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Original Article

Aging in Place within Elderly People in the Southwest Iran

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A B S T R A C T

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Introduction: Iran and its aged society are facing some issues that significantly impact the current social structures in Iran. It will continue to do so on their growing as elderly with negative impacts on communal relations and unjust distribution of resources based on a gender basis that will affect the aging in place (AiP). The study aims to investigate the AiP within aged people and modifying role of the gender variables within it.

Methods: This study describes the current AiP of the aged people in Ahwaz city in the southwest Iran from a gender perspective. The population available for the study was citizens 60 years of age and older (N=51594) in Ahwaz city. Sampling method was cluster-ratio based on municipal zones, ethnicity, and gender with sample size 382 (195 male and 187 female). The data were analysed by descriptive statistics, F-test and geographical information system.

Results: Economically poor situation of the aged samples especially aged women, and their health status was moderated by low quality of nutrition and high prevalence of chronic conditions. For example, Arabs, Persian and Lor received low mean scores of 59.41, (SD = 7.332), 58.09 (SD = 11.963), and 57.02, (SD = 7.963) respectively in the health status. AiP characteristics are poor and discrimination was especially significantly prominent among elderly females. Multiple regression were found to modify AiP at the first step. The Generalized Linear Model revealed that gender-ethnic discrimination directly affected AiP and high prevalent amongst elderly minority females.

Conclusion: The current urban environment, in the southwest Iran, seems is unable to meet healthy needs of aged people. It needs to adjust upon gender and other relevant characteristics to monitor equality of outcomes for aged and minorities. The future research needs to focus on effect of ethnicity and gender-related issues on AiP, especially in developing countries like Iran.

Keywords: Ahwaz City, Elderly, Aging in Place, Geographical Information System, Gender Issues

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Introduction

The aging in place (AiP) is defined how much environment and community are well-constructed for the aged, and how the place is adapted to aged-related issues. It implies growing old in the environment and community with the least or without problems (1, 2). Some issues pertinent to the term AiP include demographic inventory, e.g. housing, transportation or mobility, neighbours, safety area and security, problems in the environment and place (noise, parking, litter, boundaries, pets, bullying, anti-social behaviours, differentiations in culture and lifestyle, and so on), and services for aged (2). The last census in 2007, resulted in a total population for Ahwaz city of 969843 inhabitants, 51594 of which were sixty years and older (male: 26294 and female: 25345). In the national and provincial report on population and

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census, there is no data for ethnic and religious groups upon social-political issues, as claimed Islamic Republic of Iran (3). The study was aimed to measure the AiP upon gender-based issues among aged citizens of Ahwaz city.

Methods

Procedure

Participants of the study were seniors who resided in eight municipal zones of Ahwaz city. 382 seniors were sampled from 51594 older persons; 195 males and 187 females; birth date ranged from 1915 to 1952. The data were collected during interview with the samples who had come to welfare and rehabilitation centers across the Ahwaz city from May to September 2014. The sampling was in accordance with cluster-multistage sampling method and the sample size were estimated by Cochran Formula as a whole. For each cluster the percentage was generated by gender, ethnicity, and municipal zones. The ethnic groups of Khuzistan province were estimated according to Navvah's survey on ethnic minorities of Arabs in 2004. Navvah measured the Khuzis'* 46 percent of total population though he did not provide the percent of the other ethnic minority group, the Lors (4). According to 2007 reports of Khuzistan Statistics Census Centre and Iran Statistics Census Centre, the sample size is wholly counted 382 seniors upon Cochrane formula (5-9). This is also the case with cluster-multistage sampling for municipal zones upon three ethnic groups of Persian, Lor, and Arab in the province.

Instrumentation

The variable of AiP was evaluated by the scale of aging in place (SAiP). The SAiP is an instrument to measure and evaluate the environment and the community of aging (see annex). It has items that include information about housing, transportation or mobility, neighborhood, safety and security, troubles in the environment and place (noise, parking, litter, boundaries, pets, bullying, anti-social behaviours, differentiations in culture and lifestyle, and so on), and public and administrative services for the aged. Sum score of this instrument is used as AiP and will be between 21 and 105 scores; hence 21 means growing aged in the environment and community with the most problems in neighbour and environment. The seniors with this score acclaims that he/she is growing as an older citizen with the slightest life styles. Also, it is reliably well conducted by Cronbach's alpha (α = 0.84).

