Factors Determining Satisfaction with Daily Life of Elderly A-bomb Survivors

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From the analysis of questionnaires to elderly A-bomb survivors of over 65 years old, we analysed factors which determined satisfaction with daily life. Analysed categories were housing condition, life style, occupational status, health condition and family status. From the analysis, to be an A-bomb survivor was not a factor for satisfaction with daily life, and it became clear that living in a rented room, not satisfying one's job and low income were serious factors which kept elderly people from the satisfaction with daily life. It must be necessary to improve these factors for the satisfaction of elderly people.

Introduction

As 42 years have passed, A-bomb survivors became elderly, and it is important to consider and support their living to make them healthy and happy. Some studies have been reported on happiness and satisfaction[1-4, 7, 8] and activity of daily life[5, 6] of elderly people. For the elderly A-bomb survivors, a survey on their daily life was performed in 1983,[9] though limited to those who lived alone with troubles. This time, a survey on elderly A-bomb survivors living in Nagasaki City was repeated to investigate their condition of daily life and health.[10] Statistical analysis was performed to elucidate factors which determine satisfaction with daily life in this study.

Materials and Mathods

One thousand and five hundreds persons were sampled randomly from 52,302 persons who were more than 65 years old and living in Nagasaki City in 1989. A questionnaire was sent to them in November 1989. The replied questionnaires were collected from 1,329 persons; the response rate was 88.6%. A number of 137 items related to satisfaction with daily life were used in the present analysis. They are categorized into housing condistion, life style, occupational status, health condition and family status. The age was limited to less than 80 years old for the analysis. Over 80 years old, they have some diseases or gradually lose functions of organs which young and healthy poeple retain. And factors which determine satisfaction with daily life of those of more than 80 years old would be different form those of less than 80 years old. The number of subjects used in the study was 937 (456 males and 481 females); 410 A-bomb survivors (127 males and 283 females) who hold 'hibaku-sha techo' or the A-bomb health book and 527 controls (329 males and 198 females) as shown in Table 1. Discriminant analysis and chisquare test with SAS application program were allowed in this study.
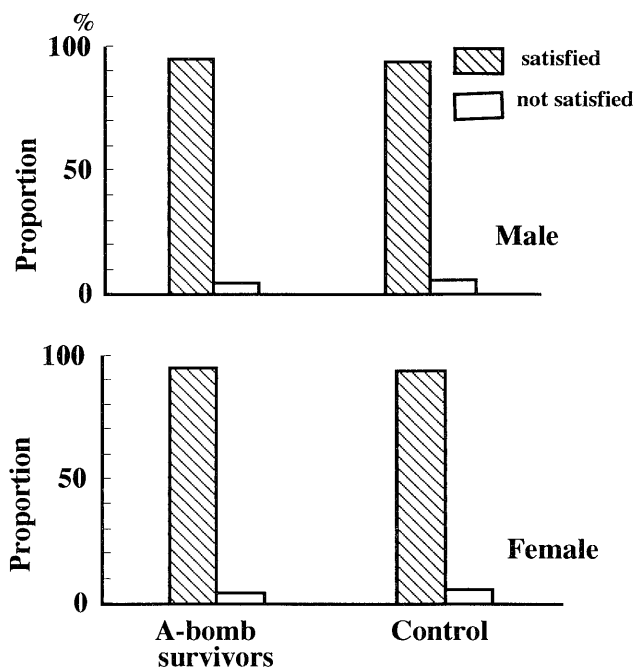
Results and Discussion

Proportions replied to the questionnaire on satisfaction with daily life were shown in Table 2 and Fig. 1. About 95% of both A-bomb survivors (95.8% for male, 95.1% for female) and controls (95.3% for male, 93.9% for female) replied as being satisfied with daily life. Although the proportion replied as not being satisfied was small (about 5%), we

Table 1. Subjects of the study.

Age	Male			Female		
	Survivors	Control	Total	Survivors	Control	Total
65-69	34	163	197	123	91	214
70-74	50	94	144	86	69	155
75-79	43	72	115	74	38	112
Total	127	329	456	283	198	481

Table 2. Proportions replied to the questionnaire on satisfaction with daily life.

	Male		Female	
	Survivors	Control	Survivors	Control
Satisfied	114 (95.8)	284 (95.3)	231 (95.1)	168 (93.9)
Not Satisfied	5 (4.2)	14 (4.7)	12 (4.9)	11 (6.1)
Total	119 (100.0)	298 (100.0)	243 (100.0)	179 (100.0)

Fig. 1. Proportions replied to the questionnaire on satisfaction with daily life (upper: male, lower: female).

Table 3. Chosen items by discriminant analysys.

