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Structure of Attitude towards Life of Healthy Elderly People Living in Urban Areas in Japan and Taiwan

– Toward Creation of Service Design for Improving Quality of Life –

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Abstract: In this study, we targeted healthy elderly individuals living with family in urban areas in Japan and Taiwan and considered the structure of their attitude towards life by conducting a survey and analysis of “satisfaction with daily life” and three aspects of attitude towards life that could affect satisfaction, namely, “enjoyment in daily life,” “anxiety in daily life,” and “ikigai in daily life.” The results revealed that “enjoyment of daily life” had a large positive effect and “anxiety in daily life” had a negative effect on the prediction of “satisfaction with daily life.” From the results of a factor analysis of what affects the consciousness of these two aspects of daily life, we were able to derive guidelines for considering service design. In addition, the characteristics and issues of each attribute could be clarified from the relationship between the attributes and the extracted clusters.

Keywords: Attitude towards life, Healthy elderly people, Quality of life

1. INTRODUCTION

1.1 Background

“Population aging” is an unavoidable keyword when discussing the social and economic prospects for the next several decades in nearly all developed countries. In Japan, the rate of population aging continues to rise and reached 25.0% in 2013; this is expected to reach 31.6% in 2030 and 39.9% in 2060 [1]. Moreover, population aging is also progressing in a similar manner in neighboring Taiwan, where countermeasures have become an important policy issue. The aging rate, calculated at 12.5% in 2015, is expected to rise to 23.6% in 2030, and reach 38.6% by 2060 [2]. (Figure 1)

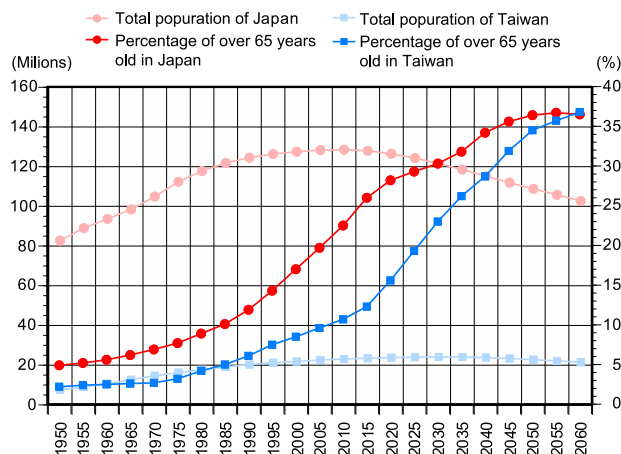


Figure 1: Total population (left vertical axis) and the percentage of those aged 65 years and older (right vertical axis)

Conventionally, the elderly are often seen from the perspective of welfare, but many of them are both physically and mentally healthy [3]. In addition, the environments surrounding elderly individuals are changing drastically because of advances in social infrastructure utilizing information and communications technology and because of deteriorating communities [4].

1.2 Previous research

On the other hand, there are many studies focusing on physical functions for the elderly, such as service design using the concept of gamification aimed at preventing locomotive syndrome [5] and creating services aimed at frailty syndrome [6]. However, there are no studies aimed at deriving service designs aimed at promoting self-help focusing on the attitude towards life for healthy elderly people.

In addition, elderly people living in urban areas are expected to strengthen their self-help function by actively selecting, purchasing and using services that they consider necessary, as in normal consumption activities [7].

1.3 Purpose of this study

Therefore, in this study conducted as basic research in the preliminary stage of creating service designs aimed at improving elderly quality of life (QOL)—an urgent issue common to these physically proximate and culturally similar island nations—we sought to understand the structure of attitude towards life, that is, the relationship between satisfaction in daily life and the consciousness

that affects it. In addition, we explored the similarities and differences according to four attributes (“Japan,” “Taiwan,” “men,” and “women”), among healthy elderly people living together with family in urban areas in Japan and Taiwan.

