

A STUDY ON THE LIVING SPACE OF THE RESIDENTS IN A REMOTE MOUNTAINOUS VILLAGE: A CASE OF CHOJA VILLAGE IN NIYODOGAWA-CHO, KOCHI, JAPAN

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ABSTRACT: This study considers what constitutes the conditions that enable continuous living in a rapid aging, depopulating mountainous village in Japan. An interview survey was conducted in Choja, Niyodogawa-cho, a rural mountainous village in Kochi prefecture, which has been suffering from critical depopulation and aging for the last few decades. The survey explored daily activities of the local residents, including the purchasing behavior and the usage of medical and public care services. The result shows the residents' heavy dependence on the facilities and services outside of the area. The result explicitly suggests that the owning and driving a car is one of the factors which determines both the amount and the dimensions of the residents' daily activities, particularly in the area without adequate public transportation service.

KEYWORDS: depopulating mountainous village, purchasing behavior, utilization of medical institutions

1. INTRODUCTION

The aging rate, the rate of people above the age of 65, in Japan has exceeded 22.4% in December, 2008. And the total fertility rate in the year 2006 has reached 1.32. It is unavoidable for us to face a rapidly aging, depopulating society with a declining birthrate (Figure 1). This phenomenon is so serious in remote mountainous villages that the number of villages with the aging rate of people over the age of 65 exceeding 50% is estimated to increase. These villages under this condition are called "marginal villages (Genkai Shuuraku)" where ceremonial functions for the coming of age, marriage, funeral and ancestral worship are difficult to be held by inhabitants. Considering the estimation of population in Japan, it extends to suburban district in not so distant future. It is therefore necessary to clarify a livelihood structure of inhabitants in aging region.

The purpose of this study is to investigate what constitutes the conditions that enable continuous living in a rapid aging, depopulating mountainous village by conducting a survey in Choja, Niyodogawa-cho, a rural village in Kochi prefecture, where depopulation is serious: This investigation on daily activities of the local residents includes the purchasing behavior and the usage of medical and public care service.

2. OVERVIEW OF SURVEY

Niyodogawa-cho, where Choja is located, is a subject area of this study, and is a local governing body, located in mountainous area between Kochi city and Matsuyama city (Figure 2). The population of Niyodogawa-cho is 7,171 (as of February 28, 2009) born by a joint of villages and towns in the district.



Figure 1. Transition of population in Japan.

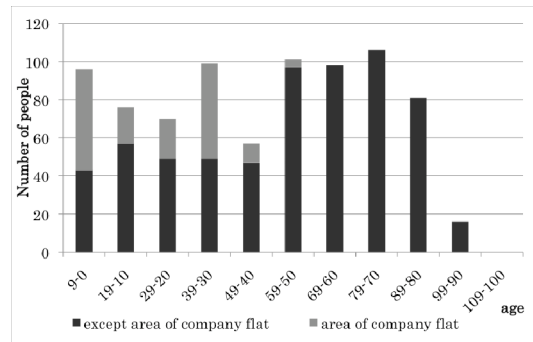


Figure 5. Population pyramid of Choja.



Figure 2. Location of Niyodogawa-cho.

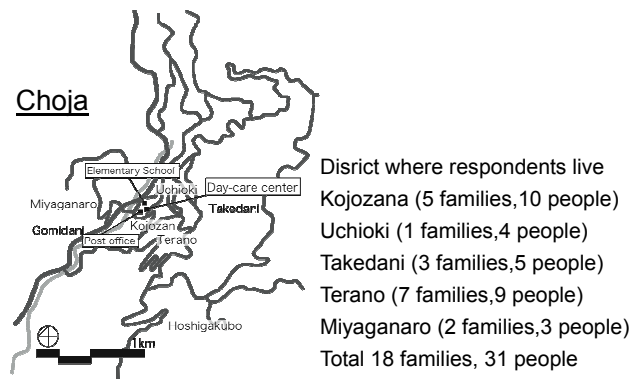


Figure 6. District respondents live in Choja.

