



Field report

Factors related to *ikigai* among older residents participating in hillside residential community-based activities in Nagasaki City, Japan

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Abstract

Objective: The present study aims to investigate the factors related to self-rated *ikigai* (purpose in life) among older residents participating in hillside residential community-based activities in Nagasaki City.

Methods: A self-administered anonymous questionnaire survey was carried out with older residents participating in two hillside residential community-based activities in Nagasaki City, Japan. The questionnaire included questions on sociodemographic information (age, sex, family structure, education, and self-rated economic satisfaction), self-rated health, mental health status measured using Geriatric Depression Scale-15 (GDS-15), and self-rated *ikigai* score that was estimated using a visual analog scale.

Results: A total of 32 older residents (7 males, 25 females) participated in the questionnaire survey. Although self-rated *ikigai* score was not associated with sociodemographic factors, there were associations between the score, self-rated health ($P=0.001$), and mental health (GDS-15) ($P=0.015$). Statistically significant correlations between self-rated *ikigai* score and social participation ($\rho=0.426$, $P=0.017$), self-rated health ($\rho=-0.485$, $P=0.007$), and mental health (GDS-15) ($\rho=-0.523$, $P=0.007$) were observed.

Conclusion: Increasing social participation may increase individual *ikigai*, preventing poor self-rated health and low mental health status in older people. Maintaining their social participation in the community might be effective for the health promotion of older residents in hillside residential areas of Nagasaki City.

Key words: *ikigai*, Nagasaki, GDS-15, community, self-rated health

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Introduction

Japanese people are known to have the longest life expectancy in the world at 81.1 years old for males and 87.1 years old for females, respectively¹⁾. Good physical and mental health contribute to that longevity; however, some stud-

ies have reported that it is also related to the presence of *ikigai*^{2, 3)}. *Ikigai* is a Japanese word that means purpose in life, that is, something to live for or the joy and goal of living⁴⁾. It has been reported that a high sense of *ikigai* can reduce all-cause mortality^{5, 6)} and cardiovascular disease mortality⁷⁾, and improve well-being or quality of life (QOL)⁸⁾. While it is evident that *ikigai* has a positive effect on human health indicators, few studies have reported the factors related to it among older people and their participation in community-based activities. If such factors are clarified, it will help enhance the benefits of community-based activities for older people.

As for environmental factors, approximately 43% of Nagasaki City's residential area is built on hillside terrain with many narrow roads and steep outdoor stairways. This geography inevitably limits access by cars and other vehicles,

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Table 1 Examples of social participation

| Type of social participation ^a | Example of activity |
|---|--|
| 1) Community events | Local shrine festivals, Bon (Buddhist) festivals |
| 2) Residents' associations | General meetings, monthly meetings |
| 3) Community-based seniors' clubs | Recreation, trips and dinners |
| 4) Hobby clubs | Gate ball, KARAOKE, dance clubs |
| 5) Volunteer activities | Road cleaning in community, helping community-based activities |
| 6) Teaching activities | Teaching origami, swimming, dance, folk songs etc. |
| 7) Child-rearing support | Watching over children on their way to and from school, supporting children's clubs |
| 8) Peer support for older persons | Assisting senior clubs, visiting homes and keeping company |
| 9) Support of community-based activities | Preparing/conducting community-based activities, setting up chairs or tables, serving tea etc. |

^a Items 1–6 were developed by Hashimoto and 7–9 were developed with reference to the White Paper on Aging Society of Japan.

making it difficult for older residents to go out^{9, 10}. In such areas, physical barriers prevent older people from participating in community-based activities, suggesting that activities in the immediate neighborhood area are more effective for the preventive care of older residents. These activities at the community centers are volunteer-based; both the volunteer leaders who organize the activities and those who passively engage in them are community residents. We, therefore, conducted a study that aimed to clarify the ikigai-related factors for older residents who participated in hillside residential community-based activities in Nagasaki City.