2. QOL

2.1 Defining QOL

Past studies of QOL have been advanced largely by ways of thinking in the fields of medicine, gerontology, and social psychology [8]. Scholars in the medical field have attempted to characterize QOL primarily through elements that can be observed as facts by third parties in order to achieve a strong awareness of the relationship of QOL with health (and illness) and to gauge the effects of treatment. On the other hand, scholars in fields associated with gerontology and social psychology, while remaining conscious of the relationship of QOL with health, have sought to characterize QOL through subjective factors that can be understood only by the principals themselves regarding their lives and day-to-day experiences. The former is called “health-related QOL” (HRQOL) and is evaluated by a variety of factors, including physical functioning, mental health, daily role functioning, physical pain, vitality, social functioning, and attitude toward health. The latter is called “subjective QOL” (S-QOL) and is evaluated as morale, life satisfaction, and subjective well-being.

Without saying which of these approaches is more effective, both are considered important for characterizing QOL among the elderly.

2.2 The QOL sought by this study

In the context of this study, the definition of service design for QOL can be considered as that which seeks to improve HRQOL and S-QOL. Because the former falls into the category of medical fields, we have decided to focus on the latter.

Scales that measure S-QOL—which, as mentioned above, is concerned with morale, life satisfaction, and subjective well-being—have been examined in terms of a variety of aspects, including theoretical validity, construct validity, and factor validity. However, unlike in the case of HRQOL, many issues have been reported in relation to the validity and reliability of the evaluation scales themselves [8].

Given that this study is not intended to be a discussion of QOL, we have decided to conduct our survey by selecting questions relating to “enjoyment of everyday life”

(hereinafter, “enjoyment”), “anxiety in everyday life” (hereinafter, “anxiety”), and “sense of purpose in everyday life” (hereinafter, “*ikigai*: reason/motivation for living in Japanese”) from among the questions used in past reports relating to awareness on the part of the elderly [9-13].

3. SURVEY

3.1 Participants

The survey targeted men and women between the ages of 60 and 74 who live with family members, such as spouses and children, and reside in Fukuoka which is an ordinance-designated city in Japan, or in Taipei, New Taipei, Taoyuan, Taichung, Tainan and Kaohsiung which are government-ruled special municipalities in Taiwan.

Based on the first author’s previous research [14], we decided to limit ourselves to cohabiting households because differences in the attitude towards life arise from differences in household composition. In addition, although there was no significant difference according to the area of residence, the present study was limited to urban areas due to the ease of investigation. Finally, to grasp the tendencies of each age group, in addition to those aged 65 to 74 years, who are classified as the late elderly, we decided to also include the early elderly, who are 60 to 64 years old.

3.2 Questionnaire items

The nine questionnaire items were as follows: “Q1: Presence and level of nursing care certification,” “Q2: Presence or absence of health problems that have an impact on daily life,” “Q3: Satisfaction with daily life,” “Q4: Enjoyment of daily life,” “Q5: Anxiety in daily life,” “Q6: *Ikigai* in daily life,” “Q7: Activities that evoke enjoyment,” “Q8: Concerns that evoke anxiety,” and “Q9: Life scenarios that evoke *ikigai*.”

It should be noted that Q7 includes 29 activities used in past reports [9, 10, 12] (Table 1); Q8 includes 16 types of concerns used in past reports [9-11] (Table 2); and Q9 includes 13 types of life scenarios used in past reports [10, 11, 13] (Table 3).

The present survey of elderly residents in Taiwan, which will be described later, was carried out with reference to a previous report [15] and we confirmed with its authors whether the evaluation items we used were appropriate.