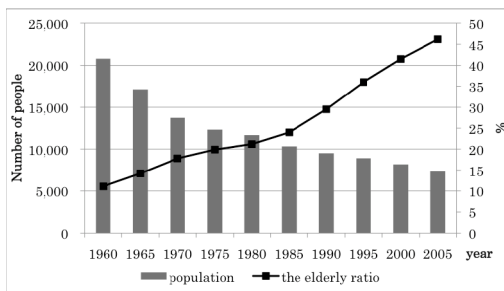


Figure 3. Population and aging of Niyodogawa-cho.



Figure 4. Landscape of Choja area.

Table 1. Outline of survey.

Survey period	29th and 30th, March, 2009
Researched resident	Residents in Choja: Total 39 people (Breakdown of age: 10-19:4, 20-29:2, 30-39:1, 40-49:1, 50-59:3, 60-69:8, 70-79:7, 80-89:10, 90-99:3)
Interview item	1. name, age, living district, family structure
	2. Purchasing behavior a. Daily purchase (Place/Way of moving/Frequency) b. Particular purchase (except articles for daily use) (Place/Way of moving/Frequency)
	3. The usage of medical institution a. Daily medical care (Place/Way of moving/Frequency) b. Advanced medical care (Place/Way of moving/Frequency)
	4. Service of long-term care insurance

Figure 3 shows the population and ratio of elderly people since 1960, which indicates serious depopulation and rapid aging. Choja locates in southern part of Niyodogawa-cho area and has 800

inhabitants as of February 2008. Housing and terrace paddy field were constructed on steep-sided hill as shown in Figure 4. There already exist numbers of so called “marginal villages”, mentioned above, within Niyodogawa –cho area, however, the village chosen as the subject of this survey shows the present aging rate of 32.3%, and has not reached the state of a “marginal village” at this stage. It is predicted,

however, that aging is unavoidably in progress, for the present residents at the ages of around thirty who temporarily live in the company-owned apartments of the construction company in the area, will not live permanently (Figure 5).

The interview was conducted on 39 residents on where and how often they go to purchase daily and non-daily goods and what the means of transportation were. The same survey was conducted on the utilization of medical institutions for daily health-care and for high-tech medical treatments. The frequency and the area of activities for shopping and utilization of medical institutions, which are indispensable for living, were clarified with the survey.

Semistructured interviews were conducted with a list of questions including the categories shown in Table 1. In the following chapters, consideration is given to the responses given by the 33 respondents. Since the interviews were often conducted, taking the family as the basic unit, the results are summarized on the result of this unit. The responses by the two six-grader boys of an elementary school, at the age of twelve are omitted, and are kept as reference. The residential compound in Choja of the families are depicted in Figure 6.

3. RESULTS

3.1 Purchasing Behavior

Interview results are summarized in Table 2. The purchasing spots of the residents in Choja are extracted in Table 3. The result shows that the residents capable of driving go for shopping to supermarkets outside of the village by car for daily shopping, although shops and an agricultural cooperative store are located in the village (Cases 4, 5, 8, 9, 10, 12). Especially, the families with a member at the age under fifty frequently go to the

shopping mall near the Kochi station, which is 40km far from Choja; at the frequency of once a month (Case 8). And the residents without a car or incapable of driving, especially those of further advanced years, tend to use mobile stores that sell foods and commodities by car regularly (Cases 6,7,9,11,13,14,15,16,17,18). Cases using internet is also observed, like the men in their 30's, purchasing goods or using online rental system for his hobby of listening to DVD music.

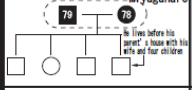
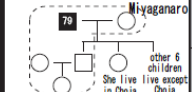
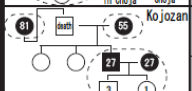
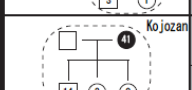
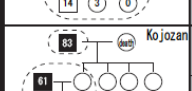
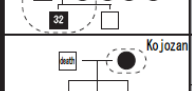
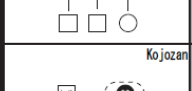
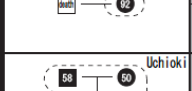
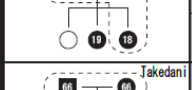
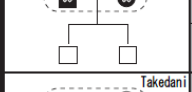
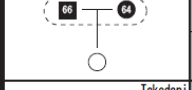
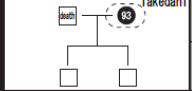
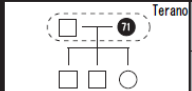
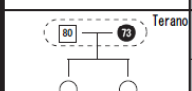
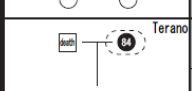
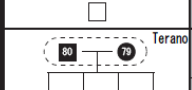
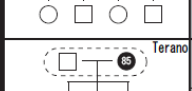
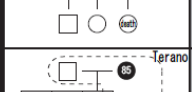
The reasons for using the stores within the Choja district includes factors putting emphasis on the human relations in daily life in the village, as in the case of answering that the shop owners and the customers have close and relative-like relationship with one another(Case 5). On the other hand, some of the residents often using a mobile store answer that they do not shop in the area outside of the village even at the opportunities of going to the hospital outside of the village, instead, they use a mobile store, for they worry to possibly lose the mobile store by not frequently using it (Case 13).

