The Neighbourhood Park Preferences and Its Factors among Elderly Residents in Tokiwadaira, Japan

Prita Indah Pratiwi[1], Katsunori Furuya[2]

[1]Faculty of Agriculture, Bogor Agricultural University, Indonesia
[2]2Graduate School of Horticulture, Chiba University, Japan

pritaindahpratiwi@ymail.com, k.furuya@faculty.chiba-u.jp

Abstract

Tokiwadaira is one of the districts most populated by the elderly in Japan. This study compared the preferences of danchi and apartment residents to examine the neighbourhood park preferences as well as factors in park preferences. This research was conducted in three stages, including a spatial preference survey, analysis, and interpretation. Welch's t-test and factor analysis were applied. Results demonstrated three significant differences between danchi and apartment residents, namely park preference, length of visit, and park elements. There were seven factors of park preferences. These results may help urban planners optimise existing features of neighbourhood parks to encourage use.

Keywords: landscape preference; neighbourhood park; urban green space; green space management experience; exposure towards green space

1.0 Introduction

Creating an urban green space is a major task in realigning the urban structure of Japan. Japanese cities must prepare for the coming "elderly society". Studies have already addressed this problem by examining green-space perceptions, preferences, and behaviours in Japan. Mutiara and Kinoshita (2011) described that low-level neighbourhood attachments are positively correlated with decreased park activity. Infrequent community involvement in park management is also a primary factor contributing to the decreased sense of community belonging. The challenge is thus to increase public trust by offering access to urban green spaces as well as participation in park planning and management.

In Japan, there is a strong focus on economic growth. However, there has been significant economic stagnation over the past generation. This has damaged both families and communities, resulting in a society problematized by increasing age and a declining birth rate. The Tokiwadaira district is located in the northeast of Tokyo, where the oldest semi-public housing was built during the early 1960s. Demographics there are changing very fast. In 2017, the total population of Tokiwadaira was 28,875 (14,231 males and 14,644 females), including 14,932 households. Of this population, 38.29% (11,056 people) lived in the Tokiwadaira housing complex. In 2016, 45.6% of all residents aged 65 years and older lived in Tokiwadaira danchi (housing complexes). In 2017, this rose to 47.5%. Most elderly danchi residents moved into these buildings after retirement and now live alone. While private apartments surround the Tokiwadaira housing complex, most residents seem to ignore both the ageing buildings and elderly residents. The lonely-death phenomenon is also rarely discussed. The emergency of Kodokushi may also be explained as a result of an increase in single-person households such as elderly people (Tamaki, 2014) so that it is crucial to investigate their environmental activities and the tendency of preference in Tokiwadaira Neighbourhood Park (TNP) as potential public space. This study began with the assumption that residents of different dwelling types may prefer different types of neighbourhood parks based on activities, elements, and disturbances in the park. It was therefore considered necessary to investigate the differences in the park preference between danchi and apartment residents.

1.1 Purpose of the study

The purpose of this study was to investigate the neigbourhood park preference between two types of residents; what kind of activities, park elements, and disturbances in the park that they experienced. From the investigation, it is expected to formulate the factors of preferable neighbourhood park for elderly people.

1.2 Objective of the study

In line with the purpose, the objectives of the study were to identify the social characteristics of residents, to determine the significant difference in neighbourhood park preference, activities, park elements, and disturbances in the park between danchi and apartment

residents, and to analyse factors of neighbourhood park preference.

2.0 Literature Review

A neighbourhood is characterized by the significance of the physical change, physical boundaries and local landmarks in creating a sense of belonging and quality of life among the dwellers (Omar et al., 2016b). A neighbourhood environment can be divided into three major features; the physical, social, and environmental services. The physical environment is the structures and buildings. The social environment is the relationship among residents such as honesty, trust and cooperation. Meanwhile, the service environment is the resources like institutions, transportation, recreational area and many others (Pearson, Bentham, Day and Kingham, 2014). Neighbourhood areas supply rich geographical, sociological, economic and psychological benefits (Cox et al., 2013). Furthermore, experiencing the environment has not only a psychological but also a physiological benefit. Alabbasi and Said (2018) described that environmental exposure means visiting urban parks and open spaces, could encouraging people to be physically active. It is essential that physical activity like walking, jogging, cycling or swimming be acknowledged as a necessary daily intervention to increase the quality of life of individuals with health problems including obesity, metabolic syndrome, diabetes and heart disease (Janicas, 2014). Furthermore, another typical physical activity, forest walking generated a significant decrease in physiological response, such as pulse rate and systolic and diastolic blood pressure. Besides that, it also can reduce psychological responses like tension, anger, fatigue, depression, confusion and anxiety as well as improve positive emotion (Yu et al., 2017). It is proven that outdoor physical activity causes a more positive mood and attitude than indoor activity (Sandifer et al., 2015).

