

## Study of distribution the elderly population in Chaharmahal and Bakhtiari Province from 1966 to 2011

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### ABSTRACT

**Background and aims:** Nowadays, the age structure of Iran is transitioning from youth to elderly. Although, the elderly population are still accounted for a small portion of the population; however, the population growth rate of this age group is growing compared to the growth of the total population. Therefore, understanding of the changes of this population is necessary. This study aimed to identify the distribution of population aged 60 years and more, in Chaharmahal and Bakhtiari Province from 1966 to 2011.

**Methods:** The data obtained from the national censuses from 1966 to 2011 as well as the national Statistical Center and Governor's Office of Chaharmahal and Bakhtiari Province. Due to incomplete data of 1956, these data were excluded.

**Results:** In 1966, 6.34% of the national total population was over 60 years compared to 6.27% in Chaharmahal and Bakhtiari Province. In 2011, 7.68% of population in this province was over 60 years in comparison with 8.21% reported for the total population of Iran.

**Conclusion:** Due to rapid growth of the elderly population in the country as well as Chaharmahal and Bakhtiari province, considering the needs of this age group is an important necessity.

**Keywords:** Ageing, Population structure, Chaharmahal and Bakhtiari Province.

### INTRODUCTION

In 21<sup>st</sup> century, the fact of population ageing has been apparent as a global issue more than ever.<sup>1</sup> The recent advances in population's health by activities such as controlling infectious diseases, improving nutrition and the environment, have increased the life expectancy and then the mean age which in turn has transformed the challenges of the 20<sup>th</sup> century from only being alive to higher quality of life in the present century.<sup>2,3</sup> By definition, the population would be considered as an old population if either more

than 12% of the total population have the age 60 years or more<sup>4</sup> or more than 10% of the population have the age of 65 or older.<sup>5,6</sup> Accordingly, United Nations (UN) has divided the countries into three structural types, namely young, adult and old, regarding the old population in the countries; i.e., young countries are the ones with their old population rate under 4%; the countries having the adult population are the counties with 4-6% of old people, and the countries with old populations are the countries which

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their old people percent is more than 7%.<sup>7</sup> The most important factors affecting on the increasing of the old population percentage could be reducing mortality rates especially among infants and children, reducing reproduction rates followed by reducing the population growth which has caused prominent changes in the age structure of the populations worldwide.<sup>8</sup>

It is estimated that the population aged 60 years and more to be about 605 million people worldwide, which is predicted to be increased by 2 billion people until the year 2050.<sup>9</sup> Nowadays, the speed of old-age population growth in developing countries is higher than the developed countries.<sup>10</sup> In fact, more than half (59%) of the world old population live in developing countries, and it is estimated that this rate will increase up to 71% in the year 2030.<sup>11</sup> The population of the people aged 65 years and more was about 5.9% in Asia in 2000, but it is estimated this rate to be increased up to 7.8% in 2015 and 12% by 2030; similarly, about 14.7% of the population in Europe had 65 years or more in 2000 with estimation of increase to 17.6% in 2015 and 23.5% by 2030.<sup>12</sup> According to the population estimations of UN for seven developed countries, it is expected that the 65 years old population of these countries to be increased from 15% to 27% in the next 50 years.<sup>13</sup> Furthermore, regarding the importance of the old people health, World Health Organization (WHO) announced the year 2012 as the year of health and old age. WHO has considered 8 main points for the subject of old age: Demographic change and population ageing, old people-loving cities, old age and prevention from old people abuse, prevention of falling among old aged population, providing standard services to the aged people, teaching aged people medical issues to medical students, the aged people and disasters and AIDS in old Africans.<sup>14</sup>

Population indicators showed that the ageing trend is also started in Iran.<sup>8</sup> According

to national census in 1996, about 4.32% of the total 60 million population of the country belonged to the people with 65 years of age or more while this age group percentage was reported more than 2.6 million people in 1999.<sup>15</sup> Nowadays, there are about 4.5 million aged people (over 60 years of age) living in Iran<sup>16</sup> which is predicted that the national population's mean age to be increased by 10 years up to 2026<sup>8</sup> and this rate will be about 22% of the national population in 2056.<sup>16</sup> Moreover, since about 60% of health-care costs, 47% of hospitalized days and 35% of hospital releases are belong to the aged people, thus, their health and welfare are being more important considering the rapid increase in the old people population.<sup>17</sup>