For the number of standing stores is limited in the remote mountainous villages, capability in driving largely influences the purchasing behavior. Therefore, the need for stores within the area, where the aged residents are capable of reaching, is high: the higher the age, the higher the necessity.

3.2 Utilization of Medical Institutions

Many of the residents use hospitals outside of the village, for there is no medical facility in the area. Same as the result of the interviews in the purchasing behavior, those who are capable of driving go to hospitals by car, but those who are incapable take the bus service offered by the medical institutions. Few medical facilities near the village visit to see the patients once a week as a day-care

Table 2. Interview results.

	Family structure	Purchase	Use of hospitals	Service of long-term care insurance
1		Supermarket (Ochi) (father)/a private car (referred to as PCar)/three times a week (On going to hospital for rehabilitation) Shopping mall A (Kochi City)/PCar/once or twice a year (ask his son for buying or go there with him)	K hospital (father - rehabilitation of his knees)/PCar/about three times a week N clinic (father)/- /for drip-feed on having a cold T hospital (Kochi City) (father)/- /he went into hospital twice C hospital (Kochi City) (father)/- /an operation for appendicitis Kochi Health Sciences Center (mother)/- /- Kochi Medical School Hospital (mother)/- /- K hospital (mother - dialysis)/hospital bus/three times a week O hospital (Ochi) (father)/- /on having influenza last year	Day-care (mother)/twice a week
2		C supermarket (Choja) (father)/- /every day Supermarket (Ochi) (buy fish or liquor)/- /once a week "I hardly go to Kochi City and so on."	anywhere for test (mother)/son's or daughter's car/-	
3		Kochi City (grandson and his wife)/- /Holiday	K clinic (Sagawa) (great-grandchildren)/PCar/- Osaki (grandson's wife)/- /- Kochi National Hospital (Kochi City)/- /on having a baby (grandmother: "When I need to go, My grandson go together by his car.") (grandson's wife: "Because there is not a children's hospital, it's inconvenient when something occurs.")	
4		Sagawa/PCar/- Ino/PCar/-	W clinic (Ochi) (children, mother)/- /- W clinic (Ochi)/- /on having a baby	
5		Sagawa (son)/- /once a week (Sunday), Ochi (son)/- /once a week (Sunday), possibly S store (Choja) (son) (Relation between the store owner family is stranger than his relative) DVD rental shop T (Ino, Azono) (grandson)/- /three or four times a month On line DVD rental shop (grandson)	O hospital (Kochi City) (grandfather - heart disease)/grandson's car/once a month	
6		Route sales B/- /twice a week JA (Japan Agricultural Cooperatives) store /on foot (as pushing "shilver car")/- "I don't go to Kochi City."	N clinic (for medicine)/bus/once a month (Sometimes she ask people go there for bringing to her medicine.) Ophthalmologic hospital (Sagawa)/the car of people who go to town/- (She almost receives treatment N clinic.)	• Day-care (game and bathing)/about three times a month • a meal delivery service • home-care helper service (cooking a meal and cleaning) /about every morning
7		Route sales B/- /once a week (Tuesday) Route sales A/- /twice a week (Wed. and Sat.) JA store/- /twice a month "I don't go. When my husband is alive - about ten years ago -. we go to Sagawa or Ochi"	Medical examination and treatment by N clinic doctor at day-care center (leg, blood pressure)/- /once a week Kochi National Hospital (Kochi City)/- /a operation for gallstone (once) Ophthalmologic hospital (Kochi City)/- /-	not use (not admitted nursing service) "I want a home for the aged in Choja"
8		Supermarket (Sagawa)/- /once a week (Sunday) Supermarket (Ochi)/- /once a week (Sunday) Shopping mall A (Kochi City) (game and clothes)/- /once a month S shop (Sagawa)/- /once a year (on the year-end)		
9		Sagawa (father)/PCar/twice a week (on going to do golf) Kochi City (golf ball etc.)/PCar/several times a year, Matsuyama City (clothes) /PCar/several times a year, mail order (mother), Internet (their son buys and sends lighting) for Christmas	N clinic (father)/- /for medicine (father: He is a bus driver of N clinic for a part-time job.)	
10		From a consumer cooperative/- /Tuesday Sagawa/PCar/on going for other things "We hardly go for special buying"	N clinic/- /on only having a cold Kochi City (acupuncture)/PCar/once a week	
11		Route sales A/- /twice a week Her daughter-in-law living in Sagawa brings to necessary things once a week (vegetables are growd by herself)	Medical examination and treatment by N clinic doctor at day-care center (for medicine)/- /once a week N clinic/neighbors' car/on necessary	not use
12		Sagawa/PCar/once a week Ochi/PCar/once a week	N clinic/PCar/once a month	
13		Route sales A/- /twice a week (She moves in Choja by her motorbike) Route sales of raw fish/- /twice a week JA store/on foot/twice a month (vegetables are growd by herself) "I hardly go to Kochi City and so on."	N clinic/clinic bus/once a month	not use day-care and home-care helper service "I want a home for the aged in Choja"
14		Route sales A/- /twice a week Route sales of raw fish/- /twice a week JA store/on foot/twice a month (vegetables are growd by herself) "I hardly go to Kochi City and so on."	N clinic/clinic bus/once a month	not use day-care and home-care helper service
15		Route sales A/- /twice a week Route sales of raw fish/- /twice a week JA store/on foot/twice a month (vegetables are growd by herself) "I hardly go to Kochi City and so on."	N clinic (both father and mother)/clinic bus/once a month	not use day-care and home-care helper service
16		Route sales A/- /twice a week	N clinic/clinic bus/once a month	
17		Route sales A/- /twice a week	N clinic/clinic bus/once a month They take their blood pressure on lunch meeting of community.	"If I can't live by myself, I will move to children home living in Sagawa."
18		Route sales A/- /- (vegetables are growd by herself or given) Kochi City/Son's car, who live in Kochi city /On going to ophthalmologic hospital	N clinic/- /once a month Medical examination and treatment by N clinic doctor at day-care center/- /- Ophthalmologic hospital (Kochi City) /Son's car, who live in Kochi city/once three months	not use day-care "My friends ask me why I don't come there, but I am not unwilling to go there." "When I won't be able to look after myself, I will move a nursing room."