The growing elderly population is a major concern, not only financially, but socially as well. Performing recreational activities for the elderly is a must for them to age successfully. Activities performed within a nearby park are one of the simplest forms of recreation. A successful park is categorized as one that satisfies the physical, psychological and social needs of the elderly people. The design of the park must compensate for physical limitations that the elderly clients have and also meet those needs of the elderly as well. Identifying specific environmental concerns and their related design criteria will assist the designer in providing design solutions which will encourage the elderly to use the outdoor spaces (Othman and Fadzil, 2017).

3.0 Methodology

3. 1 Study Area

One of the districts in Matsudo city, Tokiwadaira was comprised of a commercial area surrounded by residences, urban facilities, and green infrastructure (Figure 1). This study

focused on residents' preference for neighbourhood parks. These parks were spread all throughout the Tokiwadaira District, including 1) Himawari Park, 2) Fuyou Park, 3) Aberia Park, 4) Shoubu Park, 5) Hanamizuki Park, 6) Kanegasaku Park, 7) Tsubaki Park, 8) Sakura Park, 9) Sarubia Park, 10) Kunugi Park, 11) Mucho Park, 12) Yamabuki Park, 13) Popura Park, 14) Shirakashi Park, 15) Wakaba Park, 16) Yanagimachi Children Playground, 17) Tokiwadaira Park, 18) Kanna Park, and 19) Kodemari Park.
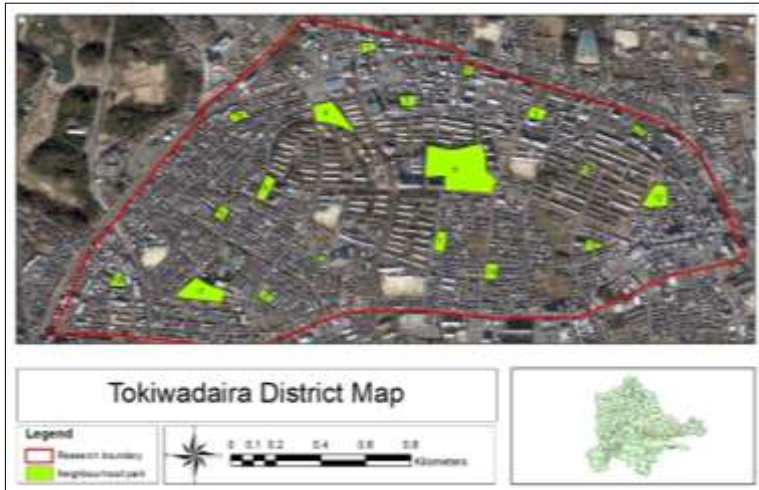

Figure 1: Map of the study area
(Source: Study result)

3.2 Data collection

This research obtained personal park preferences among local residents. Data were obtained through postal questionnaire surveys conducted among 2,020 residents. A combined 93 danchi and 127 apartment residents responded.

3.3 Data Analysis Procedure

Based on previous studies (Lucas, 1991; Pratiwi et al., 2014; Gunawan and Pratiwi, 2015), this study's design concept consisted of a spatial preference survey, preference analysis, and interpretation.

3.3.1 Spatial park preference survey (PP)

The spatial preference survey was conducted to ascertain residents' attributes and identify residents' preference. Data were obtained through a postal questionnaire with an attached neighbourhood park map. Respondents were asked to draw a boundary around their most-preferred park. They were then asked about the number of parks visits each month, park

activities (PA), preferred park elements (PE), and disturbances in the park (PD). It was also necessary to clarify resident attributes including gender, age, children, employment status, length of stay, and green space management experience and exposure towards green space including the number of volunteering activity, expected hour per day, expected hour per year, gardening activity, recognition of the quantity of the surrounding green space, and frequency of visiting green space. As Pratiwi et al. (2014) and Kim et al. (2018) suggested, these factors may lead to differences in both perception and preference.

