

Clarifying the Disaster Process of the Elderly in the Aspect of Social Welfare

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Synopsis

This study is aim for gathering the basic data of the response to elders and showing the necessity of constructing the discipline of disaster management care, the systematic approach to the disaster process of elders under the drastic social environmental changes. Two case studies were conducted to clarify the disaster process of the elders in two disasters. The major findings were as follows: 1) The care managers as the professionals licensed by the government-sponsored Long-Term Care Insurance System worked effectively to manage the needs of moving temporarily to care facilities, 2) 13% of elders, who moved to the care facilities as temporary shelters, still stayed in the care facilities 6 months after the impact. Those results suggested that care managers should be the more effective agent to respond elders in disasters; however, they need to learn the disaster process of elders.

Keywords: disaster care management, Long-Term Care Insurance System, care manager, aging society

1. Introduction

The Niigata Prefecture suffered two big disasters in 2004. The Niigata Flood occurred on July 13 and caused 15 deaths, 13 of which were senior citizens. Of those 13 deaths, 8 were 75 or older. The disaster reminded the public that disaster-prevention measures for the elderly are necessary.

The Mid-Niigata Prefecture Earthquake occurred on October 23 and had 1) long-lasting aftershocks, 2) evacuations by the village units, 3) officials advised a wide area to evacuate, and 4) substantial damage to the life line, which resulted in a larger number of evacuees and more senior citizens needed care. The aim of this study is to gather basic data on the response to the elderly, to show the necessity for disciplined disaster management care, and to develop a systematic approach to the disaster process for seniors under dramatic changes in social environment.

Age	Niigata Flood	Mid-Niigata Prefecture Earthquake	
	Casualties	Casualties	EQ Related Death
5		3	0.16(2months)
10		1,1,2,2	
15			
20			0
25			
30		4	2
35	7	9	
40	2	2	1,3,4
45			8
50		4	3
55		5	9
60	3	4	0
65			5,7,8,9
70	2,2,2		0,0,0,1,3,4
75	5,6,6,7,8,8	5,6,7,8,8	8,9
80	2,4	1	0,1,3,4,4
85	7		5,8,9
90			1

Male(black letters), Female(red letters)

Fig.1 Age Distribution of Casualties in 2 Disasters

2. The 2004 Niigata Flood

2.1 Purpose of Research in the Case of Niigata Flood

The purpose of this study is to investigate the reason for the concentration of elderly victims in the Niigata flood on July 13, 2004 and propose an appropriate measure for reducing the number of victims of flood disasters in the future. There are tens of thousands of people classified as elderly living in the districts stricken by the flood. It is essential to analyze the reasons why only twelve elderly persons lost their lives and what factors made these persons different from others. Possible factors include the physical properties of the hazard, the geographical characteristics of the districts where the victims lived, and the personal attributes of the victims. This study aims to clarify and combine these factors and determine the causes of death in this disaster. In other words, this study aims to “profile” the causes of death.

2.2 Method of Survey in the Case of Niigata Flood

2.2.1 Subject s of disaster area

Sanjo City, Niigata Prefecture was the subject area in Survey (1) on “the Niigata Flood on July 13”. According to Hayashi et. al.(2005), the Kakenhi (Grants in Aid for Scientific Research) report, four patterns of death were observed in “the Niigata Flood on July 13”. Deaths were caused by 1) a landslide, 2) house destruction by gushing water, 3) moving outdoors after the house was flooded well above the floor level, 4)

remaining in a house flooded well above the floor level. It was determined that most of the deaths of the elderly who normally needed daily care were caused by 4) remaining in a house flooded well above the floor level. Therefore, we collected data to assess this issue. We mailed the questionnaires to the subjects and asked them to return the completed survey via mail. We mailed the questionnaires on March 18, 2005 and collected them until April 5, 2005. Toward the end of March, reminders were mailed to those who had yet to return their questionnaires.

2.2.2 Subjects of this survey

Participants in Survey (1) included 1) leaders and sub-leaders of community associations in the area where the elderly victims lived, 2) nursing-care insurance service providers, who provided services in the subject area, and 3) care managers, who were caring for the elderly victims. Care managers are nation-certified specialists, who have special knowledge and techniques, which help senior citizens receiving care to lead an independent daily life.