Chaharmahal and Bakhtiari Province is located in the west of Iran which has Mediterranean climate with cold and humid winters, moderate summer times and two moderate seasons of spring and autumn. According to the national map in 2012, this province has 9 counties, 24 districts, 36 towns and 49 villages.<sup>18</sup>

Regarding the rapid growth of the aged people in the country and foreseeing the increase of the old people population (60 years of age and over) in the near future, the planning for controlling the problems of this age group seems to be essential.<sup>8</sup> The aim of the present study was to identify the growing trend in the 60 years and more aged population in Chaharmahal and Bakhtiari Province from 1966 to 2011 which could help to obtain basic data to plan by policy makers as well as providing better health services in this province.

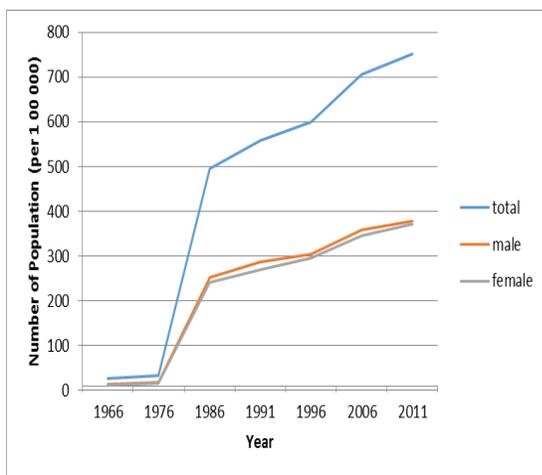
## METHODS

The data obtained from 1966 to 2011 national census records collected by Iran Census Organization.<sup>19</sup> Moreover, additional data were obtained from General Governor's Office of Chahr

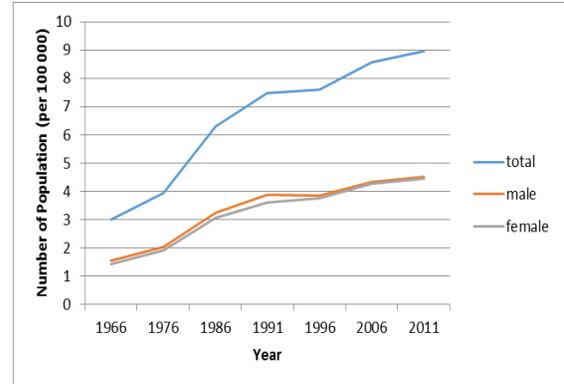
Mahal and Bakhtiari Province as well as the census annual reports.<sup>18</sup> Since the age of 60 is the indicative of old age and retirement in most communities, thus the people of over 60 years of age were considered as the old population, although, the age of 65 is also considered as the separating border in many programs.<sup>20</sup> In this study, the age of 60 years were considered as the aged population and hence, the transformation trends in the 60 year-old population (or older) were analyzed. After collecting the data and categorizing it, the related population records to 1956 were excluded from the study, due to being imperfect. Excel software was used for drawing the graphs.

## RESULTS

Chaharmahal and Bakhtiari Province had 895263 people according to the 2011 census, which is about 1.19% of the total national population. Figures 1 and 2 show the sex distribution of Iran and Chaharmahal and Bakhtiari Province from 1966 to 2011.



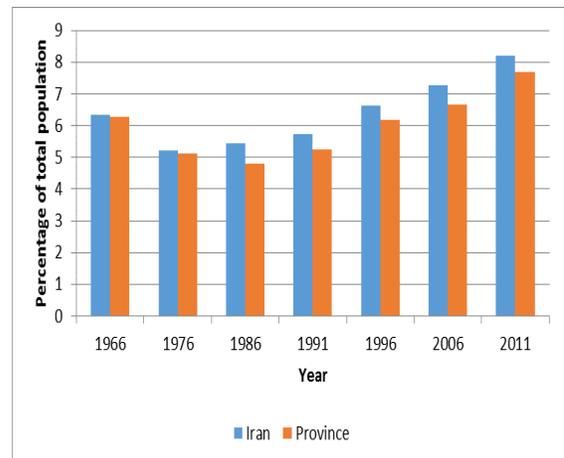
**Figure 1:** Sex distribution of Iran from 1966 to 2011



**Figure 2:** Sex distribution of the Chaharmahal and Bakhtiari Province from 1966 to 2011

According to the results, the number of 60 year old population and older in 2011 was 68633 people in this province; i.e., 7.68% of the province population. Table 1 shows the rate of 60 year old people and older ones in the province and in Iran, with regards to the gender.

