The age–friendly cities characteristics from the viewpoint of elderly

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ABSTRACT

Background: Elderly population is rising due to advancement of health care, medical services, and increasing life expectancy. World Health Organization (WHO) has initiated a global project to define “age-friendly city for improving the elderly’s quality of life”.

Objectives: The purpose of the study was to determine the age-friendly cities characteristics from the elderly’s point of view in Gorgan, Iran.

Methods: This cross-sectional study was conducted in 2019 on elderly people who referred to the health centers of Gorgan, Iran. 160 eligible elderly people were recruited through multi-stage random sampling. The viewpoint of participants about the characteristics of Gorgan in the four age-friendly city indicators; urban and outdoor buildings, transport and transportation systems, information and communication services, and social support and health services was compared with the standard of WHO. Data were collected using the age-friendly city questionnaire and analyzed in SPSS-18 using Chi-square and one-sample t-tests.

Results: From the elderly viewpoint, the mean score of 4 indicators; urban buildings and outdoor (58.50 ± 31.2), Transport and transportation system (43.3 ± 82.00), access to Information communication services (46.75 ± 15.1) and the level of access to social support and health services (81.43 ± 21.10). Considering age-friendly city indicators, the characteristics of Gorgan City were significantly lower than the WHO recommended standard (P < 0.001). The “Information and Communication” and “buildings and outdoor space” indicators had the highest and lowest differences from the standard, respectively.

Conclusion: According to the present results it is recommended that managers and policymakers of urban planning and healthcare providers in their programs consider the elderly viewpoint to improve the urban characteristics as an age-friendly city.

Keywords: Age-friendly cities, elderly, viewpoint

Introduction

According to the definition of World Health Organization (WHO), the phenomenon of aging starts from the age of 60 and leads to the physiological, psychological, and social changes in elderly people. By improving health and medical services and increasing life expectancy, the elderly population is growing rapidly which is known as a silent revolution. It is expected, the world’s population over the age of 65 will double in the next 40 years and of these, 52% will live in Asian countries and 40% in developed countries. According to the report of the Statistical Center of Iran (SCI) in 2016, the population of people over 60 in Iran was 7414091 which 41626 of them lived in Gorgan. The growing trend of the elderly population is an important challenge of almost all countries in the world. Countries with more elderly people need a flexible environment and in line with the changes in aging while other communities need a plan to meet the needs of the older age group in the future. According to studies, easy access to the social services, family physicians, pharmacy and library have a higher priority from the perspective of the elderly.

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In 2007, the WHO has launched the “Age-Friendly City” project in collaboration with representatives of cities interested in supporting healthy aging and with the aim of meeting the needs of the elderly. Meanwhile, a framework was formed including the areas and indicators of the age-friendly city, in order to monitor and evaluate the progress of the project in different communities. This framework consists of eight key indicators and components which is used as a standard for measuring the status of different communities and improving the status quo. These indicators include urban buildings and outdoor spaces, transportation systems, housing and its status, social participation of the elderly, honor and socialization of the elderly, citizenship participation and employment, information and communication and social support and health services indicators.

Numerous studies have been conducted in different countries. The results of a study in the United States aimed to prioritize the indicators from the perspective of citizens and care professionals showed that the highest priority in both groups was “social support and medical and health services” and “respect and social interaction”. The results of a study in Hong Kong showed that the Five main themes were explored; “the failure of public transportation to cater to the needs of older adults”, “a lack of public space for recreation and socializing”, “diminishing human interactions in welfare services”, “physical and financial challenges relating to housing”, and “workplace discrimination against older adults”.

The concept of age-friendly city is a new topic in Iran and there are a few studies which addressed it. Of these, we can mention the research of Zabetian et al. who examined the Elderly Friendly Cities through People Participation. In research of Zarghani et al. the characteristics of an age-friendly city in Mashhad City were evaluated with emphasis on socio-cultural indicators. Obviously, in order to plan and make optimal policies, it is necessary to conduct studies that take into account the views of the elderly living in different parts of the country with different cultural and social contexts. The aim of this study was to determine the view point of the elderly on the compatibility of the Gorgan city characteristics with the indicators of the age-friendly city based on WHO criteria.