3.3.2 Preference analysis
Analysis of park preferences examined significant differences in preference based on dwelling type. There were 10 potential neighbourhood park activities and one answer indicating no activity. There were nine preferred park elements (See Figure 2). In addition, there were 14 disturbances in the park to choose from. Welch's t-test was performed to examine the different responses.

Factor analysis of park preference. Factor analysis using the principal component method and Varimax rotation was applied to characterize park preference. Factor analysis was conducted as follows (Hidayat & Istiadah 2011): (1) defining variable, (2) counting matrix correlation among variables, (3) extracting factor, and (4) rotating factor.

3.4. Interpretation
Analysis revealed significant differences among resident park preferences and a significant dependency between park preference and resident attributes. This could become a prominent point for discussion and a priority during future design consideration.

4.0 Results
4.1 Demographic characteristics of Tokiwadaira residents
Most of danchi respondents (N = 220) were male (55.91%), while apartment residents were female (59.06%). Regarding age, most of the danchi respondents (60.22%) were older than 70, while most apartment residents (59.06%) were around 40-49. About 83.64% (n = 184) did not have children at home. Most of the danchi respondents were retired (60.22%; n = 56), while the remaining respondents were employed. In opposite, most of the apartment residents were employed (59.84%, n=76), while the remaining respondents were retired. Nearly half of residents (32,73%) respondents had lived in the current area for 1-10 years, followed by 11-20 years (22.73%). Table 1 showed demographic characteristics.

Table 1: Residents' demographic characteristics

Demographic Characteristics		Number		Percentage	
		Danchi Residents	Apartment residents	Danchi	Apartment
Gender	Male	52	52	55.91	40.94
	Female	41	75	44.09	59.06
Age	<20 years	0	3	0.00	2.36
	20-29 years	0	4	0.00	3.15
	30-39 years	1	0	1.08	0.00
	40-49 years	6	75	6.45	59.06
	50-59 years	11	15	11.83	11.81
	60-69 years	19	0	20.43	0.00
	≥70 years	56	0	60.22	0.00
Children in a family	No	82	102	88.17	80.31
	Yes	11	23	11.83	18.11
Employment Status	No	56	51	60.22	40.16
	Yes	37	76	39.78	59.84
Length of stay	<1 year	2	2	2.15	1.57
	1-10 years	36	36	38.71	28.35
	11-20 years	15	35	16.13	27.56
	21-30 years	18	0	19.35	0.00
	31-40 years	8	17	8.60	13.39
	41-50 years	9	29	9.68	22.83
	51-60 years	5	29	5.38	22.83

(Source: Study result)

4.2 Green space management experience and exposure towards the green space

Despite 84% of all respondents (n=184) not having a volunteering activity, 61% of danchi residents expected to volunteer for both less than 1 hour per day and per month. Most apartment residents (51%) expected to volunteer for 1-12 hours per day, while they only expected to volunteer for 1-40 hours per month (44%). Danchi residents tended to have higher expected volunteering activity. When asked about gardening, about 56% of danchi respondents indicated that they had gardened and continued to do so. A majority (57%) of residential dwellings were surrounded by large quantities of green space. Meanwhile, green

space activities significantly varied, ranging from 24% of danchi respondents and 30% of apartment residents who did not frequently engage to 31% and 13% who used them almost daily, respectively (Table 2).

Table 2: Green space management experience and exposure towards the green space

Activity		Number		Percentage	
		Danchi Residents	Apartment Residents	Danchi	Apartment
Volunteering activity	No	76	108	81.72	85.04
	Yes	17	19	18.28	14.96
Number of activity	No activity	80	109	86.02	85.83
	1-25	13	17	13.98	13.39
	100	0	1	0.00	0.79
Expected hour per day	<1 hour	57	61	61.29	48.03
	1-12 hours	36	65	38.71	51.18
	13-24 hours	0	1	0.00	0.79
Expected hour per year	<1 hour	57	56	61.29	44.09
	1-40 hours	23	56	24.73	44.09
	41-80 hours	6	1	6.45	0.79
	81-120 hours	3	0	3.23	0.00
	121-160 hours	1	0	1.08	0.00
	161-200 hours	1	0	1.08	0.00
	>200 hours	2	0	2.15	0.00
Gardening activity	No	22	35	23.66	27.56
	Yes, but not conducting now	20	35	21.51	27.56
	Yes, conducting now	51	57	54.84	44.88
Recognition of the quantity of GS	Very few	1	0	1.08	0.00
	Few	2	18	2.15	14.17
	Neither	6	19	6.45	14.96
	Large	47	75	50.54	59.06
	Very large	37	15	39.78	11.81
Green space in a residence	Shared green space	78	78	83.87	61.42
	Without shared green space	15	49	16.13	38.58

