

A and 90.8% and 83.0% in Group B. Differences within Group C becomes 96.6%, 68.6%, 39.2%, 20.5%, 6.3%, and 1.1%, respectively. It is important that this way the value in the lowest-care subgroup ("Help") of Group C becomes same as Group A and even better than Group B.

Table 1-1 Dressing Activity (a540)

Groups & Subgroups Choices with Qualifiers	Group A			Group B			Group C						
	Young old	Old old	Total	Young old	Old old	Total	Help	Care 1	Care 2	Care 3	Care 4	Care 5	Total
.0: Universal Independence	75.0 %	56.7 %	68.1 %	62.4 %	39.0 %	51.2 %	27.1 %	14.7 %	4.0 %	0.8 %	0 %	0 %	7.0 %
.1: Limited Independence	23.5	39.4	29.5	28.4	44.0	35.9	69.5	53.9	35.2	19.7	6.3	1.1	30.8
.2: Preparation Needed	1.2	2.8	1.8	4.6	6.0	5.3	3.4	18.8	28.0	20.5	8.7	2.1	15.5
.3: Partial Assistance	0.3	0.9	0.5	2.8	6.0	4.3	0	12.6	23.2	37.7	21.4	2.1	17.8
.4: Full Assistance	0	0.2	0.1	1.8	5.0	3.3	0	0	9.6	21.3	63.5	94.7	29.0
Total	100% (2664)	100% (1624)	100% (4288)	100% (109)	100% (100)	100% (209)	100% (59)	100% (191)	100% (125)	100% (122)	100% (126)	100% (95)	100% (718)

Table 1-2 Dressing Activity (a540)

- Adding "Universal Independence" and "Limited Independence" to make "Independence Total"

.0: Universal Independence + .1: Limited Independence	98.5	96.1	97.6	90.8	83.0	87.1	96.6	68.6	39.2	20.5	6.3	1.1	37.8
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2. Grooming Activity

The "Universal Independence" in grooming activity (a520: Caring for Body Parts) is defined as: "Looking after face, teeth, hair etc. independently at any place, including hotels, public places and friends' or relatives' homes." The "Limited Independence" is defined as: "Looking after face, teeth, hair etc. independently only in the place of daily living (home, hospital or institution).

The results of the first survey are shown in Table 2. The general tendency is exactly same.

Table 2 Grooming Activity (a520)

- "Universal Independence" versus "Limited Independence"

Groups & Subgroups Choices with Qualifiers	Group A N=4288			Group B N=209			Group C N=718						
	Young old	Old old	Total	Young old	Old old	Total	Help	Care 1	Care 2	Care 3	Care 4	Care 5	Total
.0: Universal Independence	87.8 %	67.1 %	80.0 %	72.5 %	46.0 %	59.9 %	33.9 %	14.7 %	7.2 %	2.5 %	0.0 %	0.0 %	8.4 %
.1: Limited Independence	11.7	31.5	19.2	22.0	46.0	33.5	62.7	70.2	50.4	31.1	12.7	2.1	40.4

Independence Total

.0: Universal Independence + .1: Limited Independence	99.5	98.6	99.2	94.5	92.0	93.4	96.6	84.9	57.6	33.6	12.7	2.1	48.8
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3. Other Self-care Activities

In toileting (a530), "Universal Independence" is "Planning and carrying out elimination independently at any place, including public toilet, hotel room's toilet, other house's toilet etc." In taking bath (a5101), it is "Washing and drying the whole body independently at any place, including hotel's bathtub, large public bath in spa etc." In eating (a550), it is "Eating food independently at any place including restaurant, friend's or relative's house in suitable manners." The data in the surveys on these activities confirmed the importance of distinguishing "universal" and "limited" independence.

4. Gait

In outdoor Gait (a4602: Moving around outside the home etc.), "Universal Independence" is "Walking out for a long distance from the home independently managing different kinds of surfaces, steps, obstacles etc", and "Limited Independence" is "Walking out independently only in close neighbourhood." The results in a survey in another large sample in a rural city with population of 22,600 is shown in Table 3 and gives the same tendency.