2.3 Results of Survey in the Case of Niigata Flood

(1) The conditions that surrounded the deaths of the elderly care receivers

On July 13, 2004 at 13:07, the left bank of the Igarashi River at Suwa (Magaribuchi) broke. The surveyed area (Rannan, Sanjo City, which is on the west

Table 1. Situations when the People who Needed Assistance Died in the Niigata Flood

Community association	Community Association A	Community Association B	Community Association C	
Attributes	Female, 87, walking with a cane, living alone	Female, 76, needed nursing care, living alone	Female, 84, needed nursing care, living alone	Male, 77, confined to bed
Estimated time of death	13th in the afternoon	13th around 20:00	13th in the afternoon	13th around 17:00
Time the body was found	15th around 12:40	14th around 09:00	15th around 17:45	13th around 21:00
Place the body was found	In between the flooded kitchen and living room in her house	In the flooded water on the first floor of her house	In the flooded living room in her house	In the flooded water on the first floor of his house
Cause of death	There are traces of the flood up to 130 cm above the floor in her house. It seems that she stayed home without being able to evacuate by herself and drowned in the rush of the flood	It seems that a neighbor initially carried her to the second floor, but she later went downstairs by herself for some reason and drowned, probably as she fell	There are traces of flooding to 110 cm above the floor in her house. It appears that she stayed home without being able to evacuate by herself and drowned in the rush of the flood	He was confined to bed and received nursing care at home. He drowned in his house that was flooded 120 cm above the floor level, although his wife tried to save him

side of the Shinetsu Line, the railroad) was a little far from the broken bank. Flooding began at 15:00 or later and reached 1.5 m. In the interview, the leaders and sub-leaders of community associations uniformly told that 1) they assumed it was “a typical flood” since the surrounding area had frequently flooded, 2) although the official advice to evacuate was issued at 11:40, they were unaware that an evacuation had been issued, 3) when the floodwater rose swiftly, all they could do was to go upstairs, 4) they felt that the residents of their community association would manage to survive the flood by themselves since the seniors lived by themselves.

The four senior citizens, who died in this area, were 75 or older and they all died in their homes. The interview revealed that these four people “needed some assistance to walk”, or “could not walk by themselves”. It was confirmed that three of them were receiving in-home nursing care services, but at the time of flood, none were receiving care from a caregiver (Table 1).

(2) Action taken for the elderly care receivers in the Niigata Flood

Care managers and nursing care workers have become social resources to assist the elderly since many senior citizens that live in their own homes receive nursing care insurance. Those professionals essentially worked well during the disaster. However, one reason for the elderly deaths is that there was not a systematic emergency preparedness plan for community care managers. It was also concluded that there was a clear gap in understanding the senior citizens’ needs between the nursing care workers and the leaders and sub-leaders of community associations or district welfare officers.

3. The 2004 Mid-Niigata Earthquake

3.1 Purpose of Research in the Case of 2004

Mid-Niigata Earthquake

The Mid-Niigata Prefecture Earthquake occurred on October 23 and had 1) long-lasting aftershocks, 2) evacuations by the village units, 3) officials advised a wide area to evacuate, and 4) substantial damage to the life line, which resulted in a larger number of evacuees and more senior citizens needed care. The aim of this study is to gather basic data on the response to the elderly, to show the necessity for disciplined disaster management care, and to develop a systematic approach to the disaster process for seniors under dramatic changes

in social environment.

3.2 Survey 1: Social Random Sampled Survey in the impacted Areas

3.2.1 Subjects of disaster area

The survey was conducted in Ojiya City and Kawaguchi Town where the casualties and damage to the houses were serious throughout the area. Both male and female adults living in this area participated in this survey. The adopted method was stratified two-stage sampling. Initially, 50 spots in this area were randomly selected: 43 spots in Ojiya City and 7 spots in Kawaguchi Town, which is proportional to the population ratio. Then a sampling was conducted with the probability proportional to size. Using the basic registers of the residents, we sampled 20 individuals, which did not reside in the same household, from each spot. We specified the individual to complete the survey so that an equal number of male and female subjects were sampled. Consequently, 1,000 subjects were sampled, i.e., 2.19% of the population in the area (45,668 persons as of March, 2005).

