

AGING POPULATION TREND IN THE STATE OF PERAK, MALAYSIA

MARZUKI, A. A.¹ – NOR, N. N. F. M.^{1*} – RASHID, S. M. R. A.¹

¹ *School of Distance Education, Universiti Sains Malaysia, Penang, Malaysia.*

**Corresponding author
e-mail: nikfitri[at]usm.my*

(Received 27th May 2021; accepted 08th July 2021)

Abstract. Malaysia will be one of the old countries by 2030. Aging population occurs when the percentage of the elderly population exceeds the percentage of the young population in an area, state or country. In Malaysia, 6.73 percent of Malaysia's population is comprised of people who are mostly in the age of 65 years and above. However, the year 2020 has shown that the state of Perak has become an old state. The percentage contribution from the population aged 65 years and above is higher in Perak, than Malaysia, with the percentage of 11.9 percent of elderly population in 2020. The main objective in this writing is to analyze the aging trends of the population in Perak and to examine the issues and effects of aging population. This study has used secondary data collection methods, namely data from the Department of Statistics Malaysia (JPM), United Nations and other related articles. Perak has become the third elderly state, after Johor and Selangor in 2020. However, due to this escalation, several issues have arisen such as the needs for financial resources to accommodate the elderly, rising health costs of the elderly and labor shortages. Thus, this situation will cause some serious effects on the national economy and also directly on the individuals.

Keywords: *senior citizen, trend, aging, Perak, Malaysia*

Introduction

Aging population is an increase in senior citizens aged 60 years and above. A country is called as an “old country” when the population aged 60 years and above has a total of 15 percent of the total population. Meanwhile, simultaneously, the median age of the population in the country increased to the age of 30-years-old. This situation is a global symptom that has happened and will happen to all countries, but at different rates. For example, countries like America, European countries, Asian countries like China, Korea and Singapore have currently become an “old country”. However, Malaysia is still at the stage of a “young country” and in 2030, Malaysia will turn into an “old country” (United Nations, 2019).

Globally, there will be a total of 703 million people aged 65 and above in 2019. All countries will experience an increase in the number of older populations in 2019 to 2050. According to United Nations (2019), that in the next three decades, the number of elderly populations around the world is expected to increase in more than twice of the current number to reach over 1.5 billion people by 2050. In addition, the number of people around the world who are 80 years old and above will increase faster than the 60 years old and above. All regions of the world will show an increase in the number of elderly population between 2019 and 2050. The largest growth will occur in East and Southeast Asia, which is an increase from 261 million in 2019 to 573 million in 2050. The fastest growth of the elderly will occur in North Africa and West Asia, from 29 million in 2019 to 96 million in 2050. The second fastest increase is expected in Sub-Saharan Africa, from 32 million people in 2019 to be increased to 101 million people by 2050 in the age group of 65 years and above (United Nations, 2019). Based on the

projections released by the United Nations (2019), shows that the population aged 80 years and above, will increase almost threefold between 2019 to 2050, which is a rise from 143 million people to 426 million people.

However, the East and Southeast Asia region is the region with the most elderly population in 2019 at 261 million people. The largest increase is expected to occur in East and Southeast Asia which is in 2019, 261 million elderly people will increase to 573 million elderly people in 2050. By 2050, more than half of the population aged 80 years and above is comprised of population in East and Southeast Asia of 177 million people. For the period 2019 to 2050, nine of the 10 countries with the largest projected total percentage increases for the elderly population were found in East and Southeast Asia. The largest increase is forecast to take place in the Republic of Korea at 23 percent, followed by Singapore at 21 percent and China at 20 percent.

Furthermore, Malaysia, which is a developing country, will also experience an increase in its elderly population and will become an older country faster than other developed countries. Next, the elderly population in Malaysia will increase by 7 percent to 14 percent in just 28 years, and this is different from Sweden which takes 112 years to experience the same changes as Malaysia (United Nations, 2019). Malaysia is almost an old country because the total population aged 60 and above in 2017 amounted to 3 million people, which is equivalent to 9.3 percent. According to the UN, by 2030, Malaysia will be an old country when 15 percent of its total population consists of people aged 60 and above.