Table 3 Outdoor Gait

- "Universal Independence" versus "Limited Independence"

Groups & Subgroups Choices with Qualifiers	Group A N=5353			Group B N=590			Group C N=429						
	Young old	Old old	Total	Young old	Old old	Total	Help	Care 1	Care 2	Care 3	Care 4	Care 5	Total
.0: Universal Independence	56.6 %	32.6 %	45.2 %	32.0 %	29.7 %	30.8 %	7.4 %	2.5 %	2.9 %	3.1 %	0.0 %	0.0 %	4.2 %
.1: Limited Independence	35.4	51.4	43.0	50.0	44.7	46.9	65.0	40.6	20.0	9.4	0.0	0.0	42.2

Independence Total

.0: Universal Independence + .1: Limited Independence	92.0	84.0	88.2	82.0	74.4	77.7	72.4	43.1	22.9	12.5	0.0	0.0	46.4
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Conclusion

The reported facts may suggest that a sharp distinction between "universal" versus "limited" independence is particularly important for an early identification of mild to moderate activity limitation and should be incorporated into the qualifier system of activities at least in Chapters 3, 4 and 5, and studies continued for possible application to other chapters as well.

**A Proposal on Qualifiers of Activity based on Population Surveys (2):
"Limited Independence" as a Predictive Risk Factor for Declines of
Functioning after Natural Disasters.**

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Abstract

Environmental changes after natural disasters can make a strong impact on the functioning of "healthy" elderly people, not necessarily directly by injury or disease, but indirectly through disuse syndrome (general deconditioning) caused by forced inactivity following drastic changes of physical and social environment and way of life. We have found that people who had been in the state of "Limited Independence" (being independent only in a limited environment such as their own home or close neighbourhood) before a disaster had a greater risk of declining of functioning, in contrast to those in the state of "Universal Independence" (being independent in all the probable environmental varieties of the regular life including social and community life). It is very important both practically for disability prevention in disasters and theoretically for an empirical definition of qualifiers of activity in ICF.

A strong earthquake attacked a northern part of Japan in October, 2004. We conducted a survey of the elderly population (65 years+) with an ICF-based questionnaire in the central area of the earthquake in March, 2005. It revealed a high percentage of activity limitation and participation restriction even without new injury or disease. That occurred not only in 159 elderly people already qualified for the "National Insurance for Long-term Care" (i.e. they had had activity limitation(s) previously), but also in 1,626 "regular" elderly people.

For example, gait difficulty occurred in 66.0% of the former group and 30.6% of the "regular" group. New injury or disease had occurred in less than 20% of them in both groups. In addition to that, the gait difficulty had not recovered in 40.3% of the former group and 11.0% of the "regular" group in five months after the earthquake.

The state of "Limited Independence" of gait and other activities before the earthquake was the most important risk factor predictive of occurrence of activity limitation and its poor recovery in "regular" elderly people. For example, 51.6% of the "regular" elderly people who had been previously in the state of "Limited Independence" in outdoor gait showed difficulty of gait. It was significantly higher than 30.6% in the "regular" group as a whole. The "no recovery" of gait after five months was 20.4% in these people as compared with 11.0% in the whole group.

This fact suggests that such a distinction is important and "Universal Independence" should be incorporated as the highest qualifier (.0: "No problem") of activity in ICF.

Introduction

Environmental changes due to natural disasters can make a strong impact on the functioning of "healthy" elderly people, not necessarily directly by injury or disease, but indirectly through disuse syndrome (general deconditioning) caused by forced inactivity following drastic changes of physical and social environment and way of life.

A strong earthquake attacked a northern part of Japan in October, 2004 with 49 casualties, 634 severely injured and 103,000 refugees who had to live in crowded shelters for a long time. Many of them moved to small temporary housing, where 9,317 people were still living after ten months.

We conducted a survey on the functioning of elderly people (65 years+) using an ICF-based questionnaire in the central area of the earthquake in March, 2005. It revealed a high percentage of activity limitation and participation restriction and their poor recovery even without new injury or disease. That occurred not only in 159 elderly people who had been already qualified for the "National Insurance for Long-term Care" (i.e. they had already had activity limitation(s)), but also in 1,626 "regular" elderly people without such qualification.

One of the most important and pertinent facts we have found in that survey was that the "regular" elderly people who had been in the state of "Limited Independence" (being independent only in a limited environment such as their own home or close neighbourhood) before the earthquake had a greater risk of declining of functioning after it, in contrast to those in the state of "Universal Independence" (being

independent in all the probable environmental varieties of the regular life including social and community life).

It is a very important fact not only practically for prevention (an early detection and early intervention) of decline of functioning in the elderly population at the time of a natural disaster but also theoretically in relation to the need to introduce "Universal Independence" as the highest qualifier (.0: "No problem") of activity in ICF.