We mailed the questionnaires to the subjects and asked them to return the completed survey via mail. We mailed the questionnaires on March 18, 2005 and collected them until April 5, 2005. Toward the end of March, reminders were mailed to those who had yet to return their questionnaires.

3.2.2 Basic Attributes

We collected 543 responses (response rate: 54.3%). Responses, which 1) were partially or not completed, 2) were error laden, 3) did not specify sex or age, and 4) were from individuals that did not reside in Ojiya City or Kawaguchi Town during the earthquake, were excluded. Hence, 518 completed surveys were collected (effective response rate: 51.8%).

To ensure random sampling, we verified that the respondents reflected the features of the general population in terms of basic attributes, i.e., sex and age (generation). The number of households and estimated population per municipality (as of March 1, 2005) and the estimated population per age (5-year increments) (aggregate) (as of January 1, 2005), which was published by the Emergency Management and Disaster Division, Niigata Prefecture Government, was used to determine the basic attributes of the general population.

The result of the goodness-of-fit test did not show

significant differences in sex and age (generation) between the respondents and the general population (sex: $X^2(1)=0.85$, n.s., generation: $X^2(2)=5.82$, n.s.). Since there were not significant differences in the basic attributes, it was concluded that respondents do represent the tendencies of the area.

3.2.3 The Results of the Survey 1

Fig. 2 showed 80% of people who lived in the impacted Area because many numbers of Aftershocks were occurred (over 500 times of aftershocks were occurred from Oct 23-31), while 10.6 % of the people chose to stay at home. 20.1% of them were evacuated to open spaces, 19.2% went to roads, 17.9% went to their

own Garage, and 13.8% stayed in the cars. The survey asked the respondent who chose to stay at home (Fig.3), 35.7% of them answered because they had the elderly in their family so they did not move to somewhere else but home.

3.3 Survey 2: Social survey of the Care Managers and Senior Citizens

3.3.1 Subjects of this survey

Survey (2) included 23 care managers that provided home-based nursing care support in Ojiya City and 399 senior citizens, who were sent to welfare facilities for the elderly or hospitals during the emergency evacuation. Since it is difficult for some seniors to answer the

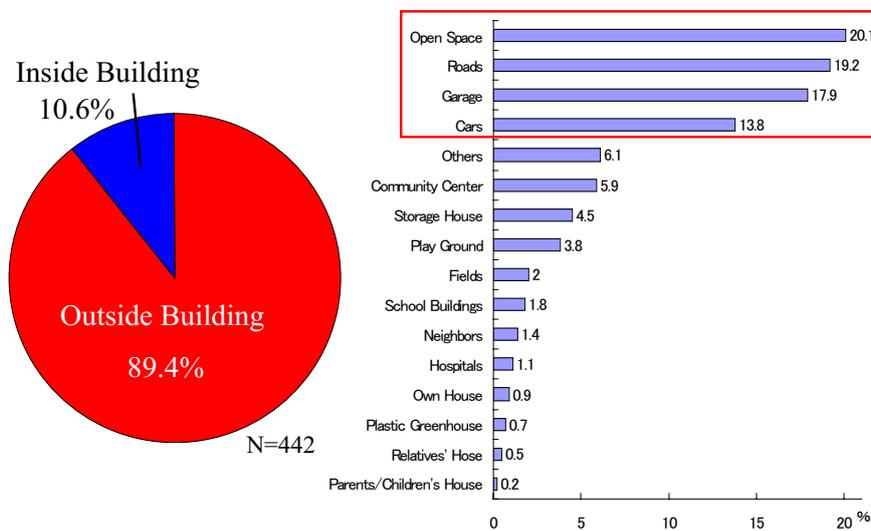


Fig.2 After the impact, which place were you evacuated to ?