Activity		Number		Percentage	
		Danchi Residents	Apartment Residents	Danchi	Apartment
Frequency of visiting GS	Mostly do not use	22	38	23.66	29.92
	1-3 times a year	8	26	8.60	20.47
	1-3 times a month	17	19	18.28	14.96
	1-2 times a week	15	20	16.13	15.75
	Almost everyday	31	15	33.33	11.81

(Source: Study result)

4.3 TNP Preferences and Length of Park Visit
There were significant differences in preference between danchi and apartment residents regarding neighbourhood parks in the Tokiwadaira district (p=0.000). The majority (83.9%) of danchi residents only preferred one of selected six neighbourhood parks (i.e., Kanegasaku Park (83.9%), Shoubu Park (11.8%), Yamabuki Park (1.1%), Sakura Park (1.1%), Aberi Park (1.1%), and Himawari Park (1.1%)), while apartment residents preferred one of selected 12 neighbourhood parks (i.e., Kanegasaku Park (40.2%), Tsubaki Park (28.3%), Shoubu Park (10.2%), Kanna Park (4.7%), Sakura Park (3.9%), Tokiwadaira Park (3.1%), Yamabuki (3.1%), Himawari Park (3.1%), Aberi Park (0.8%), Sarubiya Park (0.8%), Fuyou Park (0.8%), and Popura Park (0.8%)) (Figure 2a). There were also significant differences in lengths of visit between danchi and apartment residents (p=0.052). Danchi residents spent more time in neighbourhood parks (an average of 5.34 hours per month) than apartment residents (an average of 3 hours per month).

4.4 Activities, Preferred Park Elements, and Disturbances in the Park
There were no significant differences among preferred park activities among danchi and apartment residents. Danchi residents visited parks to accompany their children (31.2%), enjoy nature (23.7%), relax (16.1%), exercise (14%), socialise with neighbours (6.5%), spend time with family (1.1%), and attend sport event (1.1%). Some did not spend time at parks (5.4%). On the other hand, apartment residents visited parks to relax (20.5%), enjoy nature (18.1%), exercise (15.7%), walk the dog (8.7%), accompany children (7.9%), socialise with neighbours (7.9%), spend time with family (7.1%), and attend sport event (1.6%). Some did not spend time at parks (12.6%) (Figure 2b).
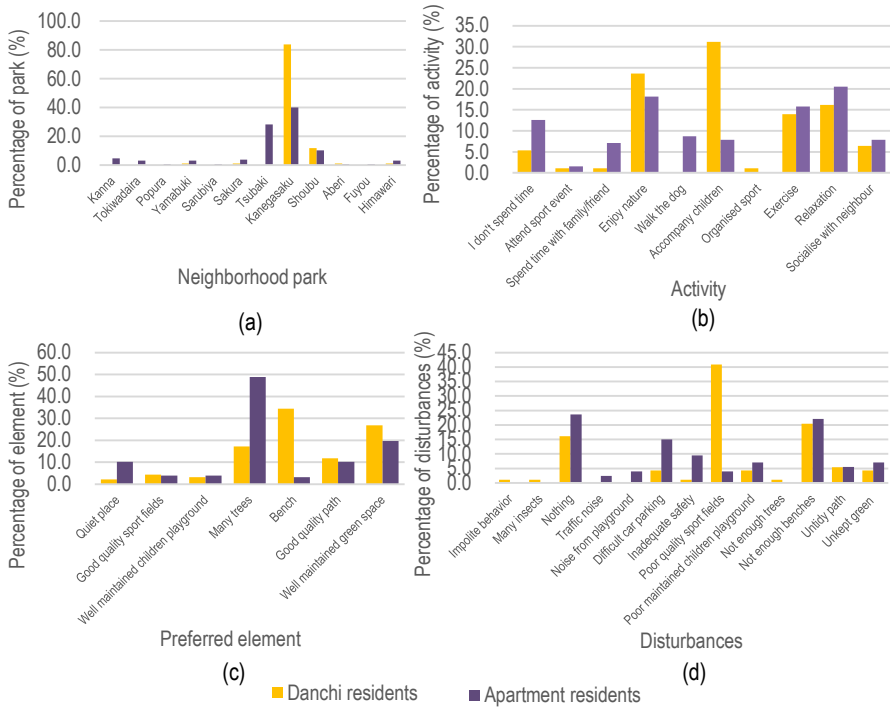
Figure 2: Residents' preferences. (a) neighbourhood park preferences of danchi and apartment residents; (b) activity in the park; (c) preferred element; (d) disturbances in the park
(Source: Study result)