**Method**

This cross-sectional study was done on 160 young elderly people (60 – 70 years) in Gorgan in 2019. The eligible elderly was recruited through multi-stage sampling method. First, a list of health centers was prepared, and one center was randomly selected from each of the four geographical areas. Then, by referring to the selected centers, a list of elderly people is prepared and randomly in proportion to the population covered by the health centers, the required sample size was estimated using the following formula based on the study of Bastani et al. (2016), and which was estimated to be 160 sample with a 10% probability of attrition.

\[
n = \frac{Z_{\alpha/2}^2 \times p \times (1 - p)}{d^2}
\]

Where, 
- \( n \) is the required sample size, 
- \( Z_{\alpha/2} \) is the standard normal variable, 
- \( p \) is the estimated proportion of the characteristic of interest, 
- \( d \) is the margin of error.

The inclusion criteria were the ability to communicate verbally, living in Gorgan City for at least since a year ago, and lack of known psychiatric illness.

Data were collected through interviews using the age-friendly city questionnaire. The age-friendly city questionnaire was obtained from the WHO’s age-friendly city checklist in eight domains, which was developed in 2016 by Sharghi et al. and its validity and reliability were confirmed.

In this study, four indicators; have been assessed. The questionnaire consists of 4 indicators and 67 items which is used to allow the individual to express how much they agree or disagree with age-friendly city characteristics in comparing to WHO’s standards. The indicators included; urban buildings and outdoor spaces (18 items, 18 – 54 points), transportation system (25 items, 25-75 points), information and communication (11 items, 11-33 points), social support, and health services (13 items, 13-39 points). The answers were arranged in a 3-point Likert scale as disagree, relatively agree, and agree so that they are given a score of 1 to 3, respectively.

The sum of points in each indicator was calculated and the higher scores were considered as more agreement of elderly people with the compatibility of age-friendly city standard which presented by the WHO with the Gorgan city. Data was analyzed in SPSS-18 software using Chi-square and one-sample t-tests.

**Results**

The findings showed that the mean age of the subjects was 3.07 ± 64.35 and most of them lived in urban (93.1%), were married and lived with their spouses (91.3%), unemployed (43.8%). In terms of education, and only 10% had a high school or academic education.

According to the results, the mean and standard deviation of scores in the outdoor spaces and buildings indicator was 31.58 ± 2.504. based on the elderly’s point of view, the highest and lowest scores, was given to the “Pavements are well-maintained, smooth, level, non-slip, and wide enough to accommodate wheelchairs with low curbs that taper off to the road “and” Pedestrian crossing lights allow sufficient time for elderly people to cross the road and have audio signals”, respectively [Table 1].

Furthermore, the mean and standard deviation of the score of transport and transportation system indicator was 3.00 ± 43.82 and from the elderly’s point of view, the highest and lowest scores, respectively, were given to the indicators of “Drivers
are courteous, obey traffic rules, stop at designated transport stops, wait for passengers to be seated before driving off, and park alongside the curb so that it is easier for elderly people to step off the vehicle.” and 4 indicators of “Priority seating for elderly people is provided, and is respected by other passengers”, “Sufficient specialized transport services are available for people with disabilities”, “Information is provided to elderly people on how to use public transport and about the range of transport options available schedules and hours of movement of vehicles” and “Elderly people have access to a special park and respect for its right of priority by others” [Table 2].

Moreover, the results showed that the mean score of the information and communication indicator was $1.75 \pm 15.46$ and from the elderly’s point of view, the highest and lowest scores, respectively, were given to the indicators of “Print and spoken communication uses simple, familiar words, in short, straightforward sentences” and 2 indicators of “A basic, universal communications system of written and broadcast media and telephone reaches every resident.” and “People at risk of social isolation get information from trusted individuals with whom they may interact, such as volunteer callers and visitors, home support workers, hairdressers, doormen or caretakers.” [Table 3].