A guide: Family structure:  Man  Woman (Number is the age and black figures indicate respondents of our interview survey.)  Living together (names on right top of each frame are district ones) "Place/Way of moving/Frequency" are mentioned about "Purchase" and "Use of hospitals", and "Contents of the service/Frequency" are mentioned about "Service of long-term care insurance"

Table 3. Purchasing behavior.

Type	Place of purchase	
Daily purchase	Permanent store	JA(Japan Agricultural Cooperatives) store, C supermarket, S store (in Choja), Supermarkets in surrounding towns
	Not permanent store etc.	Route sales A by supermarket in neighbor town, Route sales B by shop in Niyodogawa, Route sales of raw fish from Kochi City, Consumer Cooperative store, (relatives buy and bring necessities)
Particular purchase	Kochi City, Matsuyama City, Shopping mall A (Kochi City), Supermarkets in surrounding towns, On line DVD rental	

service for the residents, and a number of cases using this service is investigated (Case 7, 11, 18). Utilization of the service of blood pressure measurement offered at the sampling party held once a month by the agriculture cooperation, seems to contribute to the feeling of no inconvenience for a daily medical service.

Most of the respondents, including aged, answer that they do not have anxiety about their health. When a high-tech medical care is required, such as having a surgery, medical facilities outside of the village, like the national hospital in the center of the Kochi city is used (Case 7). Some of the families with children

respond that the environment with no pediatrics around is inconvenient (Case 3): in case of emergency an adequate treatment is not expected in Choja area.