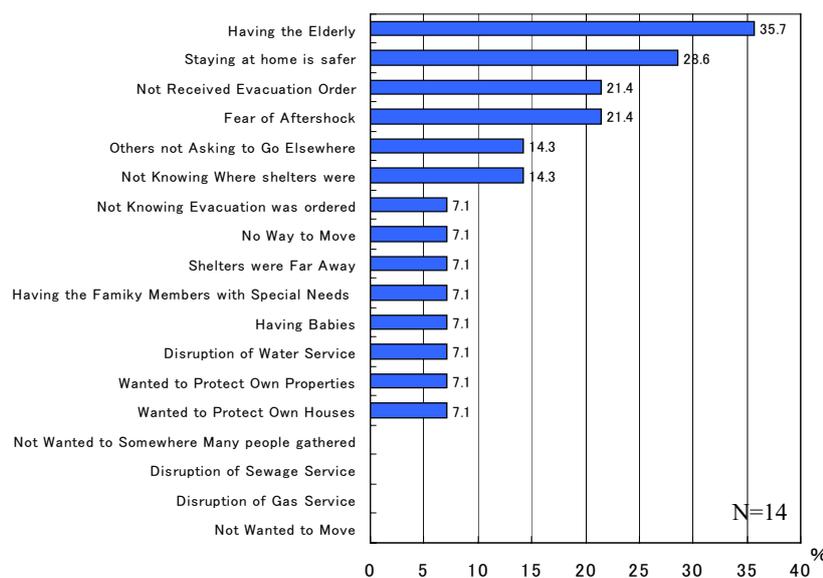


Fig.3 The reasons of the people why they chose to stay at home after the impact

questionnaire, we asked the care managers, which cared for the senior citizens that evacuated to welfare facilities or hospitals, to answer the questions on the seniors' behalf.

3.3.2 Results of Survey 2

(1) The general situation

The questionnaires were distributed on January 15, 2005 through the Geriatric Welfare Division, Ojiya City Office, and collected on January 31, 2005. A 100% response rate was achieved with the assistance of the Geriatric Welfare Division since all 23 care managers that provide home-based nursing care in Ojiya City responded to Questionnaire-A in Survey (2). Questionnaire-B was distributed to 399 senior citizens, although 382 were returned, only 257 were assessed to be useful for the survey. Consequently, the effective response rate was 64.4%.

(2) Situation of the senior citizens received at welfare facilities and hospitals in Ojiya City after the Mid-Niigata Prefecture Earthquake

The graph in Fig. 4, which is based on the data from the Geriatric Welfare Division, Ojiya City, chronologically shows the extent that care managers coped with the emergency evacuation needs. The division accumulated the data by calling the welfare facilities and hospitals to confirm the senior citizens

received during the emergency evacuation based on reports from the care managers. The division continued calling the facilities and hospitals until December 12, 2004, and the total number of people received reached 399. On the day of the earthquake, the need for emergency evacuations arose mainly for “the elderly, who are highly dependent on medical care”. The needs then shifted to “senior citizens, who have difficulties staying at the shelters for a long period.” The needs peaked on October 27, 4 days after the earthquake (Fig. 4).

(3) Actual situation of the elderly received at welfare facilities or hospitals during the emergency evacuation

The average age of the 257 “senior citizens received during the emergency evacuation” was 84. 89.9% were 75 or older, 6.2% were 65 to 74, and 3.9% were under 65. The reasons for the emergency hospitalization or reception at welfare facilities were: 1) their houses were damaged and it became impossible to receive home-based nursing care (58.2%), 2) it became impossible for the family member(s) to care for them at home (19.5%), 3) their facilities suffered physical damage (8.6%), 4) their needs changed (2.3%), 5) their conditions changed (1.8%), 6) they evacuated outside the city (1.8%), and 7) other (7.8%). The resources supported the home-based care decreased by 77.7%.