Based on the report, the mean score of the community support and health services indicator was $1.43 \pm 21.81$ and from the elderly’s point of view, the highest and lowest scores, respectively, were given to the indicators of “Service professionals have appropriate skills and training to communicate with and effectively serve elderly people” and “Residential care facilities, such as retirement homes and nursing homes, are located close to services and residential areas so that residents remain integrated in the larger community” [Table 4].

Regarding the comparison of the mean scores given from the perspective of the elderly and the mean recommended in the WHO standard, the results showed a statistically significant difference in all studied areas ($P < 0.001$). So that in all four indicators, urban building and outdoor spaces, transport, and transportation system, access to information and communication services, and access to the social supports and health services, the mean scores were given to the existing conditions in the

| Table 1: The frequency of the elderly point of view about outdoor spaces and buildings indicators in Gorgan |
|--------------------------------------------------|----------------|----------------|----------------|
| Indicator                                                                                       | Agree n (%) | Relatively agree n (%) | Disagree n (%) |
| The city is clean, with enforced regulations limiting noise levels and unpleasant or harmful odors in public places. | 109 (68.1) | 37 (23.1) | 14 (8.8) |
| There are well-maintained and safe green spaces, with adequate shelter, toilet facilities, and seating that can be easily accessed. | 12 (7.5) | 19 (11.9) | 129 (80.6) |
| Outdoor seating is available, particularly in parks, transport stops and public spaces, and spaced at regular interval | 8 (5) | 25 (15.6) | 127 (79.4) |
| Pavements are clear of any obstructions (e.g., street vendors, parked cars, trees, dog droppings, snow) and pedestrians have priority of use. | 23 (14.4) | 79 (49.4) | 58 (36.3) |
| Pavements are well-maintained, smooth, level, non-slip, and wide enough to accommodate wheelchairs with low curbs that taper off to the road | 11 (6.9) | 87 (54.4) | 62 (38.8) |
| The sidewalks are gently sloping. | 57 (35.6) | 77 (48.1) | 26 (16.3) |
| There are a number of safe pedestrian crossings for all people with any degree and any type of disability | 6 (3.8) | 15 (9.4) | 139 (86.9) |
| Roads have adequate non-slip, regularly spaced pedestrian crossings ensuring that it is safe for pedestrians to cross the road. | 160 (100) | 0 (0) | 0 (0) |
| Pedestrian crossing lights allow sufficient time for elderly people to cross the road and have visual signals. | 0 (0) | 36 (22.5) | 124 (77.5) |
| Pedestrian crossing lights allow sufficient time for elderly people to cross the road and have audio signals. | 0 (0) | 0 (0) | 160 (100) |
| There is enough time for pedestrians to cross the street. | 52 (32.5) | 56 (35) | 52 (32.5) |
| There is strict enforcement of traffic rules and regulations, with drivers giving way to pedestrians. | 117 (73.1) | 31 (19.4) | 12 (7.5) |
| There are separate cycle paths for cyclists. | 0 (0) | 38 (23.8) | 122 (76.3) |
| Public safety in all open spaces and buildings is a priority and is promoted | 91 (56.9) | 58 (36.3) | 11 (6.9) |
| Services are clustered, located in close proximity to where elderly people live and can be easily accessed | 16 (10) | 18 (11.3) | 126 (78.8) |
| There are special customer service arrangements for elderly people, such as separate queues or service counters for elderly people. | 50 (31.3) | 75 (46.9) | 35 (21.9) |
| Buildings are accessible and have the following features: - elevators - ramps - adequate signage - railings on stairs - stairs that are not too high or steep - non-slip flooring - rest areas with comfortable chairs - sufficient numbers of public toilets. | 4 (2.5) | 66 (41.3) | 90 (56.3) |
| Public toilets are clean, well-maintained, easily accessible for people with varying abilities, well-signed, and placed in convenient locations. | 0 (0) | 24 (15) | 85 (136) |
viewpoint of elderly people in Gorgan were lower than the standard mean. According to the findings, the highest mean score was related to the transportation system indicator and the lowest mean score was related to the information and communication indicator. In addition, the information and communication indicator had the longest distance and the field of urban building and outdoor spaces had the shortest distance from the standard of the WHO [Table 5].