As for answer types, Q1 called for a single multiple-choice answer from among the following: “I have not applied for certification,” “I am in the process of applying

Table 1: Activities that evoke enjoyment

SN	Question items
e 1	Television, radio
e 2	Meeting and talking with friends and interacting with close friends and those who share the same hobby
e 3	Interacting with younger generations
e 4	Newspaper, magazines
e 5	Dining, food and drink
e 6	Drinking alcohol
e 7	Smoking cigarettes
e 8	Taking a stroll, walking, jogging
e 9	Traveling
e 10	Shopping, window shopping
e 11	Reading
e 12	Hobbies and activities mainly conducted indoors (drawing, arts and crafts, sewing, pottery, etc.)
e 13	Hobbies and activities mainly conducted outdoors (farming, gardening, etc.)
e 14	Sporting activities (swimming, tennis, golf, gateball, ground golf, aerobics, etc.)
e 15	Spectating sports, going to a theater, concert, film
e 16	Family time, playing with grandchildren
e 17	Appreciating videos and CDs (records)
e 18	Singing and dancing (karaoke, folk songs, choir, playing instruments, ballroom dancing)
e 19	Playing (spending time) with dogs, cats, or other pets
e 20	Work (profession, family business)
e 21	Writing on a word processor, using a computer, internet, mobile phone
e 22	Social service, volunteering
e 23	Learning activities such as attending continued education courses
e 24	Outdoor leisure activities in the open nature such as hiking, mountain climbing, camping, fishing, etc.
e 25	Indoor recreational activities (igo and shogi, Japanese chess variants such as igo and shogi, card games such as hanafuda and playing cards, mahjong, and other commercial games)
e 26	Gambling such as horseracing and pachinko (pinball)
e 27	Religious activities, faith
e 28	Preserving and maintaining traditional culture
e 29	Educational activities (where you are the teacher or mentor)

for certification,” “I have been certified but was certified as self-supporting / in need of support level 1 / in need of support level 2 / in need of care level 1 / in need of long-term care level 2 / in need of long-term care level 3 / in need of long-term care level 4 / in need of long-term care level 5,” or “I have been certified but I don’t know at what level.” Q2 called for a single answer of “yes” or “no.” Q3 through Q6 each used a 5-point Likert scale, from “1 – I do not agree at all” to “5 – I strongly agree.” Q7 through Q9 also used a 5-point Likert scale, from “1 – I do not agree at all” to “5 – I strongly agree.”

3.3 Survey

In Japan, an online questionnaire survey was conducted in March 2016 among monitors who met the aforementioned criteria and were registered with a private research company.

In Taiwan, an online questionnaires survey was conducted between February and March of 2019, for

Table 2: Concerns that evoke anxiety

SN	Question items
a 1	Health and illness
a 2	Being bedridden, losing free movement of your body making help necessary
a 3	Having no one to ask for help in times of sickness
a 4	Having no one to depend on
a 5	Income for living
a 6	Family business, assets such as your house, land for housing and agriculture, maintenance and inheritance of graves of ancestors and your own
a 7	Issues with your home
a 8	Relationships with your family
a 9	Relationships with other people (neighbors, relatives, friends, colleagues, etc.)
a 10	Child(ren) and grandchild(ren)’s future
a 11	Significant changes in social structure (law, social welfare, financial systems)
a 12	Falling victim to fraud or other crimes
a 13	Not being able to understand how to utilize new products and services
a 14	Having difficulty in gathering information where there are new modes of obtaining information such as the Internet
a 15	Significant changes in language, lifestyle, and ways how people think
a 16	Natural disaster (earthquake, flood, etc.)

Table 3: Life scenarios that evoke *ikigai*

SN	Question items
i 1	When devoted to work
i 2	When immersed in studying and cultural activities
i 3	When enthused about hobbies or sports
i 4	When watching television or listening to the radio
i 5	When watching over grandchild(ren)
i 6	When spending time with family
i 7	When dining or chitchatting with friends and acquaintances
i 8	When being involved in social services or community events
i 9	When traveling
i 10	When appreciated by others
i 11	When receiving income
i 12	When eating delicious food
i 13	When interacting with younger generations

which participants were recruited as opportunities presented themselves to faculty members at National Cheng Kung University.

3.4 Selection of subjects for analysis

Responses to the online questionnaire were obtained from 241 Japanese respondents and 87 Taiwanese respondents. Of these, 5 Japanese and 3 Taiwanese who responded that they were “in need of support or long-term care” and 35 Japanese and 17 Taiwanese who answered “yes” to 2 were excluded from consideration because they did not fit the criteria of healthy elderly individuals who were the focus of this study.