In Malaysia, 6.73% of Malaysia's population is aged 65 and above and for the state of Perak, the percentage contribution of the population aged 65 and above is higher than Malaysia with the percentage of 11.01% in 2020 (Department of Statistics Malaysia, 2020).

Literature review

Southeast Asia has 11 countries and all of them have undergone population changes since the 1960s. Population change in Southeast Asia is occurring at a rapid rate from the baby boom to the elderly boom (Ananta and Arifin, 2009). By 2050, countries in Southeast Asia will experience the problem of aging population except Laos and Cambodia only (United Nations, 2019). Malaysia as a developing country in Southeast Asia is also experiencing an increase in aging population. According to the WHO (2015), in Malaysia in 2010 there were a total of 7.2 million people which is 8.3 percent of the population in the age group of 60 years and above will increase to a total of 7.9 million people which is 20.8 percent of the total elderly population in 2050.

According to the WHO (2015), this increase in the elderly population is due to a drastic decline in fertility rates especially for ethnic Chinese. Another factor in the decline in fertility rates is because many women prefer to postpone marriage or get married at a late age because they focus on building a career, this situation will cause them to be less fertile because according to studies women's fertility levels only reach the age of 40 years only (Mohamed and Rostam, 2012). This decline in fertility rates has resulted in the fertility rate in Malaysia being at a low level of 1.8 children per reproductive woman. In addition, according to Lee et.al (2018) increase in population in Malaysia due to declining infant and child mortality, better nutritional system, better education, better medical care, use of family planning and increased personal life expectancy. The increase in the number of senior citizens is also a result of the active development of the socio-economic field, namely the increase in the level of education,

the improvement of health standards and the expansion of women's participation in the workforce (Waldron, 2007).

Next, according to Ismail et al. (2017), changes socio-economic development, higher education levels and participation of women in labor is the cause of the postponement of marriage, and found that the age of first marriage of Chinese in Malaysia were higher than the Malays and Indians. The level of education is an important factor, which is the starting point of women's participation in employment and the number of children they have. According to the study of Alavi et al. (2015), a woman's age at marriage is an important factor influencing fertility rates and number of births, because the slower a woman gets married, the lower her fertility rate. The declining fertility rate in Malaysia is affecting the family institution. It is due to the practice of postponing marriage, reducing mortality and increasing individual life expectancy.

Finally, according to data from the Prime Minister Department (2014), the total elderly population aged 60 and over shows that from 1970 to 2010, the percentage of female seniors continued to increase higher than the percentage of male seniors. A study by Khoo et al. (2008) showed that a study on the health status of men and women in the Klang Valley showed that most of the 351 men diagnosed (over the age of 50) had an unhealthy lifestyle, i.e. 41.9% of smokers and 43.3% of alcoholics, 57.3% of people who lack exercise and 78.7% of people who are obese. The study also found that many men suffer from health conditions such as high blood pressure, diabetes, heart disease, prostate and hearing loss. Although many suffer from health problems, only 38.4% of those who make a health check. This in turn proves that older women live longer than older men. In 2009, there were 66 million women older than men (United Nations, 2019). According to a study by Ngah and Lian (2017), there are more female parents than male parents, which lead to gender imbalance and imbalance in raising and caring for the elderly.