Meanwhile, a significant difference regarding preferred park elements between danchi and apartment residents was found (p=0.000). Apartment residents had high preferences for tree canopies (48.8%). This was followed by well-maintained green spaces (19.7%), good quality paths (10.2%), quiet places (10.2%), a well-maintained children playground (3.9%), good quality sports fields (3.9%), and benches (3.1%). Danchi residents had high preferences for benches (34.4%), well-maintained green spaces (26.9%), trees (17.2%), good quality paths (11.8%), good quality sports fields (4.3%), well-maintained children playground (3.2%), and quiet places (2.2%) (Figure 2c).

There was no significant difference among danchi and apartment residents regarding park disturbances. Danchi residents reported disturbances such as poor quality sports field (40.9%), not enough benches (20.4%), nothing (16.1%), untidy paths (5.4%), unmaintained green spaces (4.3%), poor maintained children playground (4.3%), not enough trees (1.1%),

inadequate safety (1.1%), many insects (1.1%), and impolite behaviour (1.1%). Apartment residents reported nothing (23.6%), not enough benches (22%), difficult car parking (15%), inadequate safety (9.4%), unmaintained green (7.1%), untidy paths (5.5%), poor quality sports fields (3.9%), noise from playgrounds (3.9%), and traffic noise (2.4%) (Figure 2d).

4.5 Resident Attributes Influencing Preferences

Resident attributes had significant effects on TNP preferences. The only attribute influencing danchi residents' preferences was the existence of green space in a residence (Table 3). Female residents had higher green space management experience in conducting gardening (31.2%) than male residents (23.7%, p=0.023). Danchi residents without children in a family (76.3%) and almost every day visiting green space (30%) preferred to visit Kanegasaku park (p=0.052, p=0.019). Those that had lived in their current location for 1-10 years (21.5%, p=0.004) and living in danchi with shared green space (38.7%, p=0.002) preferred visit park 4 hours per month. Furthermore, those that had lived in their current location for 1-10 years also preferred to accompany children (15.1%) and enjoy nature (11.8%) (p=0.036).

The only attribute influencing apartment residents' preferences was recognition of quantity of surrounding green space (Table 4). Age attributes almost had influence on residents' green space management experience and preference, especially green space volunteering activity, the number of volunteering activity, expected hour per day, gardening activity, activity and park element. The older age of residents, the lower residents' green space volunteering activity (p=0.000). In contrast, the older the age of residents, the higher gardening activity they had (p=0.013). The elderly apartment residents preferred Kanegasaku park (13.4%) and Tsubaki park (8.7%). Residents without children in a family had a higher willingness to participate in volunteering activity for 1-12 hours per day (37.8%, p=0.053). They also preferred to perform the various activities in the park such as relaxation (18.9%) and enjoying nature (18.7%, p=0.001). The residents that had lived in their current location for 1-10 years (16.5%) had a willingness to participate in volunteering activity for 1-40 hours per year (p=0.003). Those who visited green space 1-3 times per month tended to enjoy nature (6.3%), while those who visited green space almost everyday (6.3%) tended to have relaxation in the park (p=0.000). Those who recognized large green space preferred tree canopies (28.3%, p=0.004).

Table 3: Danchi residents' attribute and exposure to green space influencing preference

Resp.	GS management experience		Neighbourhood park preferences			
	Exp. Hour. Day.	Gard.	Park.	Visit.	Act.	Elem.
Attribute						
Gender	0.097*	0.023**	0.453	0.397	0.414	0.137
Age	0.693	0.587	0.2	0.738	0.948	0.000***
Child.	0.625	0.106	0.052*	0.578	0.936	0.831

Length.	0.479	0.251	0.682	0.004***	0.036**	0.079*
Exposure to green space						
Freq.	0.268	0.063*	0.019**	0.373	0.642	0.319
GS in res.	0.64	0.06*	0.813	0.002***	0.41	0.923

*Note: *p<0.1, **p<0.005,***p<0.01 (Source: Study result)*

Table 4: Apartment residents' attribute and exposure to green space influencing preference