Methods

Study participants and data collection

A self-administered questionnaire survey was carried out among older residents who had participated in two hillside residential community-based activities in Nagasaki City. The questionnaire included items on sociodemographic information (age, sex, family structure, educational background, and self-rated economic status), role in community-based activities, social participation, self-rated health, mental health status measured by the Geriatric Depression Scale-15 (GDS-15), and self-rated ikigai score that was estimated using the visual analog scale (VAS). The VAS is a method of arbitrarily marking the strength of one point on a 10 cm line and showing a score in 0.5 cm increments. As an operational definition, this subjective score ranged from 0 indicating low self-rated ikigai (having a lower sense of purpose in life) to 10 indicating high self-rated ikigai (having a higher sense of purpose in life). GDS-15 is a mental health indicator with total scores ranging from 0 to 15; scores of 4 or less are considered normal and scores of 5 or more indicate depression tendency. Self-rated health is a scale that evaluates one's current health condition, which was rated on a four-point scale ranging between very good, good, fair, and poor. Self-rated health was awarded 0 points for very good/good and 1 point for fair/poor, respectively. Nine multiple-choice items were presented for social participation,

including participation in community events, residents' associations, senior clubs, hobby clubs, volunteer activities, teaching activities, child-rearing support, peer support for older persons, and support of community-based activities. Table 1 shows examples of each social participation item. These items were established in line with the items in the social activity index for the elderly¹¹ and the social participation items for older people¹².

The questionnaire survey was conducted during community activities and the responses were collected anonymously. The investigation period was from August to September 2018.

Statistical analysis

The median of self-rated ikigai was compared by each socio-demographic characteristic, health status (self-rated health and mental health), or the role of community-based activities using the Mann-Whitney *U* test or the Kruskal Wallis test. Spearman's rank correlation coefficient (ρ) was used to determine the association between self-rated ikigai score and the total number of social participation activities as well as health status (self-rated health and mental health). The statistical significance was set at $P < 0.05$. IBM SPSS Statistics 20 was used for all statistical analyses.

Ethical considerations

Participants were given both verbal and written explanations; they returned the completed questionnaires into a collection box, implying their consent. This study was approved by the Ethical Committees of the Nagasaki University Graduate School of Biomedical Sciences (authorization No. 18080909).

Results

A total of 32 older residents (7 males, 25 females; mean age \pm standard deviation (SD) 74.25 \pm 4.9 years; range 66–84 years) answered the questionnaire. Table 2 shows the socio-demographic characteristics and self-rated iki-

gai scores of these respondents. In the socio-demographic characteristics, “sex” showed a statistically significant association with the self-rated ikigai score. Table 3 shows the comparison of the median by the health status or the role of community-based activity. The associations of self-rated health ($P=0.001$), mental health ($P=0.015$), and the role of community-based activity ($P=0.021$) with self-rated ikigai score were found to be statistically significant.

The mean social participation (\pm SD) score was 4.13 (\pm 2.3) ranging from 0–8. Figure 1 shows the number of participants for each social activity. The highest participation was found in residents’ associations, followed by community events, hobby clubs, and volunteer activities. Table 4 shows the association between self-rated ikigai score, social participation, and both health statuses. Statistically significant correlations were observed for the social participation number ($\rho=0.426$, $P=0.017$), mental health ($\rho=-0.523$, $P=0.007$), and self-rated health ($\rho=-0.485$, $P=0.007$).

Discussion

Self-rated ikigai score was not related to socio-demographic factors such as family structure, education level, or economic factors; however, it was related to social participation, self-rated health, and mental health. This result may suggest that in any socio-economic situation, maintaining good physical and mental health status may improve self-rated ikigai. Since both the social participation number and the self-rated ikigai score were found to be statistically significant, increasing opportunities for social participation may improve ikigai in the older residents and prevent poor self-rated health as well as depression. Further, ikigai is considered to be related to longevity; its associations with all-cause mortality and cardiovascular disease mortality have been reported in past studies^{6, 7}. However, this study may help clarify the relationship between ikigai and social participation. Since achievement motivation and sense of fulfillment in social participation were found to improve ikigai¹³, the volunteers of community activities can play a more effective role with regards to motivation. Promot-

Table 2 Ikigai score by respondents’ socio-demographic characteristics (n=32)

| | | n (%) | “Ikigai” score ^a | P-value ^b |
|--------------------------------|------------------------------|-----------|-----------------------------|----------------------|
| Sex | Male | 7 (21.9) | 9.0 | 0.002 |
| | Female | 25 (78.1) | 6.0 | |
| Age | 60–69 years | 7 (21.9) | 5.0 | 0.181 |
| | 70–79 years | 22 (68.8) | 7.0 | |
| | 80 years or over | 3 (9.4) | 5.0 | |
| Family structure | Living alone | 13 (40.6) | 6.0 | 0.434 |
| | Living with spouse | 10 (31.3) | 6.5 | |
| | Living with other members | 8 (25.0) | 8.0 | |
| Educational background | Junior high school | 3 (9.4) | 7.0 | 0.943 |
| | High school | 20 (62.5) | 6.0 | |
| | University/vocational school | 7 (21.9) | 8.0 | |
| Self-rated economic conditions | Sufficient /comfortable | 13 (40.6) | 7.5 | 0.241 |
| | Insufficient/ poor | 17 (53.1) | 6.0 | |

^a Median, ^b Mann-Whitney *U* test or Kruskal Wallis test was performed.

