

Article

# A Systematic Review on The Insurability Risk for Long-Term Care Insurance in Europe and Asia Countries

Nurin Amni Arshad<sup>1, a</sup>, Mazlynda Md Yusuf<sup>1, b</sup>

<sup>1</sup>Faculty of Science & Technology, Universiti Sains Islam Malaysia (USIM),  
Bandar Baru Nilai, 71800, Malaysia

E-mail: <sup>a</sup>nurinamni@raudah.usim.edu.my, <sup>b</sup>mazlynda@usim.edu.my

---

**Abstract**— Due to the trends of the increase in life expectancies and decrement in fertility rates, the world population is moving towards becoming an ageing nation. With the rise in the number of older people, the demand for long-term care services is expected to increase. Long-term care services are ubiquitous in the developed country, especially in the European region as the countries have become the aged nations. Apart from that, the cost for long-term care services differs for individuals based on the level of needs and the service provider, either public or private nursing home for long-term care. Due to the growing cost of long-term care services, a long-term care insurance policy may be seen as an alternative to covering the cost of long-term care services because the risk is mitigated for individuals. However, most Asian countries are not familiar with the long-term care insurance policy as there is no specific insurance policy for long-term care services offered yet in these countries. The essential factor in constructing a long-term care insurance policy is to identify the risks that are insurable to be included in the policy to be used later for pricing long-term care insurance policy in Malaysia. This study provides an in-depth review and understanding of the insurable risks associated with long term care insurance in the European and Asian countries.

**Keywords**— long-term care; insurance; risk factors; insurable risks

---

## I. INTRODUCTION

The development in the health technology sector has led to an increase in the life expectancy of society. People are expected to live longer, and this life expectancy is different within countries. Roser et al. [1] stated that the world life expectancy ranged from an average of 29 to 73 years globally in 2019. Moreover, the author also reported that in America, life expectancy is 79 years, while in Asia, life expectancy was 73.6 years on average in 2019. In 2017, in the United Kingdom, the average life expectancy at birth was 81.3 years, significantly higher than the E.U. with an average of 80.9 years. As people are expected to live healthily until the age of 65 years old on average, in the remaining years, people are predicted to require assistance in doing daily activities [2]. This is because their health status may deteriorate due to age-related diseases. At this stage, the elderly need extra support in their daily life activities.

Older people with disabilities tend to require more personal care, especially if they are unable to move around by themselves. They may need professional caregivers to assist them in their daily life activities. This kind of service will become a heavy burden for the patients in financing their long-term care services costs. For the healthcare component, the patients need to pay for specialists, medical expenses, and expensive procedures. The patients also need to pay for their

accommodation and living expenses, including meals, facilities, and social activities. The additional cost will be charged to patients who require personal care due to frailty or disability. One of the alternatives that can be considered to fund long-term care services costs is through an insurance policy. This is because, through insurance, the risks are mitigated for the individuals. Therefore, insurance policies can help people plan for funding their long-term care in the future. However, to construct an insurance policy, it is crucial to identify the insurable risks associated with long-term care.

## II. INSURABLE RISK

Hardly any clear description can fully explain the nature of long-term care. This is due to the broad spectrum of clients and providers involved in the market for long-term care services consisting of multiple types of long-term care services, depending on the circumstances and needs of the patients. There are public facilities prepared for those who are in need. According to Hamdy & Md Yusuf [3], in Malaysia, the Department of Social Welfare provides nursing homes, such as Rumah Seri Kenangan and Rumah Ehsan, for the elderly. Nevertheless, all long-term care facilities, irrespective of whether they are offered in an institution or family-based setting, have the same characteristics such that

the person needs assistance in doing daily life activities. Most of those who require long term care services are varied in age and level of need. Thus, to satisfy the demand for long-term care services, and the proper price for the proposed long-term care insurance scheme, the insurable risks associated with long-term care need to be defined.