Additionally, the respondents' demographic profiles included age, gender, ethnicity (Arab, Lor, and Persian), marital status (types and time of married), family members, health status (having conditions and types, smoking and the time period), nutrition, living alone and the time period, educational status, economic status, pensioning, and municipal zones residing.

Data analysis

The data were analysed by descriptive statistics, F-test and geographical information system (GIS).

Ethical Considerations

Ethical matters e.g. plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been totally observed by the authors. The study was approved by the Ethics Committee in Faculty of Medicine & Health Sciences at University of Putra Malaysia, Serdang DE, Malaysia, and registration number FMH-329b-031.

Results

One hundred and ninety-five persons (51%) were male. The mean age of the respondents was 69 years (65 ± 5). The respondents' demographic profiles included age, gender, ethnicity (Arab, Lor, and Persian), marital status (types and time of married), family members, health status (having conditions and types, smoking and the time period), nutrition, living alone and the time period, educational status, economic status, pensioning, and municipal zones residing. have been tabulated upon gender in the table 1. As table 1 illustrates, majority of senior told the AiP is less designed in Ahwaz city. The AiP has the highest correlation with gender ($r = .137$, $N = 382$, $p \leq 0.05$, two-tailed) followed by marital status ($r = -.11$, $N = 382$, $p \leq 0.05$, two-tailed). The correlation relationship of the length of married status, however, is not as significant as other demographic and basic variables ($r \leq .16$ and $p \leq 0.05$).

Distributions of health status variables among participants have been tabulated upon gender in the table 2.

Gender and ethnic groups have nearly the same attitudes to how environment and the community are well-constructed for the aged samples. Distributions of AiP among participants have been tabulated upon two basic variables of gender and ethnic in the table 3. As the table 3 demonstrates, gender and ethnic groups have nearly the same attitudes to how environment and the community are well-constructed for the aged. Comparing median score for the AiP, the ethnic groups, Arabs, Persian and Lor received low mean scores of 59.41(SD = 7.332), 58.09 (SD = 11.963), and 57.02 (SD = 7.963) respectively.

* Khuzi and/or Khozi= a person who comes from Khuzistan land, like Paki from Pakistan.

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Table 1. Frequency distribution and comparison of seniors' demographic and background profiles by gender (N = 382, p ≤ 0.05.)

Categories	Categories	N	%	Male	Female	χ^2/p
Gender	Male	195	51.0	-	-	-
	Female	187	49.0	-	-	
Age (Mean= 68.9, SD=7.77)	60-70 (young old)	268	70.2	132	136	2.125/ 0.000
	71-80 (middle old)	77	20.2	37	40	
	≥ 81 (old old)	37	9.7	26	11	
Ethnicity	Persian	115	30.1	61	54	4.142/ 0.000
	Arab	139	36.4	74	65	
	Lor	128	33.5	60	68	
Educational status	No formal school	91	23.8	59	32	12.5/ 0.000
	Only reading	163	42.7	71	92	
	Primary	79	20.7	40	39	
	Middle school	19	5.0	12	7	
	High school	20	5.2	6	14	
	Graduated	10	2.6	7	3	
Marital status	Divorced	5	1.3	1	4	32.4/ 0.000
	Widowed	113	29.6	40	73	
	Separated	6	1.6	5	1	
	Married	241	63.1	135	106	
	Never married	3	.8	2	1	
	Living with other	14	3.7	12	2	
Length of married time (Mean= 29.3, SD= 3.27)[national range: Mean= 25.1 and SD= 3.1]	≤ 10 year	26	6.8	10	16	21.61/.000
	11-20 year	31	8.1	17	14	
	21-30 year	139	36.4	72	67	
	≥ 31 year	186	48.7	96	90	
Family members (Mean= 5.7, SD=1.34)	≤ 5 persons	241	63.1	124	117	23.8/ 0.005
	≥ 6 persons	141	36.9	71	70	
Economic support and pensioning	Nothing	152	39.8	73	79	21.3/ 0.000
	Public	208	54.5	108	100	
	Private	22	5.8	14	8	
Range of Financial Support upon Urban Poverty Ratio [a] (Mean= 936439.79, SD=1.48)	Nothing	152	39.8	73	79	23.5/ 0.000
	≤ 990000	135	35.3	81	54	
	1000000-4500000	86	22.5	36	50	
	4510000-7990000	8	2.1	4	4	
	≥ 8000000	1	.3	1	0	
Municipal Zones [b]	1= Middle Class	4190	15.9	2095	2095	34.01/ 0.059
	2= Developed	1885	7.2	980	905	
	3= Developed	3854	14.6	1968	1886	
	4= Undeveloped	4515	17.2	2406	2109	
	5= Undeveloped	1665	6.3	843	822	
	6= Middle Class	4778	18.2	2467	2311	
	7= Middle Class	3822	14.5	1984	1838	
	8= Undeveloped	1612	6.1	866	746	