Method

1. Target Population

The target of the survey was all the elderly people (65years +) in the six evacuation-recommended districts of the City N in the center of the earthquake. The following people were excluded: (1) Those qualified for "Help 3" and higher grade of the National Insurance for Long-Term Care; (2) The people who had moved out of the districts by the time of the survey; and (3) Those who were in hospital or institution. The final target was 2066 people.

2. Questionnaire

The questionnaire included questions about activities and participation in three time points (before the earthquake, the worst state after it, and the present state). Activities included gait (both outdoor and indoor) and activities of daily living (eating, toileting, bathing, grooming, dressing, putting on shoes and communication). Participation included work, homemaking and leisure/sports. It included also questions on the present state of body functions/structure, environmental factors and health condition.

3. Recovery Rate and Characteristics of the final Target

The questionnaire was mailed to 2066 people and recovered by home visit. The answer was received from 1789 people (86.6%). Among them 1626 (Group 1) were "regular" elderly people who were not qualified for National Insurance for Long-Term Care (NILC) and 159 (Group 2) were qualified for NILC (only "Help" "Care 1" and "care 2" subgroups were included).

Group 1 consisted of 959 "young old" (65-74 years) and 667 "old old" (75+) with an overall mean age of 73.7 ± 6.3 years. Group 2 consisted of 19 "young old" and 140 "old old" with a mean age of 82.3 ± 7.4 years.

Results

The results revealed frequent occurrence of activity limitation and participation restriction and their poor recovery most remarkably in Group 2, but also in Group 1.

1. Changes in Gait Status

Changes in gait status after the earthquake (the worst state after it) are shown in Table 1. Difficulty of outdoor gait occurred in 24.4.0% of Group 1 and 39.0% of Group 2. A more serious difficulty, that of both outdoor and indoor gait occurred in 6.2 % of former group and 27.0% of latter group. Altogether there was overall difficulty of gait in 30.6% of Group 1 and 66.0% of Group 2.

Table 1. Changes in Gait Status after the Earthquake (the worst state)

Changes in Gait	Group 1			Group 2		
	Young old	Old old	<i>Total</i>	Young old	Old old	<i>Total</i>
No Changes*	75.8%	55.9%	67.6%	21.1%	34.3%	32.8%
Difficulty in Outdoor Gait	19.1	31.9	24.4	31.6	40.0	39.0
Difficulty in both Outdoor and Indoor Gait	3.5	9.9	6.2	47.4	24.3	27.0
Total** (N)	100% (959)	100% (667)	100% (1626)	100% (19)	100% (140)	100% (159)

New injury or disease had occurred in less than 20% of these people in both groups. Age difference was clear in Group 1 (22.6% vs. 41.8%).

2. Difficulty in ADL

Changes in activities of daily living (ADL) other than gait after the earthquake are shown in Table 2 (the worst state after it). The figures show the ratios of the people who had reduction of more than one of seven daily activities. The reduction occurred in 18.5% of Group 1 and in 58.5% of Group 2.

Table 2. Changes in Activities of Daily Living after the Earthquake

Changes in ADL	Group 1			Group 2		
	Young old	Old old	<i>Total</i>	Young old	Old old	<i>Total</i>
No Changes*	80.2%	64.6%	73.8%	26.3%	30.7%	30.2%
Reduced ADL	13.6	25.5	18.5	68.4	57.1	58.5
Total* (N)	100% (959)	100% (667)	100% (1626)	100% (19)	100% (140)	100% (159)

3. Poor Recovery of Gait

The recovery from gait difficulty (a comparison between the worst and present state) is shown in Table 3. The influences of heavy snow in the intervening wintertime were excluded by including those who had once recovered from gait difficulty but had again become difficult of gait because of heavy snow to the "Recovered" group. Gait difficulty had not recovered in 11.0% of Group 1 and in 40.3% of Group 2 in five months after the earthquake.

Table 3. Recovery from Gait Difficulty in five Months after the Earthquake

Groups & Subgroups		Group 1			Group 2		
		Young old	Old old	<i>Total</i>	Young old	Old old	<i>Total</i>
No Changes*		75.8%	56.0%	67.6%	21.1%	34.3%	32.8%
Gait Diffi-culty	Recovered	14.9	23.7	18.5	26.3	23.6	23.9
	Not Recovered	6.8	17.1	11.0	47.4	39.3	40.3
Total** (N)		100% (959)	100% (667)	100% (1626)	100% (19)	100% (140)	100% (159)

4. Poor recovery of ADL

The recovery from reduced ADL (a comparison between the worst and present state) is shown in Table 4. The influences of heavy snow in the wintertime were excluded in the same way as above.