Before the earthquake, 65.9% of the received seniors

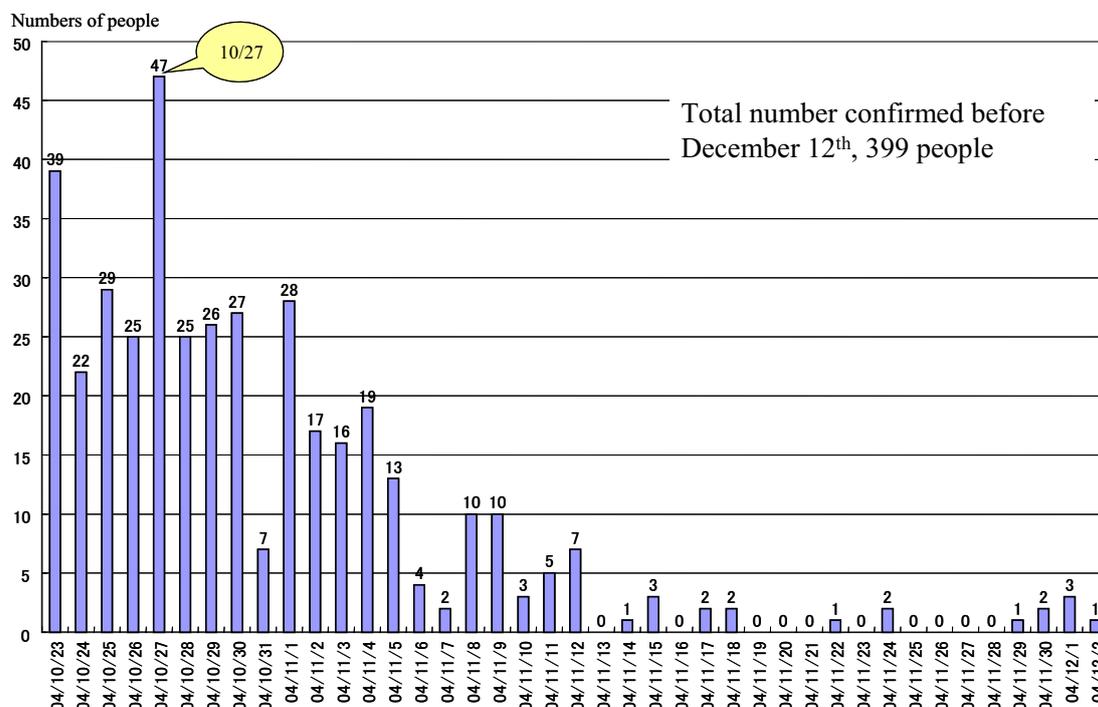


Fig.4 Elderly people evacuated to hospitals/welfare facilities in Ojiya city after the Mid-Niigata Prefecture Earthquake

dwelled at home and 27.1% resided in welfare facilities (Others were 7%). On the day of the earthquake, 37.1% stayed in a tent or a car, 16.3% evacuated to shelters, 17.6% stayed in welfare facilities, 6.9% stayed in hospitals, and 10.6% remained at home. Two to four days after the earthquake, 20% were still living in tents, cars, or shelters. One week after the earthquake, the number of senior citizens received at welfare facilities and hospitals increased and peaked one month after the earthquake. By that time, 61.7% had moved to welfare facilities and 23.0% to hospitals (Others were 15.3%).

Two months after the earthquake, the number of seniors at welfare facilities and hospitals decreased, implying that they started to return home. However, three months after the earthquake only 42.0% of the received seniors had returned home (Fig. 5).

(4) Senior citizens returning home from hospitals/welfare facilities

Figure 6 chronologically compares “the number of senior citizens received at hospitals/welfare facilities during the emergency evacuation” and “the number of evacuees staying at shelters”. The number of evacuees peaked five days after the earthquake. 29,000 of the 44,000 residents in Ojiya City evacuated. The number of evacuees started to decline two weeks after the earthquake and all of them returned home by December

20, 2004. On the other hand, the number of elderly people received at welfare facilities and hospitals during the emergency evacuation increased in accordance with the increase of evacuees at the shelters and peaked 12 days after the earthquake. Although the number of evacuees sharply declined two weeks after the earthquake, the number of the seniors at the welfare facilities and hospitals did not decline as rapidly. The number of senior citizens staying at welfare facilities and hospital gradually declined to 177 as of December 12. These finding suggest that the senior citizens, who needed care, were unable to reconstruct their lives compared to the other evacuees. Via a verbal confirmation on February 17, 2005, 67 seniors were still at hospitals and welfare facilities. As of May 27, 2005, that number decreased to 50. Thus, our current task is to help these 50 seniors return to their own homes.