Materials and Methods

The discussion of the data is focused on the state of Perak which has been declared as an old state in 2020. The state of Perak is located in the northwest of Peninsular Malaysia. It is believed that Perak is a place of cultural relics found in Kota Tampan and "Perak Man", and it is one of the historical places where humans settled earlier. According to history, the name "Perak" is used in accordance with the greatness, excellence and fragrance of the role and responsibilities of Bendahara Tun Perak in Melaka. Also, there is a view that it is taken from the "luster of fish in the water" that sparkles like silver. According to Harun (2011), the coronation of Sultan Muzaffar Syah 1 as the first Sultan of Perak to rule from 1528 to 1549 was the beginning of history in Perak. Sultan Mahmud Shah, the last Sultan of Melaka was the father of Sultan Muzaffar Syah 1. The state of Perak was once very well known for its wealth of tin ore. Long Jaafar is a very important individual in the history of tin ore in the state of Perak. He was the first individual to discover tin ore and work on it in 1848.

Next, in 2020, the estimated population density of Perak is 120 people per square kilometer. The land area of Perak is 20,976 square kilometers, while 6.4 percent of the area of Perak is the total area of Malaysia and Perak is the second largest state in Peninsular Malaysia after Pahang (Department of Statistics Malaysia, 2020). In terms of geography, Perak has a similar climate with Malaysia which is hot and humid throughout the year, while the average temperature for the state of Perak is 23.6 °C to

33.9 °C. The average rainfall showed the lowest average was 152 days which is equivalent to 1,569.6 millimeters to the highest average which is 222 days equivalent to 3,299.9 millimeters, while the average for the humidity for the state of Perak is 75.7 percent to 85 percent. Perak has the highest humidity rate in Malaysia with a rate of 8080 millimeters per year in Bukit Larut, Taiping. The forest area in Perak is 10,713 square kilometers which is half of the area of Perak and it is covered by equatorial rainforest which is 95.6 percent and the rest is mangrove swamp forest which is 4. Finally, for the administrative area, Ipoh is the state capital of Perak and there are 12 districts under the administration of Perak, which consists of Kerian, Larut Matang and Selama, Hulu Perak, Batang Padang, Kinta, Central Perak, Lower Perak, Manjung, Kampar, Kuala Kangsar, Muallim and Bagan Datuk (Department of Statistics Malaysia, 2020).

The method used in the discussion of this writing is by using secondary data. This data is taken or obtained indirectly from raw data sources using intermediary facilities such as print media and electronic media. According to Marican (2006), these secondary data are obtained through authentic sources such as in written form and in appreciation as well as listening. This secondary data is easy to obtain data because it saves time, cost and energy in obtaining information. These data also consist of materials that are easily obtained from print media and mass media such as, journals, newspapers, circular reports, articles, internet and many more. For this study, the data were obtained all through internet access and from authentic and accurate sources. The entire data of this study, the researcher has obtained from the Department of Statistics Malaysia (JPM). These data consist of Perak State Population 2020, Malaysia Social Statistics Bulletin 2020, Malaysia Population Statistics 2019-2020, Population Statistics by State 2019-2020, Malaysia and State Short Life Schedule 2018-2020, Migration and Population Distribution 2010, and Distribution Population by Mukim Area in Malaysia 2000 and 2010. In addition, the researcher also referred to articles, journals and reports from the internet to support the discussion of the secondary data.

Results and Discussion

Aging population trends in Perak

Malaysia is going through a process of aging population, in fact, in Malaysia there is already a state that will be an old state in 2020, namely the state of Perak. Many indicators can be used to show that the state of Perak has experienced a process of aging population. Based on *Table 1*, Perak is the third oldest state with the highest percentage of senior citizens with 10.7 percent of the total senior citizen population in Malaysia. *Table 1* also shows that the number of senior citizens in Perak is 400.3 (000) or 15.3 percent of the total population in Perak. Based on the age group in the table shows that senior citizens aged between 60 to 64 years have a large number of 125.5 (000), while between the age of 65 to 69 years, the number of senior citizens is 102.3 (000). Furthermore, at the age level of 70 to 74 years, the number of senior citizens is 79.3 (000), the level of 75 to 79 years old, the number is 46.9 (000) and at the level of 80 years and above the number is 46.3 (000). Based on these numbers, it can be seen that the higher the age or the increasing the age, the population becomes less and less. This is because if the age of the elderly increases, then the risk they face is higher (Rajikal, 2020).