As a result, a total of 202 respondents in Japan (112 men and 90 women) and 67 respondents in Taiwan (38 men and 29 women) were selected as subjects for analysis (Table 4).

Table 4: Subjects for analysis

		Total	Age		
			60~64	65~69	70~74
Japan	Men	112 (100.0%)	53 (47.3%)	43 (38.4%)	16 (14.3%)
	Women	90 (100.0%)	47 (52.2%)	31 (34.4%)	12 (13.3%)
Taiwan	Men	38 (100.0%)	22 (57.9%)	14 (36.8%)	2 (5.3%)
	Women	29 (100.0%)	18 (62.1%)	8 (27.6%)	3 (10.3%)
Total		269 (100.0%)	140 (52.0%)	96 (35.7%)	33 (12.3%)

4. LIFE CONSCIOUSNESS AFFECTED SATISFACTION WITH DAILY LIFE

4.1 Method of analysis

Multiple regression analysis [16] was carried out by the stepwise method for “Q3: Satisfaction with daily life” as the dependent variable and “Q4: Enjoyment of daily life,” “Q5: Anxiety in daily life,” and “Q6: *Ikigai* of daily life” as the independent variables, with a significance level of 5% or less as the censoring criterion for the variable input.

4.2 Results of analysis

The variable input was terminated when the two independent variables were input. The multiple correlation coefficient R was 0.696 and the coefficient of determination R^2 was 0.485 (Table 5).

The F-test for the analysis of variance of the regression equation with the two independent variables (Q4 and Q5) was significant at the 1% level (Table 6).

Q3 could be explained with a significance level of 5% or less for the beta t-test in Q4 ($\beta = 0.621$, $P = 0.000$) and Q5 ($\beta = -0.135$, $P = 0.008$) (Table 7).

4.3 Consideration

The results of the multiple regression analysis revealed that “enjoyment of daily life” and “anxiety in daily life” are useful for predicting “satisfaction with daily life.”

It was also confirmed that enjoyment had a large effect in the positive direction and the anxiety had an effect in the negative direction.

Meanwhile, it was found that “*Ikigai* in daily life” is not useful for predicting “satisfaction with daily life.”

Therefore, in the following section, we take a closer look at “enjoyment of daily life” and “anxiety in daily life.”

5. ENJOYMENT AND ANXIETY IN DAILY LIFE

5.1 Method of analysis

Factor analyses [16] were carried out based on the responses to Q7 and Q8 (main factor method, varimax rotation) from 269 respondents. The number of factors

Table 5: Model summary

Model	R	R-squared	Adjusted R-squared	Estimated standard error
1	0.686	0.471	0.469	0.604
2	0.696	0.485	0.481	0.597

Table 6: Analysis of variance

Model		Sum of squares	Degree of freedom	Average square	F value	Significance probability
2	regression	89.218	2	44.609	125.193	0.000
	Residual error	94.782	266	0.356		
	Total	184.000	268			

Table 7: Coefficients

Model		Non-standardization factor		Standardization coefficient	t value	Significance probability
		B	Standard error	beta		
2	(constant)	2.048	0.263		7.795	0.000
	Q4:Enjoyment of daily life	0.585	0.047	0.621	12.319	0.000
	Q5:Anxiety in daily life	-0.113	0.042	-0.135	-2.675	0.008

was determined by the criteria of having an eigenvalue of 1.00 or more. Moreover, evaluations items were excluded from consideration if the factor loading amount was less than 0.40 for a single factor or if a single factor was associated with two items or less.

In addition, based on the calculated factor score, cluster analysis by Ward’s method was performed to classify the clusters. Then, the characteristics of each cluster were grasped from the average value of the factor scores for the survey respondents classified into each cluster.

5.2 Grasping factors and classifying clusters

1) Enjoyment

From the factor analysis results, 22 types of activities were selected, excluding 4 whose factor loading was less than 0.40 for one factor, and 3 that were associated with only one factor. As a result, 4 factors were extracted (Table 8). Although the cumulative contribution rate was low, the

analysis results were judged to be valid because the four factors were composed of multiple activities and each factor could be interpreted.

