

# Study on Fire Risk Analysis and Fire Prevention in Residential Nursing Care Homes for the Elderly.

Taichi Yamamra (K110617)

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In residential facilities for the elderly who have limited ability to evacuate, the fire safety is ensured only by enhancement of the hardware side of facilities. However, there are some problems regarding efficient evacuations due to the current conditions. In this thesis, the dynamic residential state of multiple facilities was compared to formulate fire improvement measures for residential facilities for the elderly focusing on human behavior.

From the dynamic study, it was found that in recent years, the number of residents in nursing care homes and rented accommodation for the elderly has increased compared with other residential facilities for the elderly. Furthermore, the fatality rate and total numbers of fatality by fire in group home elderly people with dementia tended to be higher than other types residential facilities for the elderly. The findings of questionnaires and hearing survey from 96 group home elderly people with dementia out of 300 facilities in Tokyo are as below.

- The installation rate for fire protection equipment is high. 91% of the facilities conduct fire drills at least twice a year and have constructed fire prevention frameworks for emergency events.
- While the questionnaire results show that the staffs of group home elderly people with dementia think that regular rooms have the lowest probability for fire occurrence, statistically regular rooms are one of the common fire origins rooms. There is the gap between the staffs' assumption and fire statistics.
- Due to the lack of manpower in nursing home facilities, one staff may have to be in charge of both communicating with the fire department and guiding the residents in evacuations, thus delaying both response and evacuation.
- The fire doors and balconies have been installed in 90% of facilities. But these equipments have not been applied to evacuation scenarios.

From the survey results the recommendations for improving of fire safety in small residential facilities for elderly are as follows:

- Fire drill that assumes the fire from regular room should be conducted.
- Fire alarm system should be able to directly connect to the fire department and previously entered cell phone to increase rescue efficiency.
- It would be helpful if the action scenario is designed with consideration on each facility's characteristics.

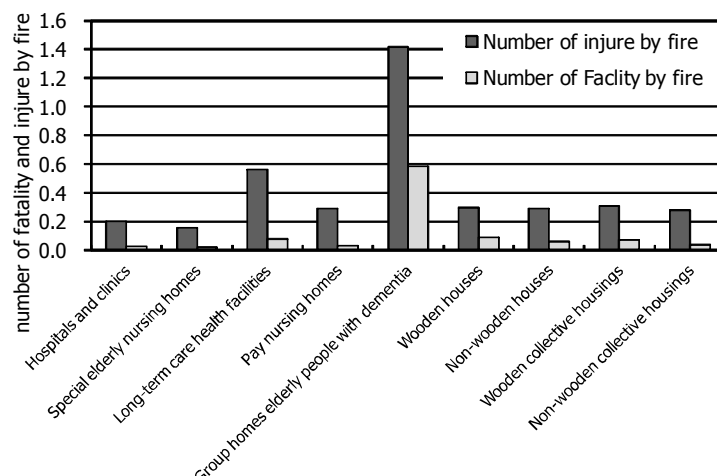


Figure: Number of fatality and Injure by Fire.