#### A. Diseases

Eling and Ghavibazoo [4] suggested that due to the overlooked poor health status, the market for long-term care insurance is growing. The primary responsibility for long-term care for elders is the elders' health condition. Those in good health rarely think that someday their health will decline while those with disease or health problems will always be precautious to care about health. This eventually prepares them more towards the need for long term care. According to Nazarian et al. [5], most elderly have at least one chronic disease such as stroke, where Alzheimer's disease has been the most common disease that requires care and management in doing daily life activities. The increment in the number of people living with such diseases and illnesses resulted in more care providers necessary to meet their expectations in the future to expand the amount of comprehensive long-term care programs.

1) *Stroke:* According to Donkor [6] stroke bore a substantial public health burden because it can disturb the cerebral function, and the worst case of stroke is it can lead to death. Donkor [6] also stated that the high morbidity also results in the permanent impairment of up to 50 percent of survivors, suggesting that the burden of stroke is not just high mortality. Therefore, stroke is a disorder with significant economic and social effects of considerable public health significance. Due to demographic changes in populations, especially in developing countries, the public health burden of stroke is projected to increase over future decades. With an estimated mortality rate of around 5.5 million, stroke is identified as the second major cause of mortality.

Globally, there were almost 25.7 million stroke survivors, 6.5 million stroke fatalities, 113 million disability-adjusted life-years (DALYs) suffered due to stroke, and 10.3 million new stroke incidents, according to Venketasubramanian [7]. Strokes survivors are usually affected by many types of complications that may lead to long-term disabilities. Stroke can be considered a severe health problem in Asia, where stroke mortality is higher than in Western Europe, the Americas, or Australasia, as stated by Venketasubramanian [7].

However, it was also reported that certain countries in Asia, such as Japan, have a lower case of stroke mortality. There is an enormous public health pressure on stroke, which is projected to escalate over the coming decades, especially in developed countries, due to demographic shifts in the population. According to Pei et al. [8], stroke patients have a high disability rate where there are physical, cognitive, and emotional difficulties for about 50 million stroke survivors worldwide. The authors also stated that from

the 50 million survivors, approximately 25% to 74% are dependent on daily living activities (ADL). Stroke survivors who need help with ADL often feel alone, overwhelmed, and abandoned socially. Therefore, it is essential to help stroke survivors to regain their abilities to perform ADL, such as bathing, feeding, and dressing.

Stroke, however, remains one of the leading causes of death and disability in Europe. In certain countries, the incidence of stroke has increased over time. According to Chen et al. [9], the incidence of stroke in Denmark, Sweden, and Western Norway shows an increment over the years. These statistics can indicate stroke as a factor associated with long-term care since the aftereffect of stroke can lead to long-term adult disability. In the Netherlands, several reforms and new measures are being implemented to expand responsibility for maintenance and education at the decentralized level of the municipality [10]. Vat et al. [10] also stated that 47,000 people suffer from a stroke every year in the Netherlands, and the number of stroke patients is projected to increase in the next decade making stroke the third-highest prevalence of disease within the Dutch population. It accounts for 2.5 percent of its overall health care expenses.

In 2000, Malaysia's second leading cause of death was a stroke, according to the Malaysian National Burden of Diseases [11]. Hotter [12] has stated that the inability to move and perform simple life tasks is one of the consequences of a stroke on the health-related quality of life. Therefore, those who suffer from stroke require assistance in doing daily life chores and they need long-term care services.

2) *Alzheimer's disease:* Gaugler et al. [13] proposed that as the severity of Alzheimer's disease increases, the patient's needs and care often change. The patient with Alzheimer's disease cannot take care of themselves well and they need supports from others. The World Health Organization [14] stated that, since cognitive functions, such as memory and communication are impaired, one of the leading causes of old-age dependency and malfunction is Alzheimer's disease. The course of dementia varies from person to person. It is correlated with several factors, including the dementia subtype, physical health, lifestyle factors, and the individual with the disease's social support. As the disease progresses, the capacity of the individual to perform everyday life tasks, such as shopping or managing finances may diminish, ultimately resulting in the person requiring help to perform even basic activities.