Table 1. Number ('000') senior citizens in Malaysia by age in 2020.

State	Total population	Age group					Number of senior citizens (N)	Percentage of senior citizens (%)
		60-64	65-69	70-74	75-79	>80		
Johor	3926.5	160.6	112.4	81.7	48.8	49.3	452.8	12.0
Kedah	2267.5	97.6	76.2	53.3	30.7	31.4	289.2	7.7
Kelantan	1959.7	70.3	51.1	37.8	21.2	17.6	198.0	5.3
Melaka	960.5	41.3	33.1	26.1	16.0	17.0	133.5	3.6
N. Sembilan	1162.6	51.9	39.7	26.7	15.1	14.3	147.7	3.9
Pahang	12750.1	68.7	51.7	39.6	21.4	18.9	200.3	5.3
Penang	1806.5	84.1	67.4	53.2	32.0	32.0	268.7	7.2
Perak	2611.6	125.5	102.3	79.3	46.9	46.3	400.3	10.7
Perlis	264.7	11.5	9.2	6.6	3.9	3.4	34.6	0.9
Selangor	6715.6	233.7	161.4	119.4	60.8	59.7	635.0	16.9
Terengganu	1294.1	46.1	33.0	23.1	14.6	12.7	129.5	3.5
Sabah	4047.0	116.5	71.9	43.5	30.6	26.7	289.2	7.7
Sarawak	2907.5	112.8	87.7	62.3	40.9	36.1	339.8	9.1
WP KL	1910.7	79.6	57.9	39.7	22.0	18.3	217.5	5.8
WP Labuan	103.1	3.4	2.2	1.3	0.7	0.6	8.2	0.2
WP Putrajaya	94.6	2.6	1.1	0.3	0.1	0.1	4.2	0.1
Malaysia	33782.4	1306.3	958.4	694.0	405.9	384.4	3749.0	100%

Source: Department of Statistic Malaysia (2020).

Moreover, based on *Table 2*, it shows that in 2010, the population aged 65 years and above is at 7.7 percent. However, this percentage experienced a rapid increase in the next five years to the year of 2014 of 8.9 percent. In 2015, the percentage continued to increase to 9.2 percent and continued to rise to 11.0 percent in 2020. This situation occurred due to the declining death rate due to health status in Perak. According to the Department of Statistics Malaysia (2020), in the state of Perak alone there are 16 government hospitals, 231 rural clinics, 24 1 Malaysia clinics, 94 health clinics and 5 dental clinics. Furthermore, based on *Table 2*, it shows that at the population aged between 0 to 14 years has been decreasing in birth rate in the state of Perak. In 2010, the percentage of the population aged between 0 to 14 years was 27.1 percent and it decreased to 24.2 percent in 2014. This decrease continued in 2015 which is 23.5 percent and until 2020 it decreased to 20.7. This decrease is due to the existence of family planning practices which are intended to help families spacing the birth in order to ensure the safety of the mothers and babies born. In addition, there are also individuals who practice the concept of late marriage. This concept is often practiced by the younger population especially women who are highly committed in their careers. This situation has affected the population as the older the woman gets, the lower their fertility rate because according to Wallace and Kelsey (2010), women at the age of 30 will have a 75 percent chance of getting pregnant in a year and in their 40s there are only 44 percent chance for them to get pregnant in a year. This has led to a decrease in the birth rate in the state of Perak from 2010 to 2020.

Table 2. Population growth in Perak.

Population age structure (%)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0-14 years old	27.1	26.4	25.7	24.9	24.2	23.5	22.8	22.2	21.7	21.1	20.7
15-64 years old	65.2	65.7	66.1	66.6	66.9	67.3	67.9	67.9	68.1	68.3	68.3
≥ 65 years old	7.7	7.9	8.2	8.5	8.9	9.2	9.6	9.9	10.2	10.6	11.0

Source: Department of Statistics Malaysia (2020).