4. Observations and Conclusions

An essential issue in disaster planning is how to help people that have difficulties evacuating by themselves. Typically, the welfare services that support the life of these people are only provided during fixed hours and are unable to handle abrupt catastrophic disasters. Nevertheless, care managers play a pivotal role in the

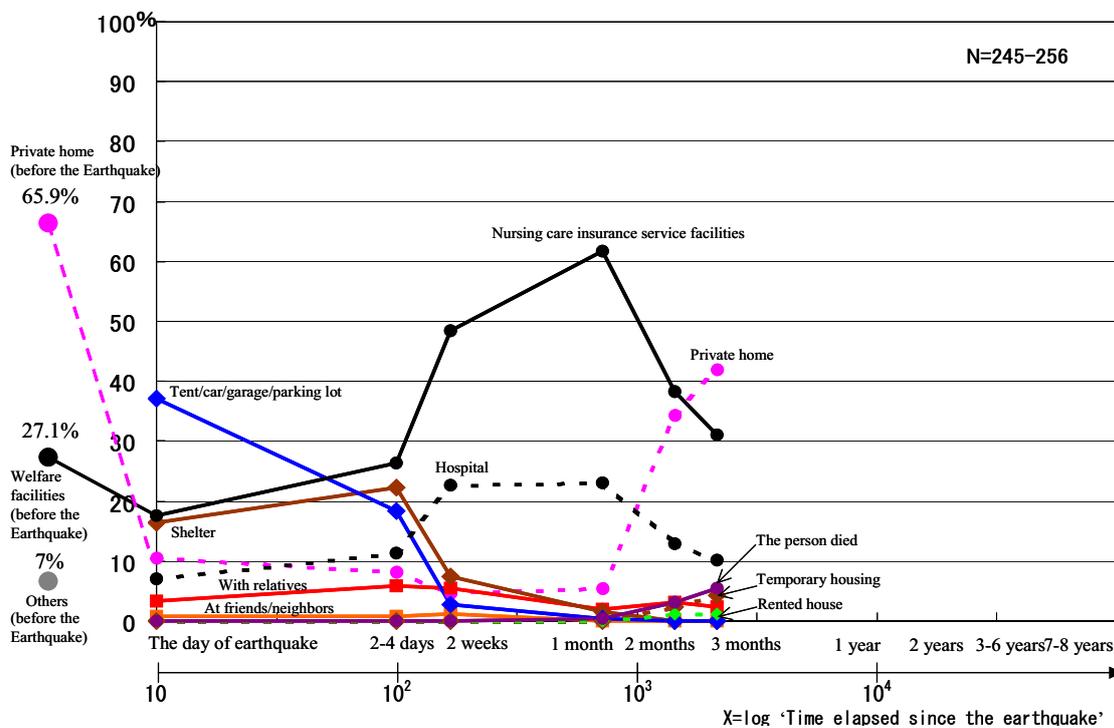


Fig.5 Changes in dwelling places of victims received during the emergency evacuation

current welfare service and are knowledgeable about senior citizens and their need for assistance when a disaster occurs. Care managers also have a strong sense of responsibility for the safety of people in need. Thus, these care managers must be involved in developing individual evacuation plans for future senior citizens that need support. Since care managers determine the evacuation plan for senior citizens, who require care, individuals and organizations, which will become the life-saving resources in an emergency, must be secured. Once these resources are ascertained, the administration, the welfare-related employees, and the community need to simulate evacuations and provide training in order to improve the disaster prevention abilities of the community.

After the emergency period of the Mid-Niigata Prefecture Earthquake was over, the care managers mainly provided support to the elderly requiring care by facilitating their reception at welfare facilities and hospitals. However, there are fundamental issues. 1) The facilities were selected from the limited options within the care managers' network. It was difficult to select the facilities that might help these seniors reconstruct their lives. 2) These seniors tended to have prolonged stays at these facilities. In Ojiya City, which was hit by the Mid-Niigata Prefecture Earthquake, more

than 50 senior citizens (as of May 27, 2005 when this paper is written) had yet to return to their previous lives within the community.