Resp.	GS management experience					Neighbourhood park preferences				
	Green. Vol.	Num. act.	Exp. Hour Day.	Exp. Hour. Year.	Gard.	Park.	Act.	Dist.	Ele.
Attribute									
Gender	0.693	0.705	0.432	0.22	0.863	0.5	0.086*	0.998	0.062*
Age	0.047**	0.000 ***	0.078*	0.106	0.013**	0.027**	0.127	0.569	0.1
Child.	0.314	0.392	0.053*	0.166	0.146	0.17	0.001 ***	0.405	0.171
Length.	0.381	0.82	0.917	0.003 ***	0.046**	0.984	0.951	0.543	0.956
Exposure towards green space									
Freq.	0.397	0.684	0.409	0.036	0.305	0.864	0.000 ***	0.911	0.754
Recog.	0.41	0.068*	0.868	0.83	0.969	0.068*	0.355	0.099*	0.004 ***

*Note: *p<0.1, **p<0.005,***p<0.01 (Source: Study result)*

4.6 Principal Component Analysis of Park Preference

A Factor Analysis with a Varimax (orthogonal) rotation of 19 questions from park preference survey was conducted on data gathered from 220 participants. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO=0.599). The results of an orthogonal rotation of the solution were shown in Table 5. When the loadings less than 0.30 were excluded, the analysis yielded a seven-factor solution with a simple structure (factor loadings ≥0.30).

Four items loaded onto Factor 1. It was clear from Table 5 that all of these four items related to the type of dwelling and the existence of shared green space in a residence. This factor was labelled as "the existence of green space in perceiving neighbourhood park and park elements". Two items loaded onto a second factor related to public green space management experience. This factor was labelled as "engagement in green volunteering activity". The two items loaded onto Factor 3 related to the demography attribute namely employment status. This factor was labelled as "employment status determines activity in the

park".

Table 5: Survey item and factor loadings

Survey Item	Component						
	1	2	3	4	5	6	7
Recognition of quantity of surrounding greenery	-.672		-.236			.113	
Type of dwelling	**.650**			.170	-.194	.336	
Green space in residence	**.591**	-.130	-.147		.240	-.117	.293
Park preference	**.556**	.108			-.144	.114	-.175
Park element	**.492**	.165	.267		-.265	-.297	-.158
Green volunteering activity		**.943**					
The number of activity		**.930**		.112			
Length of stay	.102		-.715				.119
Employment status	.229		**.638**	.133			.149
Age	-.331	-.122	-.572	-.115	.204	-.376	-.182
Activity in the park	.181		**.384**	-.284	-.231	-.142	-.227
Expected hour per year				**.851**		-.169	-.152
Expected hour per day		.194	.137	**.805**			
Gardening activity		.176		.131	**.663**		
The frequency of visiting green space	-.273		-.104	-.177	**.583**	.204	
Park visit time		-.122	.193		**.569**	-.185	-.314
Gender				-.189		**.790**	-.136
Children in a family			.351	.166		**.426**	.122
Disturbance in the park				-.121	-.134		**.847**

Note: Bold numbers indicate which components loaded onto each of the seven factors (Source: Study result)

The two items loaded onto Factor 4 related to the willingness to spend time in volunteering activity both in a day and a year. This was labelled as "a willingness to spend time in volunteering activity". The three items loaded onto Factor 5 related to the exposure towards the green space, namely frequency of visiting green space, park visit time, and private green space management experience such as gardening activity. This was labelled as "green space visit and management experience". Items for Factor 6 related to the demography attribute namely gender and children in a family so that this factor was labelled as "gender and children in family attributes". Item for Factor 7 was labelled as "disturbances in the park".

These seven factors contributed to over 59.6% of the total item variance. The first component, existence and recognition of green space in perceiving neighbourhood park and the elements were responsible for almost 14.6% of the total item variance followed by engagement in green volunteering activity was responsible for 11.1% of the total item variance, employment status determines activity in the park was responsible for 8.2% of the total variance, willingness to spend time in volunteering activity was 7.5% of the total item variance, green space visit and management experience was responsible for 6.6% of the total item variance, gender and children in family attributes was responsible for 6.3% of the total item variance, and lastly disturbances that might be found in the park was responsible for 5.3% of the total item variance.