However, the population aged between 15 to 64 years showed an increase. In 2010 the population aged between 15 to 64 was 65.2 percent and until 2014, it was 66.9 percent, while in 2020 it continued to rise to 68.3 percent. Therefore, in a period of 10 years it shows an increase of 3.1 percent. This situation will lead to an increase in the elderly population in the next 10 years, where the population aged 50 years and above now will mostly increase in age to senior citizen status in the next 10 years. Based on this, the elderly population in Perak will experience aging in line with the aging process that occurs in Malaysia and around the world now.

In addition, the increase in senior citizens in Perak has shown that Kinta District has a high number of senior citizens compared to other districts in Perak which is 90,771 (*Table 3*). Based on *Table 3*, the number of senior citizens in Perak in 2010 was 1,708,658 people and of the total, 38.1 percent or 90,771 people were senior citizens living in Kinta district. The age group of senior citizens in Kinta district in 2010 showed that at the age of 60 to 64 years, the number of senior citizens was 32,516 people and at the age of 65 to 69 years were 22,020 people. Next, the age group of 70 to 74 years has a total of 17,239 citizens and 75-years-old and above has a total of 18,996 citizens. This situation shows that the majority of Kinta district residents are the elderly and this is because apart from good health and high life expectancy, it is also because the district is a focus area for many residents because it is the main administrative area for Perak. The area of Kinta district became densely populated due to historical factors that in the early 19th century, this area was shocked by the discovery of tin and subsequently the area became a focus for tin mining activities in the early 19th century which attracted many residents to move to the Kinta Valley, to get involved in the tin industry and until today, Kinta District still has a bigger population compared to the other districts.

Table 3. Number of senior citizens in Perak by district in 2010.

Administrative district	Total population	Total population of residents gold	Age group (years)				Percentage of senior citizens
			60-64	65-69	70-74	≥75	
Batang Padang	75292	14143	4423	3255	2779	3686	4.4
Manjung	211113	19522	7042	4567	3874	4039	12.4
Kinta	657892	90771	32516	22020	17239	18996	38.1
Kerian	120192	13223	5352	2970	2323	2578	7.03
Kuala Kangsar	108504	15605	4761	3465	3575	3804	6.4
Larut and Matang	245015	32763	11520	7751	6379	7113	14.3
Hulu Perak	128143	16486	5947	3693	3168	3678	7.5
Ulu Perak	13378	171165	2206	5282	4545	5132	0.8
Perak Tengah	58816	5623	1566	1202	1446	1409	3.4
Kampar	90313	13134	4316	3046	2821	2951	5.3
Total	1708658	238435	79649	57251	48149	53386	100%

Source: Department of Statistics Malaysia (2020).

Issues and effects of population aging

The increase in the elderly population indicates that there is an increase in the life expectancy of the elderly in the state of Perak. This is due to advances in science and technology, rising standards of education, declining birth rates, improved living standards, health care awareness and declining fertility. Therefore, there are several issues that need to be faced by individuals will have a serious impact on the country and the state.

The main problem with the aging of the population or the increase in the elderly population is the high financial need for the individual (Mayan et al., 2017). This is a