X_i	Items	a_i	F-value
X_1	satisfaction with housing	0.811	49.7
X_2	low income	- 2.434	38.6
X_3	living in a rented room	-14.987	34.4
X_4	inability of dressing	- 1.016	33.2
X_5	difficulty of going out	- 2.822	19.7
X_6	encephalomalacia	- 2.898	13.8
X_7	not satisfying job	-10.795	12.6
X_8	deaf	- 0.813	13.3
X_9	asthma	- 1.847	6.2
X_{10}	difficulty of preparing dinner	- 3.021	5.1
X_{11}	cerebral thrombosis	- 1.982	5.2
X_{12}	incovenient of using Japanese style restroom	- 1.455	4.8
X_{13}	healthy consciousness	- 0.881	4.3
X_{14}	not having a child	- 0.246	4.5
X_{15}	joining old people's club	1.536	4.0
X_{16}	visiting children and/or gland children	0.614	3.7
X_{17}	attending a self governing meeting	- 1.601	3.1
X_{18}	difficulty of cleaning rooms	1.781	3.1
X_{19}	gardning	0.760	3.3
X_{20}	living in a company house	- 3.243	3.0
X_{21}	having religious faith	1.453	2.6
X_{22}	having a time with family	0.685	2.9
X_{23}	having one's job	1.087	2.6
X_{24}	sightless	0.175	2.5
X_{25}	living in a old house	- 0.992	2.4
X_{26}	watching TV and/or listening to the radio	0.489	2.2
X_{27}	worrying about one's job	- 1.870	2.1
X_{28}	attending meetings	0.865	2.4

investigated the factors which determine the satisfaction with daily life. A discriminant function was introduced,

$$Y = a_i X_i + c$$

where, Y is a discriminant value (Y > 0 for satisfied group and Y < 0 for not satisfied group), a_i coefficients, X_i variables, and c a constant.

Chosen factors in the discrimination function were 28 items shown in Table 3. To be an A-bomb survivor was not chosen as a factor. The coefficients a_i show maginitude which determine the discriminant value, or satisfaction. F-value (F_i) indicates the likelihood in choosing the factor for discrimination; a large F-value suggests a significant factor for satisfaction. Some items of questionnaire are of a multiple question. The absolute value of a_i multiplyed by the number of branches in the multiple question (N) minus 1 mad F_i results in magnitude of satisfaction. This can be called a discriminant index (DI).

$$DI = |a_i| \times (N-1) \times F_i$$

Chosen factors of 28 items were classified into five categories; housing condition, life style, occupational status, health condition and family status. Discriminant indeces for these categories are shown in Table 4. The

important factors were, "satisfaction with housing" and "living in a rented room" in the housing condition; "low income", "inability of dressing" and "difficulty of going out" in the life style; "not satisfying job" in the occupational status; "encephalomalacia" and "deaf" in the health condition. Sensitivity and specificity descriminated by the above descriminant analysis were 0.91 and 0.78, respectively. From the magnitude of discriminant indeces, it must be necessary to improve these factors for the satisfaction of elderly people, mainly to make them live in their own houses without living in rented rooms and to assure their income.

Table 4. Discriminant index by category.

X_i	Items	Discreminant Index (DI)	Subtotal of DI
1. Housing condition			
X_1	satisfaction with bousing	80.6	
X_3	living in a rented room	515.6	
X_{12}	incovenient of using Japanese style restroom	7.0	
X_{20}	living in a company house	9.7	
X_{25}	living in a old house	2.4	
			615.3
2. Life style			
X_2	low income	94.0	
X_4	inability of dressing	67.5	
X_5	difficulty of going out	55.6	
X_{10}	difficulty of preparing dinner	15.4	
X_{15}	joining old people's club	6.1	
X_{16}	visiting children and/or gland children	2.3	
X_{17}	attending a self governing meeting	5.0	
X_{18}	difficulty of cleaning rooms	5.5	
X_{19}	gardning	2.5	
X_{21}	having religious faith	3.8	
X_{22}	having a time with family	2.0	
X_{23}	having one's job	2.8	
X_{26}	watching TV and/or listening to the radio	1.1	
X_{28}	attending meetings	2.1	
			265.8
3. Occupational status			
X_7	not satisfying job	136.0	
X_{27}	worrying about one's job	3.9	
			139.9
4. Health condition			
X_6	encephalomalacia	40.0	
X_8	deaf	21.6	
X_9	asthma	11.5	
X_{11}	cerebral thrombosis	10.3	
X_{13}	healthy consciousness	7.6	
X_{24}	sightless	1.3	
			92.3
5. Family status			
X_{14}	not having a child	1.1	
			1.1

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