a. Based on Iranian Rials currency and 1 US$= 19060 IR Rials in 2012.
b. They are economically divided into three parts i.e. poor and undeveloped = 29.6% (zone 4, 5, & 8), middle class= 48.6% (zone 1, 6, & 7), wealthy and developed= 21.8% (zone 2 & 3) regarding income of citizens and urban facilities based on Provincial Report of KSCC (2011).

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Table 2. Frequency distribution and comparison of seniors' health status by gender (N=382, $\rho \leq 0.05$.)

Items	Categories	N	%	Male	Female	χ^2/ρ
Length of having condition (Mean = 8.9, SD = 1.39)	Nothing	91	23.8	46	45	32.1/ 0.000
	≤ 1 year	10	2.6	7	3	
	2-5 year	87	22.8	41	46	
	6-10 year	138	36.1	60	78	
	≥11 year	56	14.7	41	15	
Kind of condition disorder	Nothing	91	23.8	7	3	12.5/ 0.000
	Osteoporosis	63	16.5	32	31	
	Heart Disease	79	20.7	46	33	
	Arthritis	57	14.9	24	33	
	Diabetes	37	9.7	16	21	
	Dysmetabolic Syndrome	5	1.3	3	2	
	Depression	45	11.8	25	20	
	Immunological Disorders	5	1.3	3	2	
Smoking, and the length (Mean = 18.2, SD = 1.108)	Nothing	249	65.2	103	146	12.7/ 0.000
	≤ 10 years	6	1.6	2	4	
	11-20 years	54	14.1	33	21	
	≥ 21 years	73	19.1	57	16	
Length of sleeping per 24-houre (Mean = 7.83, SD = 1.376)	≤ 6	62	16.2	32	30	24.9/ 0.000
	7	98	25.7	54	44	
	8	136	35.6	66	70	
	9	45	11.8	27	18	
	10	21	5.5	12	9	
	11	9	2.4	0	9	
	≥ 12	11	2.9	4	7	
Length of living alone (Mean = 4.62, SD = .936)	I live with other.	344	90.1	175	169	14.01/ 0.002
	≤ 1 year	8	2.1	3	5	
	1-2 year	5	1.3	3	2	
	3-5 year	9	2.4	5	4	
	≥ 5 year	16	4.2	9	7	
Living with other/s	I live alone.	38	9.9	20	18	23.8/ 0.000
	My daughter	57	14.9	17	40	
	My son	98	25.7	52	46	
	My spouse	182	47.6	101	81	
	Other/s	7	1.8	5	2	

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Table 3. Frequency distribution and comparison of AiP by gender and ethnic among aged samples (N=382, p ≤ .05)

Categories		AiP				Total	SD	Median	Mean [a]	χ^2/p
		The Least	Less	Moderate	High					
		N (%)	N (%)	N (%)	N (%)					
Ethnic	Persian	10 (3)	75 (20)	28 (7)	2 (.5)	115	11.963	57.43	58.09	21.05/ 0.002 [b]
	Arab	1	85 (22)	53 (14)	0	139	7.332	61.50	59.41	
	Lor	2	94 (25)	31 (8)	1	128	7.963	55.92	57.02	
Gender	Male	11	135	48	1	195	8.877	57.00	57.05	26.12/ 0.000
	Female	2	119	64	2	187	9.374	59.40	59.42	
	Total	13	254	112	3	382	9.189	58.43	58.21	

a. The scores between 21 and 105 and the median is 63.
b. comparison of AiP by gender and ethnic indicate to difference between them.
* The least means many problems with being aged in the neighbours.