very serious problem for the state of Perak, especially in the Kinta district because in 2010 the number of senior citizens in the district was 38.1 percent and now it is estimated that in the district, half of the population is senior citizens. Generally, everyone is aware that these seniors have weak physical strength and are no longer able to do work, especially those that involve physical strength. If the elderly do not have financial resources in terms of savings or pensions, it is difficult for them to support their own daily lives, then the responsibility of these senior citizens falls on their children or family members who are still able to help them. However, if it gives a burden to children or other family members, then this will apply for assistance to the government to help ease the burden of their dependents. According to Mayan et al. (2017), following this matter, the government had to take an action to increase state government revenue by collecting more taxes from the people aimed at helping the elderly because half of the district consists of senior citizens who cannot provide financial resources to the government. Moreover, according to Armugam and Vellymalay (2017), half of the elderly population in Perak live alone without family members. On average those who are living alone are those who have had the absence of a husband or wife and most of them had no formal education. Only a quarter of the population lives with their family members. This situation has affected the government to bear the social expenses of those who need high financial costs. In addition, the government also had to formulate new policies and programs that are suitable to accommodate the elderly. The increase in the elderly population has also led the government to provide facilities such as welfare homes to ensure their well-being. This has led to an increase in government expenses (Mayan et al., 2017).

Furthermore, in terms of health, there have been physical and psychological changes due to the increasing age of the elderly population. Elderly people at the age of 60 years and above will experience physical changes that involve changes in terms of external and internal, namely the skin is getting loose, poor hearing rate and vision is less clear (Ishak and Sujak, 2019). The elderly also experience slow action, constipation, weakening of the heart and fatigue due to the condition of their lungs that cannot function properly and will cause them to be unable to do strenuous activities (Osman and Ismail, 2018). This will make it easier for the senior citizens to be affected by many high risked health issues. This will lead to an increase in treatment and health care assistance for the elderly because as they age then their health levels will decrease and require regular medical treatment such as seeing a doctor, surgery, physical therapy and medication. According to Osman and Ismail (2018), the elderly also tend to get chronic diseases that surely require careful treatment and care such as diabetes, heart problems, kidney problems, high blood pressure and so on. As a result, there will be an increasing demand for treatment costs, care costs and medical costs for the elderly. Therefore, the government needs to spend more to provide health care and at the same time meet the needs of other residents on surgery, physical therapy and medications.

Finally, this aging process has led to the shortage of labor. This situation occurs because the elderly do not have the physical strength to work, even the high number of elderly citizens also causes resources for labor is also reduced because if an area has more elderly people than young or adults, so the source for the labor force also experiences reduction (Department of Statistics Malaysia, 2020). This causes a shortage of taxpayers and will cause pressure on the government to develop the state's economy.

Conclusion

In conclusion, this study as a whole shows that the increase in the elderly population in the state of Perak has caused Perak to become an older state in 2020 compared to other states with more rapid population. Kinta district is the district with the most elderly population in 2010 and it is estimated that by 2020 the elderly population in Kinta district will be higher. This situation occurs due to the increase in advances in science and technology which has led to an increase in health standards. Apart from that, the low birth rate due to family planning activities and late marriage also contributed to the increase in the elderly population in Perak as most residents now focus more on their career development. However, the growth in the elderly population has created a number of issues that will affect the development of the state or country. Among the issues that exist are the problem of financial resources to accommodate the increase in the population, rising health costs and the reduction of manpower resources that will affect the country's source of income. This increase in the elderly population not only affects the economic growth of the country, but it also affects the individuals. Therefore, the findings of this study suggests that those who are responsible need to examine and plan to create measures to accommodate the increase in the elderly population incoming and also be able to address the ongoing issues. In addition, it is hoped that with this study, the government will be able to formulate policies and new plannings to design any programmes that will enhance the well-being of the senior and other age group population.

Acknowledgement

The author would like to thank Ministry of Higher Education and Universiti Sains Malaysia for funding this project through Fundamental Research Grant Scheme (FRGS) (304/PJJAUH/6711877).

Conflict of interest

There is no conflict of interest with any parties involved with this study.