5.0 Discussion

5.1 Neighbourhood Characteristics

The Tokiwadaira district contains two types of neighbourhoods (i.e., danchi and apartment). Danchi are mostly occupied by residents aged 70 and above; these residents are typically retired. On the other hand, apartments are typically occupied by residents aged 40-49 years; these residents are usually employed. Based on green space management experience and exposure towards the green space, neighbourhood characteristics indicate that danchi residents tend to do gardening at home due to large green spaces surrounding the danchi complex. As explained by Pratiwi et al. (2018), female residents exhibited more environmental behaviour and have more social ties than male residents. They also tended to grow plants and have a high social attachment to the neighbourhood. Although apartment residents had gardening experience and large green spaces, they did not typically work in gardens. Employed residents spent a significant amount of time in offices; this might affect their environmental behaviour (Pratiwi et al., 2018; Laurens, 2012).

5.2 Significant Differences in Neighbourhood Park Preferences

Danchi and apartment residents had different park preferences. Danchi residents over 70 years of age preferred to visit large parks within short walking distances. Neighbourhood parks located close to home will be visited more frequently than those located further than 15

minutes' walking distance (Willemse, 2015). Further, apartment residents preferred to visit a range of park sizes at variable distances from their dwellings. Large green spaces and variety of features encouraged residents to visit Kanegasaku Park and stay longer at this park than at the other parks (Veitch et al., 2012). On the other hand, litter, vandalism, and unclean toilets may deter park use. Danchi and apartment residents also had different park element preferences. Bench availability was crucial for the user who stayed for extended periods; these provided rest before moving onto other activities, while the shading from tree canopies was needed by the user in performing activities in the park.

The only attribute influencing danchi residents' preferences was the existence of green space in a residence, while the only attribute influencing apartment residents' preferences was recognition of quantity of surrounding green space. Residents living in danchi with shared green space conducted gardening in their shared-space garden. As identified by Hake, 2017), the shared-space garden was one of the distinct modalities of learning space. It contributed to the social organization, a sense of well-being, generation of social capital, and community engagement. Whereas, apartment residents who recognized large green space preferred tree canopies. Perceived greenery in the local environment had been linked to human mental well-being, although the frequency of visiting green space is more tightly linked to mental well-being than either perceived local environmental conditions (Coldwell and Evans, 2018).

5.3 Factors of Park Preferences

In the case of TNP usage, residents' connection with nature was mainly characterized by the existence of green space in a residence which encouraged exposure towards green space (Kim, et al., 2018) and shaped park preference (Harris, et al., 2017). Engagement in green volunteering activity and willingness to spent time for it were in line with Rattam et al. (2011) findings that volunteering activity increased an individual's awareness and participation in social activity. While employment provided services and sustained people in everyday lives so that unemployed residents were helped by accessible neighbourhood parks. Abdullah and Zulkifli (2015) reinforced that parks as a part of the social environment could reduce the problem of unemployment as the root of stress and problem in families, communities, and individuals. The other variables encouraging exposure towards green space such as frequency of visiting green space and green space management experience such as gardening created a higher rate of perception of urban green space merits (Kim et al., 2018).

6.0 Conclusion

Results indicate three significant differences between danchi and apartment residents (i.e., neighbourhood park preference, length of visit, and park element. The only attribute influencing danchi residents' preferences is the existence of green space in a residence, while the only attribute influencing apartment residents' preferences is recognition of quantity

of surrounding green space. There are seven factors of park preferences. This information may help urban planners conduct participatory planning with the community and optimise local features through consideration of elderly residents' needs.

Further research will engage at the psychological and physiological effect of experiencing nature walking through the tree canopy at a park. Furthermore, there must be a detailed mood and anxiety inventory and proper physiological parameters, whether this type of activity is necessary for increasing quality of life.

Acknowledgement

References

Abdullah, Y. A., & Zulkifli, F. L. (2015). Concepts and Theories of Happiness of Population in Urban Neighbourhoods. Environment-Behaviour Proceeding Journal. Environment-Behaviour Proceeding Journal, 1(1), 260–268.

Alabbasi, A. M., & Said, I. (2018). Restorative effects of open spaces on the physiological health of obese adults in Saudi Arabia. Environment-Behaviour Proceeding Journal, 3(8), 55–64.

Cox, E., Turley, A., Davies, B., Harrison, M., et al. (2013). The condition of Britain. Love thy neighbourhood : People and place in social reform. IPPR North. Retrieved from http://www.ippr.org/assets/media/images/media/files/publication/2013/11/love-thy-neighbourhood Nov2013 11478.pdf. Retrieved: August 2018.