Table 4: Seniors' attitudes regarding the problems in their neighbourhood/environment by gender and ethnic (N = 382, p ≤ .05)

Problems	Values in items N0: 6										Mean [a]	SD	p
	The Least		Less		Moderately		High		The Highest				
	N	%	N	%	N	%	N	%	N	%			
Excessive Noise	55	14.4	32	8.4	61	16.0	163	42.7	71	18.6	3.43	1.28	0.000[b]
Poor Parking	62	16.2	82	21.5	135	35.3	76	19.9	27	7.10	2.80	1.14	0.000
Children's Ball Games Nuisance	65	17.0	145	38.0	98	25.7	51	13.4	23	6.01	2.53	1.10	0.000
Litter	92	24.1	157	41.1	79	20.7	29	7.6	25	6.50	2.31	1.11	0.003
Building and construction materials [c]	94	24.6	151	39.5	97	25.4	38	9.90	2	.520	2.22	.988	0.000
Have Pets & Noisy Animals	140	36.6	132	34.6	56	14.7	46	12.0	8	2.10	2.08	1.08	0.000
Anti-Social Behaviour	86	22.5	62	16.2	39	10.2	136	35.6	136	35.6	3.05	1.42	0.000
Bullying	94	24.6	61	16.0	33	8.60	134	35.1	60	15.7	3.01	1.45	0.001
Lifestyle Differences	62	16.2	95	24.9	145	38.0	67	17.5	13	3.40	2.67	1.05	0.000
Cultural Differences	57	14.9	74	19.4	74	19.4	137	35.9	40	10.5	3.08	1.25	0.000
Breakdown in Communication	74	19.4	133	34.8	135	35.3	33	8.60	7	1.80	2.39	.954	0.000
Verbal Abuse	113	29.6	51	13.4	35	9.20	131	34.3	52	13.6	2.89	1.48	0.004

a. the scores between 1 and 5.
b. comparison of the problems by gender and ethnic indicating the differences of the variables
c. materials of under-construction buildings left in the neighbourhood and streets.

The figure 1 portraits the gender-related attitudes to AiP in pyramid graph. The comparison of the AiP by gender and ethnic characteristics illustrated that the variables have significant differences amongst the aged subjects as well (N=382, p ≤ 0.05). There were no diverting approaches between aged men and women but the men's scores are more kurtosis. Seniors' Attitudes Regarding the Problems in their Neighbourhood/Environment by Gender and Ethnic are shown in table 4. Sixty one percent (42.7% + 18.6%) of samples believed, the noise pollution is the most challenging problem for the aged (Mean = 3.43, SD = 1.28). Anti-social behavior devoted the highest rank to around 70% of participants followed by cultural differences. Comparison of the problem by gender and ethnic characteristics, also, illustrated that the variables have significant differences within the aged as well (N = 382, p ≤ 0.05).

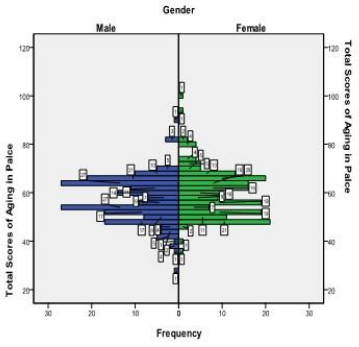

Figure 1. Gender pyramid graph on frequency distribution of SAiP

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The box-plot of figure 2 shows AiP in relation to both variables of ethnic and gender. The AiP measures in the gender groups were constricted in middle of Y axis indicating median degree in the AiP. Persian males have received the least degree of means in the AiP. The degree of aged women is more than men. Generally, the degree and mean score of aged Arabs is more than other two ethnic groups however some Persian cases have the highest scores.

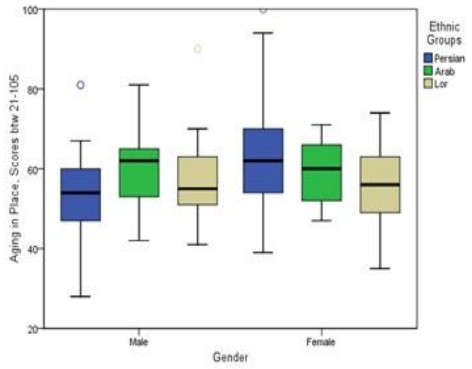

Figure 2. Box-Plot of AiP in relation to gender and ethnic

Using GIS, distribution of AiP's mean values were estimated upon economic classification of municipal zones in Ahwaz city. The aged people who inhabit at central regions of city in commercial sections and markets significantly have had values in higher measures (Figure 3).