The first factor was interpreted as “social activities” because the factor loading amounts for “e 28,” “e 22,” “e 23,” and so on were large; the second factor was interpreted as “leisure activities” because the factor loading amounts for “e 5,” “e 9,” “e 10,” and so on were large; the third factor was interpreted as “preferential activities” because the factor loading amounts for “e 26,” “e 7,” and “e 25” were large; and the fourth factor was interpreted as “media activities” because the factor loading amounts for “e 4” and “e 1” were large.

The results of the cluster analysis revealed three clusters with positive average factor scores. They are presented in the order of extracted factors in Table 9. Cluster 1 is composed of 145 subjects (53.9%), which is the largest number. The factor scores of factors 1, 2, and 4 are large, and Cluster 1 is considered to be a “complex enjoyment type.” Cluster 2 is composed of 38 subjects (14.1%). The factor scores of factor 1 and 3 are large, particularly factor 3. Cluster 2 is considered to be a “preference enjoyment type.” Cluster 3 is composed of 86 subjects (32.0%). The factor scores of factors 1 to 4 are negative values, and Cluster 3 is considered to be a “non-enjoyment type,” in which fun is not derived from activities of daily living.

2) Anxiety

From the results of the factor analysis, we were able to extract three factors based on the 16 types of concerns shown in Table 10.

Although the cumulative contribution rate is low, the results of the analysis were judged to be valid because the three factors consist of multiple concerns and each factor could be interpreted accordingly.

The first factor was interpreted as “health concerns” because the factor loading amounts for “a 2,” “a 4,” “a 3,” and so on were large; the second factor was interpreted as “social concerns” because the factor loading amounts for “a 14,” “a 13,” “a 15,” and so on were large; and the third factor was interpreted as “human concerns” because the factor loading amounts for “a 8,” “a 9,” “a 10,” and so on were large.

The results of the cluster analysis revealed two clusters with positive average factor scores. They are presented in the order of extracted factors in Table 11. Cluster 1 is composed of 115 subjects (42.8%). The factor scores of the first, second, and third factors are positive values, and Cluster 1 is considered to be “complex anxiety type.” Cluster 2 is composed of 154 subjects (57.2%). The factor scores of the first, second, and third factors are negative

Table 8: Factor loadings for enjoyment

	Factor 1 Social activities	Factor 2 Leisure activities	Factor 3 Preferential activities	Factor 4 Media activities	Communalities
e 28	0.761	0.272	0.048	0.016	0.655
e 22	0.753	0.121	0.134	0.076	0.606
e 23	0.735	0.050	0.009	0.134	0.446
e 29	0.730	0.133	0.164	0.162	0.604
e 27	0.613	-0.097	-0.062	-0.109	0.400
e 3	0.575	0.316	0.063	0.103	0.446
e 13	0.547	0.321	0.034	-0.073	0.409
e 12	0.504	0.225	-0.049	0.005	0.307
e 18	0.500	0.282	0.201	0.034	0.371
e 5	0.026	0.624	0.053	0.283	0.473
e 9	0.168	0.609	0.008	0.035	0.401
e 10	0.097	0.569	-0.013	0.173	0.363
e 16	0.204	0.551	-0.015	0.039	0.346
e 15	0.328	0.508	0.183	0.197	0.438
e 2	0.445	0.495	-0.059	0.077	0.452
e 17	0.163	0.428	0.219	0.103	0.268
e 26	0.139	-0.020	0.656	-0.051	0.452
e 7	-0.056	-0.120	0.635	-0.066	0.425
e 25	0.298	0.175	0.556	0.216	0.475
e 6	-0.060	0.171	0.502	0.060	0.288
e 4	0.269	0.272	-0.021	0.560	0.461
e 1	-0.146	0.381	0.065	0.540	0.463
Eiginevalue	4.351	2.818	1.586	0.911	
Dispersion (%)	19.777	12.808	7.209	4.140	
Accumulation (%)	19.777	32.584	39.793	43.933	