**Discussion**

The results of the study regarding the compatibility of Gorgan City characteristics to age-friendly city with indicators of WHO showed that in the viewpoint of elderly people, in all indicators, Gorgan is significantly lower than the recommended standard and the higher and lower difference with the standard was in the indicators of information and communication and buildings and urban outdoor space, respectively.

Regarding the indicators of urban buildings and outdoor space, the highest concern of the elderly considering the obtained mean was the lack of a listening guide in the pedestrian crossings, the lack of a bicycle path from the sidewalk, and the lack of a special queue for the elderly in public places. However, compared to the standard, non-slip pedestrian crossings, cleanliness, and pleasant public areas, the observance of the right of way were more desirable. Comparing the findings with other studies showed that the findings were consistent with the cleanliness and desirability of public areas (such as parks, streets)\(^7,\,8,\,15\). In addition, the lack of special services for the elderly, such as queues or counters, has been reported in some studies, such as the present study.\(^15,\,17\) However, unlike the present study, other studies point to the lack of satisfaction of elderly from the cleanliness of the city, noise, and emission of unpleasant odors and the lack of public space for recreation and socializing, lack of access to adequate clean health services, and non-concentrated elderly services centers.\(^8,\,12,\,17,\,18\) It seems that the reason for the inconsistency of

| Table 2: The frequency of the elderly point of view about transportation indicators in Gorgan |
|----------------------------------|------------------|------------------|------------------|
| Agree n (%) | Relatively agree n (%) | Disagree n (%) |
| Public transportation is affordable to all elderly people and Consistent and well-displayed transportation rates are charged. | 0 (0) | 56 (35) | 104 (65) |
| Public transport is reliable and frequent (including services at night and at weekends). | 15 (9.4) | 136 (85) | 9 (5.6) |
| Public transport provides services during the night, weekends and holidays. | 4 (2.5) | 101 (63.1) | 55 (34.4) |
| All parts of the city and places providing services to the elderly are covered by public transport. | 3 (1.9) | 49 (30.6) | 108 (67.5) |
| All areas are well-serviced with adequate, well-connected transport routes within the city (including the outer areas) and between neighboring cities. | 0 (0) | 10 (65.65) | 5 (34.4) |
| Vehicles are clean and well-maintained. | 0 (0) | 65 (40.6) | 95 (59.4) |
| Priority seating for elderly people is provided, and is respected by other passengers. | 0 (0) | 0 (0) | 160 (100) |
| Sufficient specialized transport services are available for people with disabilities. | 0 (0) | 0 (0) | 160 (100) |
| Drivers are courteous, obey traffic rules, stop at designated transport stops, wait for passengers to be seated before driving off, and park alongside the curb so that it is easier for elderly people to step off the vehicle. | 160 (100) | 0 (0) | 0 (0) |
| Designated transport stops are located in close proximity to where elderly people live and are clean and safe. | 106 (66.3) | 54 (33.8) | 0 (0) |
| transport stops are and are adequately lit. | 71 (44.4) | 26 (16.3) | 63 (39.4) |
| transport stops re provided with seating and with shelter from the weather | 86 (53.8) | 73 (45.6) | 1 (0.6) |
| Information is provided to elderly people on how to use public transport and about the range of transport options available | 0 (0) | 0 (0) | 160 (100) |
| Community transport services, including volunteer drivers and shuttle services, are available to take elderly people to specific events and places. | 0 (0) | 44 (27.5) | 116 (72.5) |
| Taxis are affordable, with discounts or subsidized taxi fares provided for elderly people with low incomes. | 16 (10) | 69 (43.1) | 75 (46.9) |
| Taxi drivers are courteous and helpful. | 93 (58.1) | 67 (41.9) | 0 (0) |
| Elderly people have access to a special park and respect for its right of priority by others | 0 (0) | 0 (0) | 160 (100) |
| Roads are well protected and sewers are covered. | 102 (63.7) | 17 (10.6) | 41 (25.6) |
| The traffic flow is well-regulated. | 8 (5) | 63 (39.4) | 89 (55.6) |
| Roads are free of obstructions that might block a driver’s vision | 11 (6.9) | 85 (53.1) | 64 (40) |
| The traffic light at the intersections is convenient and visible. | 40 (25) | 71 (44.4) | 49 (30.6) |
| Refresher driving courses are provided and promoted. | 28 (17.5) | 56 (35) | 76 (47.5) |
| There are enough parking spaces for cars. | 18 (11.3) | 60 (37.5) | 82 (51.2) |
| It is safe and sufficient for pedestrians to get on and off. | 57 (35.6) | 63 (39.4) | 40 (25) |
| Drop-off and pick-up bays close to buildings and transport stops are provided for handicapped and elderly people. | 0 (0) | 115 (71.9) | 45 (28.1) |
the findings of the above studies with the present study is due to the difference in urban structure, the socio-economic level of the citizens, with the Gorgan City.