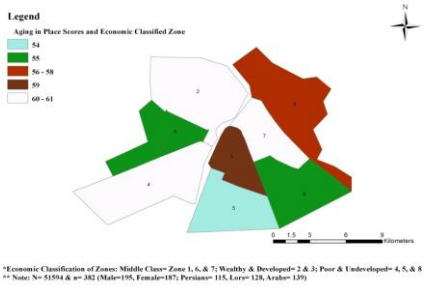

Figure 3. Zoning distribution of AiP measures upon economic classification of zones in Ahwaz city

Disscusion

This study aimed to describe the current AiP of the aged people in Ahwaz city in the southwest Iran from a gender perspective. The recent Iranian reviews have indicated and approved these matters and endorsed the findings of the study and the gender and ethnic are going to be as core item of the latest literatures (4, 10-13). Gender and ethnic inequalities in the basic variables of the research were measured and shown (10-11).

Respondents were equally from one of three ethnic groups; 30.1% Persians, 36.4% Arabs, and 33.5% Lor. The seniors were enquired, "If married, how long have you been married?" Approximately, half of them acclaimed they have been married more than 31 years (48.7%, Mean = 29.3, SD = 3.27) more than national average of marriage duration among Iranian couples (Mean = 25.1, SD = 3.1) (11, 12).

The majority of the samples lived with other/s (90.1%, Mean= 4.62, SD = .936) while only 9.9% of participant were living alone (table 2). Also, those lived alone for a long time, have claimed that they have been doing so for more than five years and this situation is more common with males than females. Living with spouse is the common kind of living with others (47.6%), followed by living with sons (25.7%) among males and in extended families of Khuzistan province. This could be due to the men financially supporting their aged parents (10). However, findings of researchers in the Far East indicate that daughters are as the most likely to care for older parents (11, 14).

Results of the study revealed that gender and ethnic groups have nearly the same attitudes to how environment and the community are well-constructed for the aged. Even though, Arabs' scores are higher than other ethnics, but all ethnic groups believed the place is not appropriately adapted to aged-related issues and growing aged in the environment and community. Such the attitudes of gender groups are at the least difference. Overall, samples suppose their community and environment are not well-constructed to develop aging role and not suitable for aged person.

Seniors looked at AiP as less and weak designed for them to become an aged person. The next major step is awareness to what those issues are. According to results of Partners for Livable Communities (1) and Senior Resource for Aging in Place (2) projects in their recent reports, they classified twelve issues challenging for the aged in their place and environments. Most of samples believed, the noise pollution is the most challenging problem for the aged. Anti-social behavior devoted the highest rank followed by cultural differences, as the annoying problem for a bit fewer than half samples. It was predictable, from previous studies that different spheres made by diverse ethnic communities will result to dissimilar cultures and lifestyles (12, 13, 15-19). Even though, urban and modern lifestyles combine all types of groups, but it seems the essence of ethnic cultures have not been modified by the similar urban lifestyle (20-22). Aged samples acclaimed that building works and pets and noisy animals are the least troubles in their environment. Generally, the mean scores overture the AiP for the samples is as problem and becoming aged had and would not be a simple way for them.

The Persian males have received the least degree of means in the AiP while they receive the highest circumstances of public space and resources. The degree of aged women is more than men; however some samples' rates are higher than mean line. In overall, these minority groups like Lor seniors have received the lowest scores. It means that discrimination in the resources of society were not

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properly distributed, as the samples acclaim. Hezarjaribi and Morovati, Navvah and Taqavi-Nasab in their research on ethnical pathology in the southwest Iran, a research on Arab of Khuzistan have approved the findings of this study. They have indicated that the sense of relative deprivation especially in economic status have made the ethnic inequalities prominent among the minorities groups. The issue could be understandable in the vision of Internal Colonialism theory (4, 23).

The aged people who inhabit at central regions of city in commercial sections and markets significantly have had values in higher measures. Interestingly, the region seven, middle class dwellers has the highest value of AiP. It means that the dwellers in that region believe their environment and community were designed well to grow and become an aged person (1, 6, 22-27). Generally, places, environments, and communities in the suburb areas of Ahwaz city- have problematically some issues according to indicators if AiP.