Table 9: Average of factor scores of clusters for enjoyment

	Factor 1 Social activities	Factor 2 Leisure activities	Factor 3 Preferential activities	Factor 4 Media activities	Subjects
Cluster 1 Complex enjoyment type	0.424	0.337	-0.260	0.143	145 (53.9%)
Cluster 2 Preference enjoyment type	0.444	-0.273	1.382	-0.040	38 (14.1%)
Cluster 3 Non-enjoyment type	-0.911	-0.448	-0.172	-0.223	86 (32.0%)

values, and Cluster 2 is considered to be a “non-anxiety type,” in which there is no anxiety in daily life.

6. RELATIONS BETWEEN ATTRIBUTES AND CLUSTERS

6.1 Method of analysis

To understand the characteristics of the two types of attitude towards life in the four attributes (“Japan,” “Taiwan,” “men,” and “women.”), the chi-squared test and a residual analysis [16] were performed based on the number of people in each cluster extracted from the activities that evoke enjoyment and anxiety described in Section 5.

Table 10: Factor loadings for anxiety

	Factor 1 Health concerns	Factor 2 Social concerns	Factor 3 Human concerns	Communalities
a 2	0.834	0.167	0.133	0.742
a 4	0.753	0.269	0.237	0.696
a 3	0.717	0.250	0.200	0.616
a 1	0.605	0.203	0.343	0.526
a 5	0.516	0.215	0.441	0.507
a 12	0.491	0.481	0.247	0.534
a 11	0.486	0.370	0.388	0.524
a 16	0.430	0.410	0.299	0.442
a 14	0.177	0.747	0.249	0.652
a 13	0.225	0.704	0.278	0.623
a 15	0.292	0.695	0.281	0.647
a 6	0.332	0.405	0.361	0.404
a 8	0.134	0.234	0.703	0.566
a 9	0.278	0.322	0.610	0.553
a 10	0.234	0.201	0.555	0.403
a 7	0.300	0.394	0.513	0.509
Eiginevalue	3.589	2.843	2.514	
Dispersion (%)	22.429	17.768	15.713	
Accumulation (%)	22.429	40.197	55.910	

Table 11: Average of factor scores of clusters for anxiety

	Factor 1 Health concerns	Factor 2 Social concerns	Factor 3 Human concerns	Subjects
Cluster 1 Complex anxiety type	0.821	0.204	0.170	115 (42.8%)
Cluster 2 Non-anxiety type	-0.613	-0.152	-0.127	154 (57.2%)

In addition, when the null hypothesis was rejected and a significant difference was found between the attributes, another chi-square test and residual analysis were performed to understand the characteristics of the three age categories for each attribute.

6.2 Results of analysis

1) Enjoyment

The results of the chi-square test are shown in Table 12. The null hypothesis was rejected at the significance level of 1%, and there was a significant difference between the attributes (χ^2 (6, N = 269) = 29.385, P<0.01).

Specifically, the percentage of “complex enjoyment type” among “women” was significantly higher at the 1% level in Japan and at the 5% level in Taiwan. However, in “men,” the “preference enjoyment type” was significantly higher at the 1% level in Japan and significantly lower at the 5% level in Taiwan. In Japan, the “non-enjoyment type,” was significantly higher at the 5% level for “men” and significantly lower at the 5% level for “women.”

Consequently, it became clear that the “preference enjoyment type” and “non-enjoyment type” are common among Japanese men.

The results of the chi-square test and residual analysis for each of the three age categories revealed no significant difference in Japanese men (χ^2 (4, N = 112) = 0.278, n.s.). In addition, women in Japan and both men and women in Taiwan had a low frequency category, though the significant test could not be performed.

2) Anxiety

The results of the chi-square test are shown in Table 13. The null hypothesis was not rejected at the significance level of 5%, and no significant difference was found between the basic attributes (χ^2 (3, N = 269) = 4.681, n.s.).