The present study on the elderly’s view of compliance with the standard transportation indicator, such as the study of Shariat and Chui[12,13] showed that the highest difference is the lack of seats for the elderly and special facilities for the disabled, lack of easy access to the required information about the routes and schedule of intercity buses, as well as the lack of elderly people from the special park. However, other studies unlike the present study, have emphasized that taxi fares and lack of taxis for the elderly are inappropriate.14,15 This discrepancy can be due to the lack of an advanced, up-to-date, and adequate bus fleet in Gorgan City compared to the cities studied in the above studies. Lack of attention to equipping buses with seats for the elderly and the disabled and information facilities can be due to the less willingness of citizens to use buses compared to other public

| Table 3: The frequency of the elderly point of view about communication and information indicators in Gorgan |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Agree \( n (%) \) | Relatively agree \( n (%) \) | Disagree \( n (%) \) |
| A basic, universal communications system of written and broadcast media and telephone reaches every resident. | 0 (0) | 0 (0) | 160 (100) |
| Regular and reliable distribution of information is assured by government or voluntary organizations. | 0 (0) | 19 (11.9) | 141 (88.1) |
| Regular information and programme broadcasts of interest to elderly people are offered in both regular and targeted media. | 17 (10.6) | 65 (40.6) | 78 (48.8) |
| Oral communication accessible to elderly people is preferred, for instance through public meetings, community centers, clubs, and the broadcast media, and through individuals responsible for spreading the word one-to-one. | 0 (0) | 1 (0.6) | 159 (99.4) |
| People at risk of social isolation get information from trusted individuals with whom they may interact, such as volunteer callers and visitors, home support workers, hairdressers, doormen, or caretakers. | 3 (1.9) | 55 (34.4) | 102 (63.7) |
| Print and spoken communication uses simple, familiar words in short, straightforward sentences | 0 (0) | 0 (0) | 160 (100) |
| Telephone answering services give instructions slowly and clearly and tell callers how to repeat the message at any time. | 0 (0) | 69 (43.1) | 91 (56.9) |
| Electronic equipment, such as mobile telephones, radios, televisions, and bank and ticket machines, has large buttons and big lettering | 90 (56.3) | 32 (20) | 38 (23.8) |
| There is wide public access to computers and the Internet, at no or minimal charge, in public places such as government offices, community centers and libraries | 76 (47.5) | 84 (52.5) | 0 (0) |

