Interpersonal Interactions & Relationships
- Major Life Areas
- Community, Social & Civil Life

## Environmental Factors (e)

- Products & Technology
- Natural Environment & Human-Made Changes to Environment
- Support & Relationships
- Attitudes
- Services, System & Policies

Results:  
ICF-By-Time Phase  
Cross-Tabulation

# ICF Category-By-Time

ICF Category	Disaster Time Phase				Row Total (%)
	0hr - 10hr	10hr - 100hr	100hr - 1,000hr	1,000hr -	
<b>d1 Learning and Applying Knowledge</b>	0	1	0	0	1 ( 0.2% )
<b>d2 General Tasks and Demands</b>	12	11	7	9	39 ( 9.1% )
<b>d3 Communication</b>	0	2	1	1	4 ( 0.9% )
<b>d4 Mobility</b>	13	3	0	2	18 ( 4.2% )
<b>d5 Self-Care</b>	8	31	15	3	57 ( 13.3% )
<b>d6 Domestic Life</b>	31	50	33	12	126 ( 29.4% )
<b>d7 Interpaersonal Interactions and Relationships</b>	1	0	0	0	1 ( 0.2% )
<b>d8 Major Life Areas</b>	0	0	3	1	4 ( 0.9% )
<b>d9 Community, Social and Civic Life</b>	0	0	0	1	1 ( 0.2% )
<b>e1 Products and Technology</b>	30	37	13	0	80 ( 18.6% )
<b>e2 Natural Environment and Human-Made Changes to Environment</b>	1	0	0	0	1 ( 0.2% )
<b>e3 Support and Relationships</b>	12	9	8	4	33 ( 7.7% )
<b>e4 Attitudes</b>	1	3	3	0	7 ( 1.6% )
<b>e5 Services, Systems and Policies</b>	6	25	17	9	57 ( 13.3% )
<b>Column Total</b>	115	172	100	42	<b>429</b>
(%)	(27%)	(40%)	(23%)	(10%)	

# ICF Category-By-Time

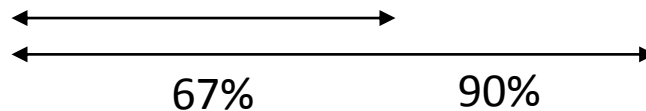
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67%