Specifically, there was no statistically significant difference. However, for the “complex anxiety type,” the

Table 12: Result of chi-square test and adjusted residuals of enjoyment

			χ^2 (6, N=269)=29.385, P<0.01)		
			Cluster 1 Complex enjoyment type	Cluster 2 Preferential enjoyment type	Cluster 3 Non-enjoyment type
Japan	Men	Subjects	42	26	44
		Adjusted residuals	-4.559	3.615	2.173
	Women	Subjects	59	10	21
		Adjusted residuals	2.719	-1.007	-2.154
Taiwan	Men	Subjects	22	1	15
		Adjusted residuals	0.533	-2.195	1.070
	Women	Subjects	22	1	6
		Adjusted residuals	2.512	-1.748	-1.379

Note:

The significance probabilities of the residual analysis by the two-sided test are as follows. If $|r| > 2.58$, then $p < 0.01$, if $|r| > 1.96$, then $p < 0.05$. In the table, it is shown as follows. Dark red: $r > 2.58$, Light red: $r > 1.96$, Dark blue: $r < -2.58$, Light blue: $r < -1.96$.

Table 13: Results of chi-square test and adjusted residuals of anxiety

			χ^2 (3, N=269)=4.681, n.s.)	
			Cluster 1 Complex anxiety type	Cluster 2 Non-anxiety type
Japan	Men	Subjects	48	64
		Adjusted residuals	0.030	-0.030
	Women	Subjects	45	45
		Adjusted residuals	1.704	-1.704
Taiwan	Men	Subjects	12	26
		Adjusted residuals	-1.502	1.502
	Women	Subjects	10	19
		Adjusted residuals	-0.953	0.953

proportion tended to increase in the order of Taiwanese men, Taiwanese women, Japanese men, and Japanese women.

6.3 Consideration

Regarding “enjoyment of daily life,” the “preference enjoyment type” and “non-enjoyment type” were significantly more common among Japanese men, and it was considered that improvement of the attitude towards life was an issue to be addressed.

However, for “anxiety in daily life,” no significant difference was observed between the attributes, and it was considered that improvement of the attitude towards life focusing on “complex anxiety type” was an issue to be addressed.

7. CONSIDERATION FOR DEVERSING NEW SERVICES

The findings of Chapter 5 can be regarded as providing guideline for the design of new services. The first factor “social activities”, the second factor “leisure activities”, the third factor “preferential activities” and the fourth factor “media activities” extracted from the “enjoyment in daily life” mentioned in 5.2 could be used as basic concepts when devising services in the direction of increasing the enjoyment. In addition, the first factor “health concerns”, the second factor “social concerns” and the third factor “human concerns” extracted from “anxiety in daily life” mentioned in 5.2 could be used as basic concepts when devising services in the direction of reducing the anxiety.

From the findings in Chapter 6, we were able to clarify the characteristics based on the attributes. In terms of “enjoyment in daily life,” Japanese men are predominantly “preferential enjoyment type” and “non-enjoyment type,” so both would be the types who would be priority in considering improving the attitude toward life. Regarding “anxiety in daily life”, “complex anxiety type” in common to the four attributes would be also priority in considering improving the attitude toward life.

8. CONCLUSION

In this study, we targeted healthy elderly men and women living with family in urban areas in Japan and Taiwan and considered the structure of their attitude towards life through a survey and analysis of “satisfaction with daily life” and three aspects of attitude towards life which could affect satisfaction, namely “enjoyment of daily life,” “anxiety in daily life,” and “*ikigai* in daily life.”

The results confirmed that “enjoyment of daily life” had a large positive effect and “anxiety in daily life” had a negative effect on the prediction of “satisfaction with daily life.” From the results of factor analysis of what affects the consciousness of these two aspects of daily life, we were able to derive guidelines for considering service design, an urgent issue common to both of these island nations. In addition, the characteristics and issues of each attribute were clarified based on the relationship between the attributes and extracted clusters.

In the future, we plan to examine desirable possibilities for new services through a multi-pronged approach that includes surveys of existing services based on a view of these extracted factors, interview surveys with elderly who meet the relevant criteria, and workshops aimed at co-creation.

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