| Table 4: The frequency of the elderly point of view about community support and health services indicators in Gorgan |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Agree \( n (%) \) | Relatively agree \( n (%) \) | Disagree \( n (%) \) |
| An adequate range of health and community support services is offered for promoting, maintaining and restoring health. | 42 (26.3) | 96 (60) | 22 (13.8) |
| Home care services are offered that include health services, personal care and housekeeping. | 0 (0) | 82 (51.2) | 78 (48.8) |
| Health and social services are well-distributed throughout the city, are conveniently co-located, and can be reached readily by all means of transportation. | 6 (3.8) | 87 (54.4) | 67 (41.9) |
| Residential care facilities, such as retirement homes and nursing homes, are located close to services and residential areas so that residents remain integrated in the larger community | 0 (0) | 0 (0) | 160 (100) |
| Social and health care centers are adapted to safety and are fully accessible to the elderly people | 12 (7.5) | 73 (45.6) | 75 (46.9) |
| Clear and accessible information is provided about the health and social services for elderly people | 0 (0) | 35 (21.9) | 125 (78.1) |
| Administrative and service personnel treat elderly people with respect and sensitivity. | 17 (10.6) | 54 (33.8) | 89 (55.6) |
| Service professionals have appropriate skills and training to communicate with and effectively serve elderly people | 112 (70) | 45 (28.1) | 3 (1.9) |
| elderly people face minimal economic difficulties in accessing social support and health services | 0 (0) | 11 (6.9) | 149 (93.1) |
| Volunteers of all ages are encouraged and supported to assist elderly people in a wide range of health and community settings. | 1 (0.6) | 54 (33.8) | 105 (65.6) |
| There is adequate access to designated burial sites. | 3 (1.9) | 22 (13.8) | 135 (84.4) |
| Emergency planning includes elderly people, taking into account their needs and capacities in preparing for and responding to emergencies. | 89 (55.6) | 55 (34.4) | 16 (10) |
| Health and social services are well-distributed throughout the city, are conveniently co-located, and can be reached readily by all means of transportation. | 110 (68.8) | 12 (7.5) | 38 (23.8) |
Table 5: Comparison of the mean scores given to the age-friendly city indicators in Gorgan with the standard mean of the WHO

| Indicator                                      | Min-Max Score | Mean scores | Standard mean score | Mean difference | Degree of Freedom | One-sample t-test | P     |
|------------------------------------------------|---------------|-------------|---------------------|----------------|------------------|------------------|-------|
| Outdoor spaces and building                    | 18-54         | 31.58       | 36                  | -4.419         | 159              | -22.321          | <0.001|
| Transportation                                 | 25-75         | 43.82       | 50                  | -6.181         | 159              | -25.983          | <0.001|
| Communication and information                  | 11-33         | 15.46       | 22                  | -6.537         | 159              | -47.020          | <0.001|
| Community support & health services            | 13-39         | 21.81       | 26                  | -4.187         | 159              | -36.858          | <0.001|
| Total                                          | 67-201        | 112.68      | 134                 | -21.325        | 159              | -65.985          | <0.001|

vehicles such as taxis, shorter routes, and no significant difference in taxi rates and the bus.

An examination of Gorgan’s elderly viewpoint on the status of the information and communication indicator shows that there are problems such as the lack of a proper and efficient communication system and the lack of personal and face-to-face information transmission facilities for the elderly exposed to social isolation and lack of access to low-cost computers and the Internet, especially in government centers, libraries, public places, which is consistent with the results of some studies. However, contrary to the present study, Shariat and Baskha showed that it is possible to communicate with the elderly from the viewpoint of the elderly.

According to the results of this study in the social support and health services indicator, the most important problem for the elderly was related to the “absence and unavailability of care centers, nursing homes, lack of providing free health care and other social services.” In this regard, Zarghami et al. pointed out the lack of free standard care and conventional medical examinations and the lack of appointments and special services for the elderly in medical centers. However, other research has shown that the lack of standard care and home care services, the lack of appointments and special services for the elderly in medical centers, and the lack of free standard care and routine medical tests are among the most common problems of the elderly in this indicator.

**Conclusion**

Given that from the viewpoint of the elderly, the characteristics of Gorgan City in all 4 indicators were significantly lower than the standard recommended in the guidelines of the WHO, it is recommended that managers and policymakers in the field of urban planning and health service providers consider the views and opinions of the elderly in order to improve urban characteristics in their planning.

**Ethical consideration**

The present article is the part of a Master’s Thesis in the field of geriatric nursing, approved by the ethics committee of Golestan University of Medical Sciences (code: IR.GOUUMS.REC.1397.313).

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**Conflicts of interest**

There are no conflicts of interest.

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