Some literatures concerns to the gender belonging development areas, human capital, their participating, and civic interactions in economic, political, social opportunities as well (10, 12, 22-27). They refer to positive connection of gender equalities to the development and growth in all its ranges. Also, the equity was not made within all age ranges of women in Iranian society. Accordingly, Jartana and Blakely have demonstrated that "clear ethnic mortality gradients persist into old age (14), the mortality and well-being level of most groups was influenced by varying distribution of socio-economic factors". They suggested, to reduce ethnic differences in old age mortality, inequalities as a result of socio-economic position should be reduced (28).

The gender has moderated AiP with the highest Eta square value ($\eta 2$= .402 and .382 respectively) in the second place. This situation has been significantly under-treated and neglected in the majority of research regarding activity and aging in the social gerontology, as Calasanti (17-19), Kaplan (22), Afshari & Sheibani (21), Faramarzi (24), and finally Betts-Adams et al. (29) had illustrated within gerontological literature reviews. It also supports the objective of the research that emphasis on the gender-related issues and the findings that indicate to the inequalities and injustice situation of aged women related to the basic variables in Ahwaz city.

"Gender equality can be defined as the absence of discrimination in relation to opportunities, allocation of resources or benefits and access to services for women and men". This was used as the foundation for notions of gender justice by social scientists as unequal, unfair, ineffective, and inefficient gender inequity in health, why it exists, and how we can change it. The final report to the World Health Organization Commission on Social Determinants of Health indicates that the justifications of gender inequality are concentrated to enable gender equality in health (30). Elwér et al. have indicated that "… individualism and gender difference on the workplace level plays an important part in the justification of gender inequalities, and that individual solutions might have negative structural consequences for health" (31).

Conclusion

The urban designing environment and affordable urban places should be adjusted upon gender and other relevant characteristics to monitor equality of outcomes for aged and minorities. Regarding new phenomenon, Aging in Place, the future research therefore needs to focus on ethnicity, gender-related issues, and community level of the lifestyle of aging in the society, especially in developing countries like Iran.

Study limitation

Retrieving the aged-related data from the context and census reports was the main limitation of study regarding the minority groups.

Authors' contributions

LFS and NA have contributed to the design, performed the interviews, AH has written the draft and contributed to the design, interpretation of discussion, AA has revised the content, and approved the final manuscript as well.

Conflict of Interests

The authors declare that they have no competing interests.

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Annex:

The Scale of Aging in Place

Dear Madam/Sir,
Please read the following statements and mark the choice that is the best descriptions of your situation.

1) Regarding Housing, how is the construction of home/adult centre where you reside?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

2) Regarding Housing, how is the facilities of home/adult centre where you reside?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

3) Regarding Transportation/Mobility, how is the public transportation to and from your home/ adult centres?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

4) In rating of neighbourhood safety, how safe is your neighbourhood?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

5) In rating of neighbourhood safety, how welcoming is your neighbourhood?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

6) Are any of following problems making trouble in your neighbourhood by youths or others? (Please mark the No. that is the best descriptions, e.g. ① is the least and ⑤ the highest.)

Noise	① ② ③ ④ ⑤
Parking	① ② ③ ④ ⑤
Children's ball games	① ② ③ ④ ⑤
Litter	① ② ③ ④ ⑤
Building Works	① ② ③ ④ ⑤
Pets	① ② ③ ④ ⑤
Anti-social behavior	① ② ③ ④ ⑤
Bullying	① ② ③ ④ ⑤
Lifestyle differences	① ② ③ ④ ⑤
Cultural differences	① ② ③ ④ ⑤
Breakdown in communication	① ② ③ ④ ⑤
Verbal abuse	① ② ③ ④ ⑤

7) How is aging-related services in your neighbour?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

8) How are aging-related services in your community?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

9) Generally, in your opinion, is the neighbour well-designed to promote development and growing old well?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

10) Generally in your opinion, is the community well-designed to promote development and growing old well?

Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor ☐

Total scores of question 22-31: …….

11) What is the municipal zone of aged where is resided now?

Zone 1 ☐ Zone 2 ☐ Zone 3 ☐ Zone 4 ☐ Zone 5 ☐ Zone 6 ☐ Zone 7 ☐ Zone 8 ☐

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