The difficulty in ADL had not recovered in 7.2% of Group 1 and 27.0% of Group 2 in five months after the earthquake.

Table 4. Recovery from Reduced ADL in five Months after the Earthquake

Groups & Subgroups		Group 1			Group 2		
		Young old	Old old	<i>Total</i>	Young old	Old old	<i>Total</i>
No Changes*		80.0%	64.9%	73.8%	21.1%	28.6%	27.7%
ADL Reduc-tion	Recovered	7.8	15.6	11.0	32.1	30.0	31.5
	Not Recovered	5.6	9.4	7.2	21.1	27.9	27.0
Total** (N)		100% (959)	100% (667)	100% (1626)	100% (19)	100% (140)	100% (159)

5. Participation Restriction

1) Work: In Group 1, 9.7% of those who were working before the earthquake had quit the job, and another 10.3 % had experienced difficulties in work. In Group 2, 24.4% of those who were working previously had quit the job, and another 7.3 % had experienced difficulties.

2) Homemaking: In Group 1, 18.8% of those who were doing homemaking before the earthquake had experienced decreased performance. So had 42.4% in Group 2. It had not recovered in 7.6% of Group 1 and 30.3% of Group 2.

3) Leisure/Sports: In Group 1, 97.2% of those who were doing leisure/sports before the earthquake had experienced decreased participation. So had 88.2% in Group 2. It had not recovered in 40.1% of Group 1 and 73.5% of Group 2.

6. "Limited Independence" of Activities as a Risk Factor

The state of "Limited Independence" (being independent only in a limited environment such as their own home or close neighbourhood) of gait and other activities before the earthquake was the most important risk factor predictive of occurrence of activity limitation and its poor recovery in Group 1. as contrasted with "Universal Independence" (being independent in all the probable environmental varieties of the regular life including social and community life).

As an example, the data on gait difficulty after the earthquake are shown in Table 5. In group 1, 51.6% of those who had been in the state of "Limited Independence" in going outdoors ("Walking out independently only in the close neighbourhood.") before the earthquake showed difficulty of gait, which is significantly higher than 30.4% in the whole group. The risk compared with "Universal Independence" ("Walking out for a long distance from the home independently managing different kinds of surfaces, steps, obstacles etc") was four times as large (odds ratio: 4.0).

The "no recovery" of gait after five months in Group 1 was 20.4% in "Limited Independence" in outdoor gait as compared with 11.0% in the whole group.

Generally speaking in Group 1, the state of "Limited Independence" in outdoor and indoor gait and other daily activities was a high risk factor for declining of many activity and participation items and for their poor recovery.

However, in Group 2, the two types of independence did not make a significant difference. That means that being qualified for NILC itself is a high risk factor.

Table 5. Relation of Outdoor Gait Status before the Earthquake to the Gait Difficulty After the Earthquake

Changes in gait	Group 1		Group 2			
	Gait Difficulty	No Changes *	Ratio of Difficulty	Gait Difficulty	No Changes *	Ratio of Difficulty
Universal Independence	214	803	214/1077 =19.9%	10	7	10/17 =58.5%
Limited Independence	220	206	220/426 =51.6%	54	24	54/78 =69.2%
Only with Someone	23	11	23/34 =67.6%	11	1	11/12 =91.7%
No Outdoor Gait	23	17	23/40 =57.5%	27	20	27/47 =57.4%
Total	480	1097	480/1577 =30.4%	102	52	102/154 =66.2%

Conclusion

This study revealed the occurrence of a high percentage of activity limitation and participation restriction after a natural disaster not because of new trauma or disease, but through disuse syndrome (general deconditioning) caused by forced inactivity following drastic changes of physical and social environment and way of life.

This declining of functioning was most prominent in the group of elderly people who had been already qualified for the "National Insurance for Long-term Care" (NILC), which means that such a state (qualification for NILC) itself is a high risk factor.

The declining of functioning, however, was also quite high in "regular" elderly people without NILC qualification, particularly when they were in the state of "Limited Independence" of activities, which means that this state must be recognized as a separate entity from "Universal Independence" and as another high risk factor.

It is a very important fact not only practically for prevention of decline of functioning in the elderly population at the time of disasters, but also theoretically in relation to ICF. This study shall be deemed as a strong support for the introduction of "Universal Independence" as the highest qualifier (.0: "No problem") of activity in ICF.