REFERENCES

- [1] Alavi, K., Subhi, N., Mohamad, M.S., Ibrahim, F., Sarnon, N., Nen, S. (2015): Peranan Kesejahteraan Keluarga dan Daya Tahan dalam Penguatan Keluarga Sandwich (The Role of Family Wellbeing and Resilience in Strengthening Sandwich Families). – *Akademika* 85(1): 25-32.
- [2] Ananta, A., Arifin, E.N. (2009): Older Persons in Southeast Asia: From Liability to Asset. – In *Older Persons in Southeast Asia*, ISEAS Publishing 43p.
- [3] Armugam, T.C., Vellymalay, S.K.N. (2017): DORONGAN PENEMPATAN DAN KESELESAAN DIRI WARGA TUA DI RUMAH SERI KENANGAN (RSK), TAIPING, PERAK. – *e-BANGI* 12(1): 90-110.
- [4] Department of Statistic Malaysia (2020): Population of the state of Perak. – Department of Statistics Malaysia Official Portal. Available on: https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=RTRycHhPcisweHpMdlVwKzhMY25XUT09

- [5] Harun, J. (2011): Asal-usul Raja, negeri dan adat istiadat Kesultanan Perak: Beberapa variasi dalam pengekalan dan penyimpangan sumber tradisi. – *International Journal of the Malay World and Civilisation* 29(1): 3-35.
- [6] Ismail, N.S.A., Abdullah, N., Hassan, K., Samsudin, S., Zakuan, U.A.A., Yusof, R., Zaki, N.M. (2017): Kesejahteraan hidup warga emas: Perancangan berasaskan gender (Well-being among the elderly: Gender-based planning). – *Geografia-Malaysian Journal of Society and Space* 13(3): 75-85.
- [7] Ishak, M.H., Sujak, N.A. (2019): Key Performance Indicators of Spaces That Affect Occupational Health in Malaysian Adult Care Centers. – *Journal of Tropical Facilities Management* 1(1): 8-15.
- [8] Khoo, E.M., Tan, H.M., Low, W.Y. (2008): Erectile dysfunction and comorbidities in aging men: An urban cross-sectional study in Malaysia. – *The Journal of Sexual Medicine* 5(12): 2925-2934.
- [9] Marican, S. (2006): Kaedah penyelidikan sains sosial. – Prentice Hall/Pearson Malaysia 279p.
- [10] Mayan, S.N.A., Nor, R.B.M., Samat, N. (2017): Challenges to the Household Income Class B40 increase in Developed Country Towards 2020 Case Study: Penang. – *International Journal of Environment, Society and Space* 5(2): 35-41.
- [11] Mohamed, A., Rostam, K. (2012): The Malay elderly at the fringe of metropolitan region, Selangor: experience and perception of self. – *Geografia: Malaysian Journal of Society and Space* 8: 1-14.
- [12] Ngah, F.H., Lian, D. K.C. (2017): Kualiti Hidup dan Aktiviti Fizikal Warga Emas (Quality of Life and Physical Activity in Elderly). – *Geografia-Malaysian Journal of Society and Space* 13(2): 44-53.
- [13] Osman, U.A.N., Ismail, R. (2018): The Factors Influencing the Level of Well-being among Elderly in Selangor. – *Management Research Journal* 7(1): 146-156.
- [14] Prime Minister Department (2014): Tenth Malaysia Plan (10th MP). – Economic Planning Unit Official Portal, Prime Minister Department. Available on: <https://www.epu.gov.my/en/economic-developments/development-plans/rmk/tenth-malaysia-plan-10th-mp>
- [15] United Nations (2019): World Population Ageing 2019. – Department of Economic and Social Affairs, United Nations 46p.
- [16] Wallace, W.H.B., Kelsey, T.W. (2010): Human ovarian reserve from conception to the menopause. – *PloS One* 5(1): 9p.
- [17] Waldron, H. (2007): Trends in mortality differentials and life expectancy for male social security-covered workers, by socioeconomic status. *Social Security Bulletin* 67(3): 28p.
- [18] Rajikal, W. (2020): Sumbangan social warga emas terhadap komuniti setempat pasca persaraan. – *Universiti Kebangsaan Malaysia* 13p.
- [19] World Health Organization (WHO) (2015): World Report on Ageing and Health. – World Health Organization 260p.