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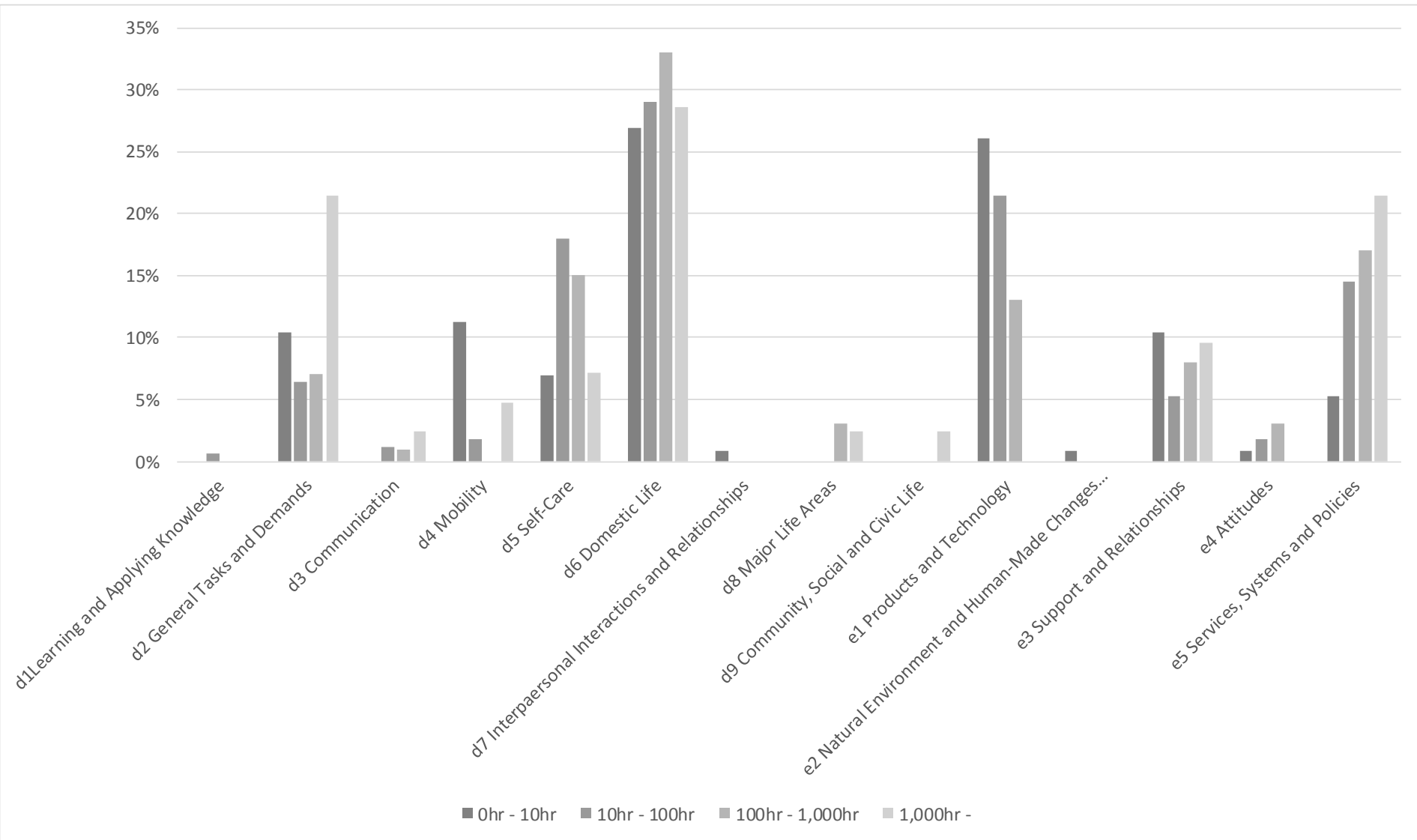








# Proportions of ICF categories by disaster time phase



# Correspondence Analysis of ICF–By– Time Phase Cross– Tabulated Data



Assign each ICF and Time Phase Category a set of numerical weights in a small (i.e., two dimensional) space

# Correspondence Analysis of Cross-Tabulated Data

$x_1$        $x_2$        $x_3$        $x_4$

ICF Category		Disaster Time Phase				Row Total (%)
		0hr - 10hr	10hr - 100hr	100hr - 1,000hr	1,000hr -	
d1 Learning and Applying Knowledge	$y_1$	0	1	0	0	1 ( 0.2% )
d2 General Tasks and Demands	$y_2$	12	11	7	9	39 ( 9.1% )
d3 Communication		0	2	1	1	4 ( 0.9% )
d4 Mobility	$y_3$	13	3	0	2	18 ( 4.2% )
d5 Self-Care	:	8	31	15	3	57 ( 13.3% )
d6 Domestic Life	:	31	50	33	12	126 ( 29.4% )
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e1 Products and Technology	:	30	37	13	0	80 ( 18.6% )
e2 Natural Environment and Human-Made Changes to Environment		1	0	0	0	1 ( 0.2% )
e3 Support and Relationships		12	9	8	4	33 ( 7.7% )
e4 Attitudes	$y_{13}$	1	3	3	0	7 ( 1.6% )
e5 Services, Systems and Policies	$y_{14}$	6	25	17	9	57 ( 13.3% )
<b>Column Total</b>		115	172	100	42	429
(%)		(27%)	(40%)	(23%)	(10%)	