Comparing the trend of population ageing between Iran and Chaharmahal and Bakhtiari province, it can be seen that the increasing trends of the elderly population in the province is similar to that of the country (Figure 3).



**Figure 3:** Comparison of the 60 years and more aged population trend in the province and Iran

**Table 1:** Percentage of 60 years and more aged population, in Chaharmahal and Bakhtiari Province

		Year	1966	1976	1986	1991	1996	2006	2011
Iran	Man		3.27	2.69	2.87	2.2	3.56	3.66	4.02
	Woman		3.06	2.55	2.55	2.51	2.93	3.49	4.17
	Total		6.34	5.21	5.43	5.72	6.62	7.26	8.21
Province	Man		3.25	2.63	2.65	3.03	3.42	3.48	3.77
	Woman		3.01	2.4	2.15	2.21	2.75	3.19	3.89
	Total		6.27	5.13	4.81	5.24	6.18	6.67	7.68

## DISCUSSION

The findings of this research showed that the elderly population of Chaharmahal and Bakhtiari Province is growing over the time. In fact, the 60 year or older population were 6.27% of the total province population in 1966, but 7.68% in 2011. This trend is similar to the increasing percentage of this age group at national level (from 6.24% in 1996 to about 8.21% in 2011).<sup>19</sup> Since Iran is now facing a population transition and changing of the population structure from young age to old age, Chaharmahal and Bakhtiari Province is not an exception in this regard; in fact, its increasing rate of elderly people is quite close to the increasing rate of Iran.

The elderly population is also growing across the world. The 65 year old population or older was 4.1% in Asia (1975) which increased to 6.4% in 2005 with estimation of increase in 2025 up to 10.1 of the whole Asian population.<sup>21</sup> In addition, the population of over 60 years old was about 31%, 27%, 25%, 25%, 25%, 24% and 26% of the total population in Japan, Italy, Sweden, Greece, Finland, Belgium and Germany in 2011, respectively.<sup>22</sup> The elderly population (65 years of age and more) was 16.6%, 4.9%, 6.6%, 6.9%, 12.9%, 20.4% and 8.2% of the national population in the U.S.A, India, Mexico,

Brazil, Russia, Italy and China in 2010, respectively.<sup>23</sup>

Due to substantial developments in science and technology for controlling and prevention of diseases, improving lifestyles and reducing social inequalities in health through promoting of health services, the life expectancy criteria has increased which could be considered as the main reasons for aging of the population worldwide; however, the most important reason of population ageing could be considered as reducing the childbirth rate.<sup>2,24,25</sup>

Similarly, the population ageing in Iran could be due to various reasons such as reducing mortality rates, improving medical facilities, promotion of health care, education and increasing life expectancy. In fact, elderly is a stage in life with a biological process which would neither stop nor reverse, and could well go on with the least effects on the individuals and their relatives, if adequate readiness exists for it by the person himself/herself, the community and the government.<sup>20,24,26</sup> Since the old people are considered as consuming rather than producing, and somewhat are dependent on the young and occupied people, population growth and old age would have inappropriate economic and social effects on the community production.<sup>26</sup> Indeed, the elderly is exposed to

have various potential threats in their old age, such as physical and mental disabilities, loneliness, lack of having social supports and increasing chronic and non-communicable diseases.<sup>27-30</sup> On the other hand, the cost of health care and prevention from such diseases is high, and the old people may be required to have new medical technologies which may impose extensive costs on governments to support and care for the elderly people.<sup>22</sup> Moreover, the active workforce may be reduced by the population becoming old, leading to considerable retirement wages which could result in reducing economic growth in the country.<sup>21,27</sup>

As a conclusion, regarding the rapid growth of the elderly population in Iran as well as Chaharmahal and Bakhtiari Province, it is proposed to have more extensive studies about precise evaluation of the requirements and problems of this age group, in order to be able to confront properly with this population, to increase the living quality of old people. The rapid growth of the elderly population and the effects of old age on socioeconomic conditions have resulted in that old age to be considered as a social problem in most communities. Therefore, it is essential for the governments, communities and families to be informed about the potential problems and controlling of the problems related to old age. It is also necessary to act in order to promote the quality of life of this age group.

## CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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