Table 3 Ikigai score by self-rated health, mental health status, and role in the community-based activity (n=32)

| | | n (%) | “Ikigai” score ^a | P-value ^b |
|------------------------------------|---------------------|-----------|-----------------------------|----------------------|
| Self-rated health | Very good/Good | 20 (62.5) | 8.0 | 0.001 |
| | Fair/Poor | 10 (31.3) | 5.0 | |
| Mental health ^c | Normal | 18 (75.0) | 7.25 | 0.015 |
| | Depression tendency | 6 (25.0) | 5.0 | |
| Role of community-based activities | Volunteers | 15 (46.9) | 7.75 | 0.021 |
| | Participants | 17 (53.1) | 5.0 | |

^a Median, ^b Mann-Whitney *U* test was performed, ^c Measured by the Geriatric Depression Scale-15.

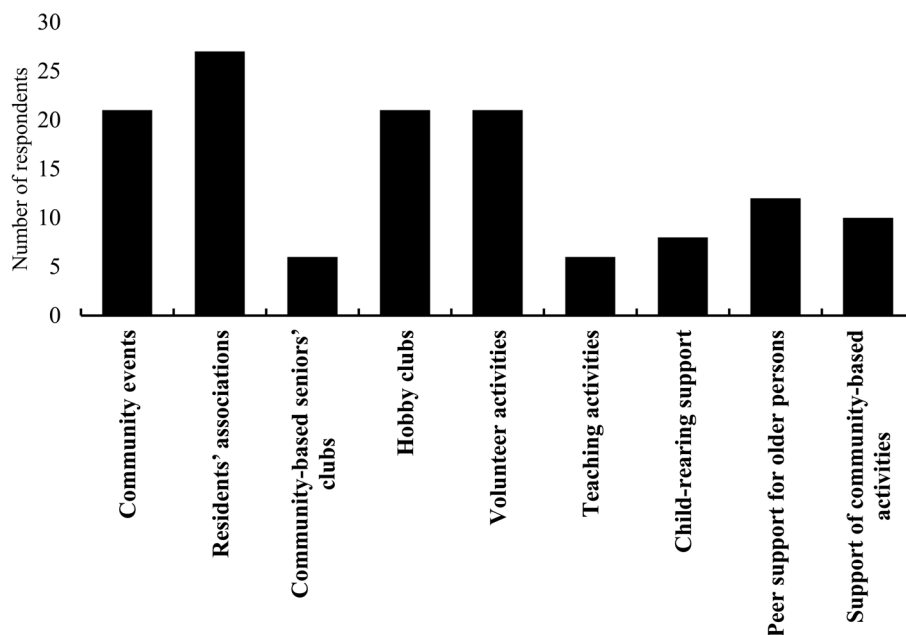


Figure 1 The multiple-choice statement items of respondents' social participation.

Table 4 Spearman's correlation between ikigai score and health status

| | "Ikigai" | Social participation | Mental health ^a |
|----------------------------|----------|----------------------|----------------------------|
| Social participation | 0.426* | | |
| Mental health ^a | -0.523** | -0.357 | |
| Self-rated health | -0.485** | -0.419* | 0.278 |

^a Measured by the Geriatric Depression Scale-15. * $P < 0.05$, ** $P < 0.01$.

ing social participation among older people is an important public health policy in Japan's aging society. In this respect, community-based activities that help create close relationships between residents in neighborhood areas may be effective in achieving increased social participation.

The limitations of this study were the small number of participants and selection bias toward healthy older residents who were already participating in hillside residential community-based activities. It is necessary to increase the number of study participants and conduct further research. Moreover, as correlation analysis was performed, it could not be determined whether people with high self-rated ikigai

have a higher social participation rate or people who socially participate a lot have a high self-rated ikigai. Nevertheless, it can be considered as valuable basic data showing the relationship between the self-rated ikigai for older people and community-based activities.

Conclusion

Self-rated ikigai among the older residents participating in community-based activities was found to be related to social participation in the neighborhood area. It might also prevent poor self-rated health such as frailty and low mental health status such as depression in older residents.

Conflict of interest: The authors have no competing interests to declare.

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