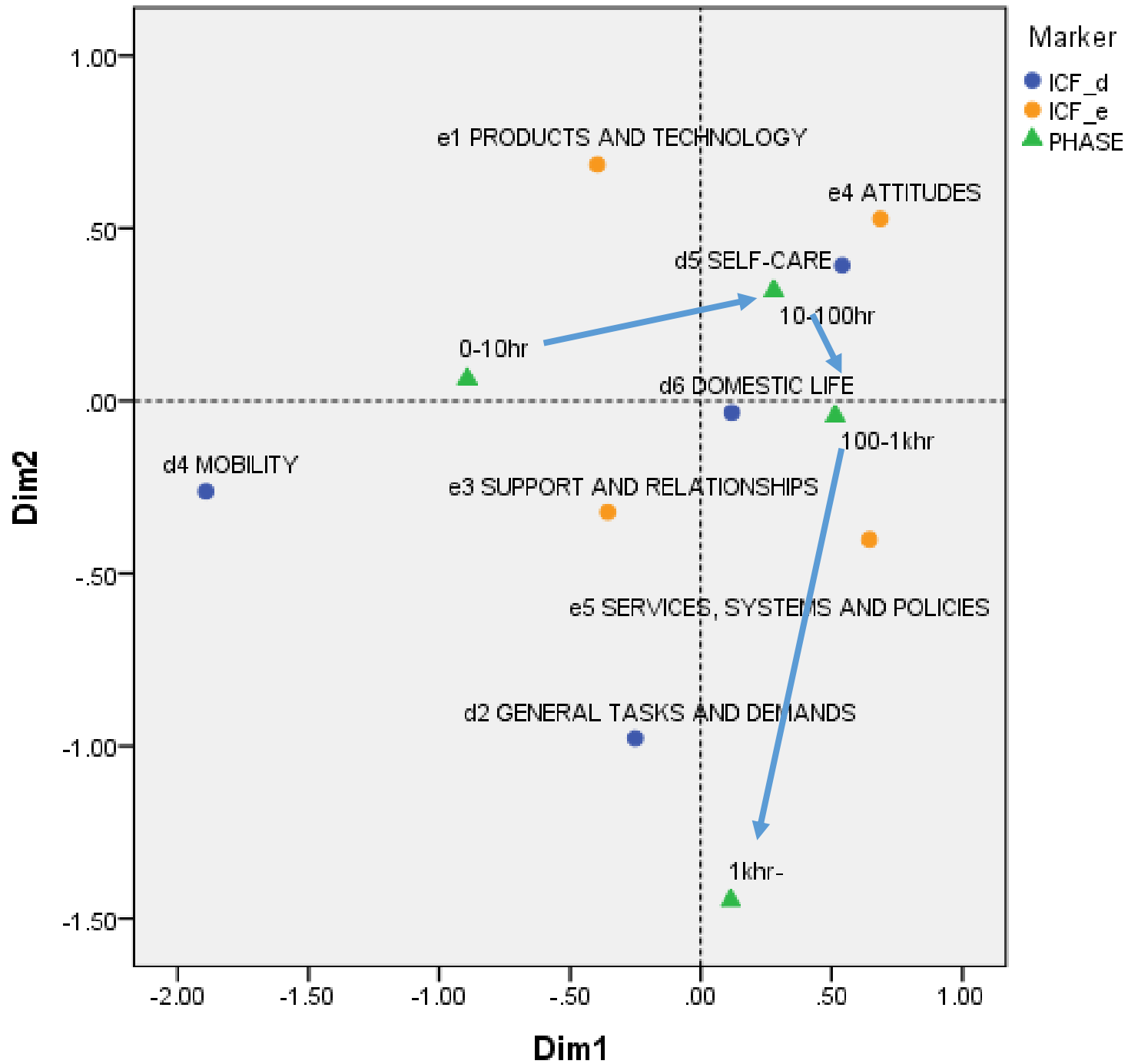
$$F = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 12 & 11 & 7 & 9 \\ \vdots & \vdots & \vdots & \vdots \\ \vdots & \vdots & \vdots & \vdots \\ 6 & 25 & 17 & 9 \end{bmatrix}$$