Deborah, F. C., & Evans, K. L. (2018). Visits to urban green-space and the countryside associate with different components of mental well-being and are better predictors than perceived or actual local urbanisation intensity. Landscape and Urban Planning, 175(2018), 114–122.

Gunawan, A., & Pratiwi, P. (2015). User behaviour on specific environment in bogor botanical garden. ASEAN Journal on Hospitality and Tourism, 14(1), 3–12.

Hake, B. J. (2017). Gardens as Learning Spaces: Intergenerational Learning in Urban Food Gardens. Journal of Intergenerational Relationships, 15(1), 26–38

Harris, V., Kendal, D., Hahs, a. K., Threlfall, C. G., et al. (2017). Green space context and vegetation complexity shape people's preferences for urban public parks and residential gardens. Landscape Research, 43(1), 150–162.

Janicas K. 2014. Exercise as a treatment in intellectual and developmental disability. Journal on Developmental Disabilities, 20(1), 122–127.

Kim, M., Rupprecht, C. D. D., Furuya, K., et al. (2018). Residents' Perception of Informal Green Space—A Case Study of Ichikawa City, Japan. Land, 7(102), 1-20.
Kusuma, A. W. A., Srinadi, I. G. A. M., & Sari, K. (2016). Aplikasi analisis korespondensi untuk melihat karakteristik usaha pariwisata di provinsi bali. E- Jurnal Matematika, 5(2), 76– 81.

Laurens, J. M. (2012). Changing behavior and environment in a community-based program of the riverside community. Procedia-Social and Behavioral Sciences, 36, 372–382.

Lucas, O. W. R. (1991). The Design of Forest Landscape. New York: Oxford University Press.

Mutiara, S., & Kinoshita, I. (2011). Characteristics of public small park usage in Asia pacific countries: case study in Jakarta and Yokohama city. Procedia-Social and Behavioral Sciences, 35(2012), 412–419.

Omar, K. A., Omar, D., Othman, S., Yusoff, Z. M., et al. (2016). Reviewing youth facility requirements for low-cost housing in Malaysia. Procedia - Social and Behavioral Sciences, 222, 702–709.

Othman, A. R., & Fadzil, F. (2015). Influence of outdoor space to the elderly wellbeing in a typical care centre. Procedia - Social and Behavioral Sciences, 170(2015), 320 – 329.

Pearson, A. L., Bentham, G., Day, P., Kingham, S., et al. (2014). Associations Between neighbourhood characteristics and obesity and related behaviours among adult New Zealanders. BMC Public Health, 2014, 14(553).

Pratiwi, P. I., Sulistyantara, B., Gunawan, A., Furuya, K., et al. (2014). A comparative study on the perception of forest landscape using LIST method between university students of Japan and Indonesia. Jurnal Managemen Hutan Tropika, 20(3), 167–178.

Pratiwi, P. I., Kim, M., Furuya, K., et al. (2018). Difference in perception of urban green spaces between danchi and apartment residents in Tokiwadaira, Matsudo city, Japan. Manuscript submitted for publication.

Rattan, J. K, Eagles, P. F. J, Mair, H. L., et al. (2011). Volunteer tourism: its role in creating conservation awareness. Journal of Ecotourism, 11(1), 1–15.

Sandifer, P. A., Sutton-Grier., A. E., Ward, B. P., et al. (2015). Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: opportunities to enhance health and biodiversity conservation. Ecosystem Services, 12(2015), 1–15.

Tamaki, T. (2014). Live and die in solitude away from the family: issues relating to unattended death kodokushi in Japan. Housei Riron, 46 (4), 203–218.

Turan, S. O., Pulatkan, M., Beyazli, D., Özen, B.S., et al. (2015). User evaluation of the urban park design implementation with participatory approach process. Procedia - Social and Behavioral Sciences. 216(2016): 306–315.

Veitch, J., Ball, K., Crawford, D., Abbott, G. R., Psych, G. D., Salmon, J., et al. (2012). Park improvements and park activity: a natural experiment. American Journal of Preventive Medicine, 42(6), 616–619.

Willemse, L. (2015). Some perceptions and preferences of residents' use of community neighbourhood parks in Mitchells Plain, Cape Town. Town and Regional Planning, 2015(66), 15–30.

Yu, C., Lin, C., Tsai, M., Tsai, Y., Chen C., et al. (2017). Effects of short forest bathing program on autonomic nervous system activity and mood states in middle-aged and elderly individuals. Int. J. Environ. Res. Public Health, 14(8), 1–12.