3.3 Utilization of Nursing Service

In the interview for utilization of nursing service, however, only two cases of respondents using the nursing service were observed (Case 2 and 6). One of the possible factors for this result derives from the present situation that most of the respondents feel healthy. However, another conceivable factor for this result may come from the negative image that the residents have on using nursing service (Case 18).

At present, no housing facilities with nursing care service is provided for aged in this area. For receiving nursing care in case of inability of living at home, one has to move out to stay in a housing facility outside of the village. Some aged respondents who have concerns over their lives in the future comment that they” want an old people’s home (assisted living residence)” (Case 7 and 13) so that they will be able to stay in the village, a place that have been their home for a long time.



Figure 7. Location of shops and medical facilities that respondents use.

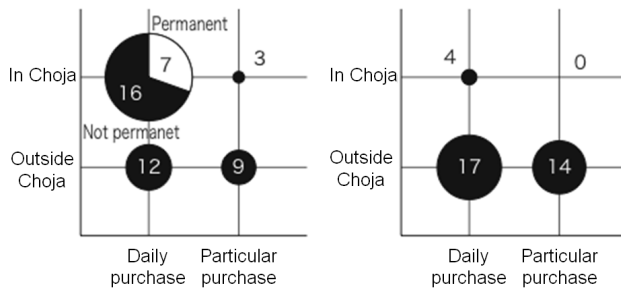


Figure 8. Number of respondent using shops and medical facilities for different purpose.

4. CONSIDERATIONS

As seen in Section 3.1 and 3.2, it is evident that numbers of residents drive cars on their own to go for shopping and to go to hospitals. The sites for shopping and medical service are illustrated in Figure 7. On the other hand, many cases of using services which “visit” Choja from outside of the town, such as mobile stores are observed for those who are not capable of driving. Figure 8 provides the sites both inside and outside the village, where residents shop or use medical facilities. The figures stated indicate the frequency that the residents respond in Table 2. Special purchasing cases in Choja indicate the cases of shopping on the Internet and mail-order system (Case 5 and 9).

As stated above, the purchasing behavior and the usage of medical institutes of Choja district are represented as follows:

- Usage of mobile stores for daily shopping is distinctly frequent in Choja.
- Capability of driving enables the residents to use the facilities outside of the village for both daily and non-daily shopping.
- As for medical service, facilities outside Choja are used. (The three medical facilities in Choja are not permanent; but come to see their patients from the villages near Choja.)

Regarding the purchasing behavior and the usage of medical service, the residents mostly rely on the

facilities outside of their residential area.

5. CONCLUSIONS AND ISSUES TO BE STUDIED

This study reports the interview on purchasing behavior and medical care service of residents in the mountainous aged village in Kochi. The results show that their daily life heavily depends on the facilities and services outside the area. Owning and driving a car is one of the significant factors which determine both the amount and the dimensions of the residents’ daily activities. On the other hand, livelihood of inhabitants without car is limited. It is essential therefore to sustain an adequate public transportation service or alternative one for residents without a car or incapable of driving that will increase in aging society.

Some of the purchasing behavior and the usage of medical service in a remote and isolated, aging and depopulated area is clarified, however, the usage of medical service is not fully grasped. From the interviews, it is predicted, that the residents have to move out to the villages near Choja when nursing care is required. A continuous study will be conducted to clarify the actual situation.

ACKNOWLEDGEMENTS

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REFERENCES

- A. Ono, 2005. *Introduction on Sociology of Rural Environment*, Rural Culture Association. (in Japanese)

K. Takanori and T. Shigesato, 2008. Close Analysis on the Japanese Depopulation Society, *National Institute of Population and Social Security Research(JPSS)*, Chuohoki Publishers Co.,Ltd. (in Japanese)

National Institute of Population and Social Security Research (JPSS), 2009. *Collection of Population Statistics*, Chuohoki Publishers Co.,Ltd. (in Japanese)

Statistics Bureau, Ministry of International Affairs and Communication, 2009. *Japan Population Monthly Report*, May 2009. (in Japanese)

The Basic Register of Residents of Niyodogawa-cho, As of 28 February, 2009. (in Japanese)

Y. Takemura, 2008. The Situation in Aging Society, *A University Bulletin of Kochi University of Technology,2008*. (in Japanese)