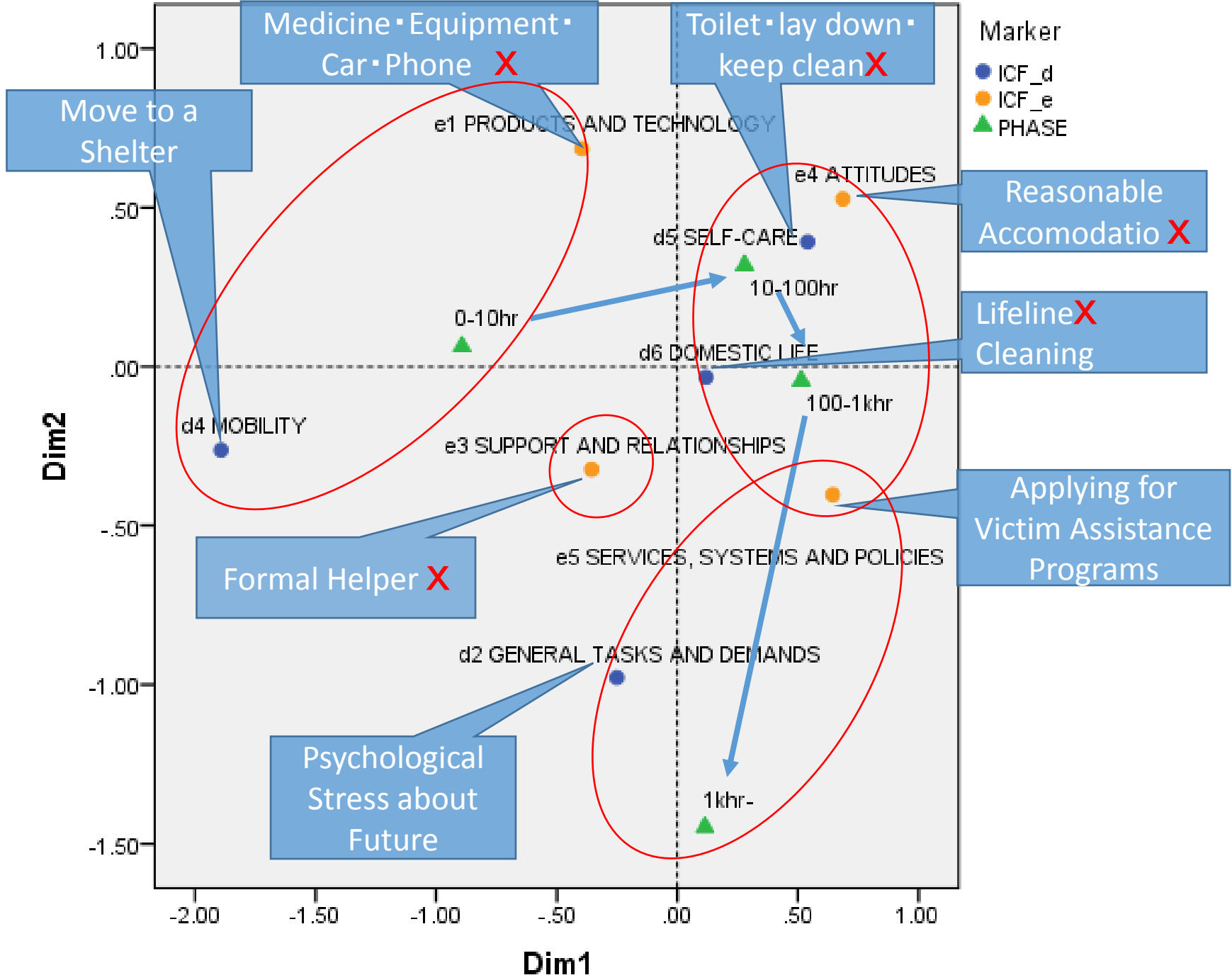
(1)

$$\eta^2 = \frac{SS_b}{SS_t}$$

(2)

$$F'F\mathbf{x} = k\eta^2 D\mathbf{x} \quad (3)$$





# Conclusion: Functional Needs & Corresponding Actions

Time Phase	Functional Needs		Actions Needed
	Activity & Participation	Environment	
0 - 10 hr	Mobility		Community-based Evacuation Assistance Neighborhood Network
		Product & Technology	Prepare an Emergency Take-out Package
10 - 100 hr	Self-Care	Attitudes	Reasonable Accommodation at Local Evacuation Shelters
100 - 1,000 hr	Domestic Life		General Disaster Volunteers for House Cleaning and Other Household Chores
		Services, System & Policies	Expert Volunteers for Government Support Applications
1,000 hr -	General Tasks & Demands		Self-Management, Mutual Help and Expert Volunteer Help for Stress Management
Common in All Phases		Support & Relationships	Community-based Evacuation Assistance Neighborhood Network