The resources available to care receivers living at home decreased due to the disaster, which prevented these seniors from leaving the hospitals and welfare facilities, and returning home.

Hence, a new special area called "disaster care management" must be established. This area allows care managers to play a leading role in systematizing knowledge, techniques, and networking for total care management during a disaster and remain within the framework of nursing care insurance system.

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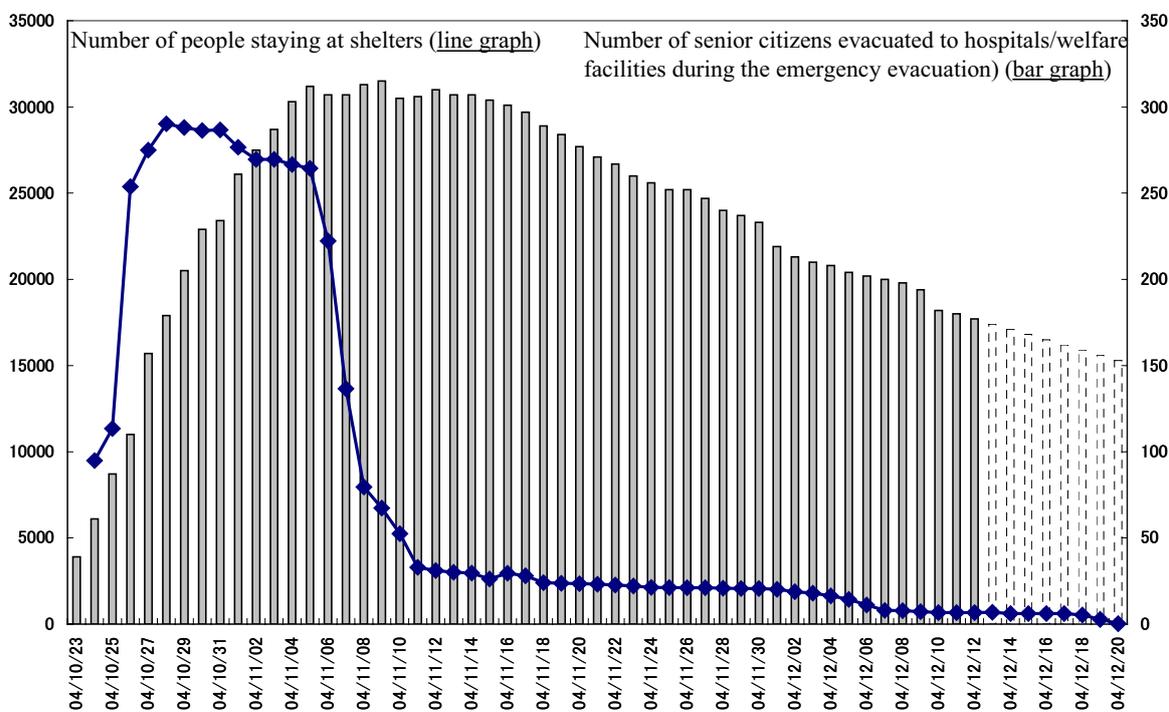


Fig.6 Comparison of the number of people staying at shelters and the number of senior citizens evacuated to hospital/welfare facilities during the emergency evacuation

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社会福祉の観点から見た高齢者における災害過程の解明

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要旨

新潟豪雨水害、中越地震を事例に、高齢者の変化・課題、対応の実態について調査した。結果、介護保険の担い手としてケアマネジャーは、地域の要援護者に対する災害時支援に有効に機能する存在であった事が明らかとなった。しかし災害時の活動は、専門職としての高いモラルと献身に支えられた活動であり、災害時の負担増は顕著であるため、災害対応従事者も含んだ地域での災害時ケアの仕組みを福祉と防災の間で推進する必要がある。

キーワード: 災害時要援護者、危機管理、高齢化社会、介護保険、社会福祉、ケアマネジメント