In Germany, long-term care service has been established as a public long-term care program in 1995, which focuses on the coverage for the cost of long-term services and support (LTSS), according to Nadash and Cuellar [15]. Later in 2013, a reformation happened when a type of coverage called Pflege-Bahr was introduced, and the government subsidized the purchasing of the coverage. Nadash and Cuellar [15] also stated that people who suffered from physical or

psychological disorders, including dementia and need help in carrying basic daily life activities are eligible for long-term services and support programs. As for private funding, Germany allows those who are not members of the public long-term care scheme within the first month of taking up residence to purchase private policies [16].

In the United Kingdom, local government social services, regional health services, as well as profit and non-profit sector residential care homes, nursing homes, home care, and daycare services provide formal long-term care services for the people who are in need [17]. Long-term care in the U.K. includes all the tasks, such as domestic tasks (shopping and preparing meals) and personal care (bathing and dressing). OECD [18] reported that England and Scotland have national strategies for dementia that highlight the importance of detailed treatment guidelines for LTC services in 22 nationwide locations. Dementia Consultants have been named to assist individuals with dementia and their caregivers to reach the infrastructure of treatment and support. Through long-term care services, people who have dementia and their caregivers can access advice, support, and quality care.

Chuakhamfoo et al. [19] stated that in Thailand, there were an estimated of 600 000 elderly people with dementia in 2015, and more than a million people are projected to be affected by dementia by 2030 and 2 million by 2050. The number of elderly persons with dementia in Singapore is smaller than in Malaysia, Thailand, and Australia. In 2050, the projected number of elderlies with dementia in Australia, Malaysia, Thailand, and Singapore are projected and shown in Figure 1 below.

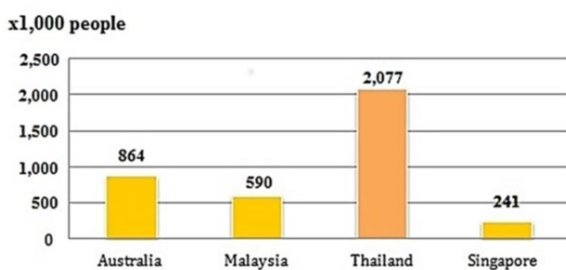


Fig. 1 The projection of the number of individuals with dementia in 2050 [20].

## B. Lifestyles

Lifestyle and behavior can also become one of the factors that will influence the need for long-term care. Farhud [21] defined lifestyles as day to day behaviors, including all of the activities in life, such as the job, activities, fun, and diet. On the other hand, Dima-Cozma et al. [22] described lifestyle in a social context as complicated behavioral techniques and routines, attitudes and values, standards assumed for individuals or groups to classify as convenient. Unhealthy lifestyles such as smoking, alcohol consumption, overeating, and high-stress levels are the variables that may contribute to short and long-term diseases. Besides, low physical activities

also can contribute to health problems. The relationship between lifestyle and health should be seriously considered. This is because an unhealthy lifestyle can cause health-related problems, such as cardiovascular diseases, hypertension, overweight, cancer, and metabolic diseases [21].

Schliemann et al. [23] suggested that the incidence of cancer is projected to double by 2040 because Malaysians are embracing practices similar to Western lifestyles, and the rising trend is associated with increased cancer risk. Schliemann et al. [23] also stressed that there is about 50 percent of Malaysians are obese or overweight, and Malaysia has one of the largest intakes of saturated fatty acid levels that can contribute to cancer risk. Other than that, cardiovascular disease can also be considered a chronic disease. In Malaysia, the death rate due to cardiovascular disease rises from 15.7% in 1996 to 25.4% in 2006 and is projected to continue in subsequent decades [24]. In 2006, heart disease was the second leading cause of death, with around 15.5 percent of people dying in government hospitals in Malaysia, according to Chang et al. [25]. People suffering from heart disease require long-term care services where heart failure affects 20 percent of long-term care home residents [26].

Eling and Ghavibazoo [4] stated that due to the unnoticed poor health status, the need for long-term care insurance is growing. Long-term care programs, such as paralysis and joint strength deficiency, mobility and stability, complex motion with complex gestures, require assistance with daily living activities and independent daily living activities, communication and cognition, mental disabilities, and conditions, requiring special assistance. These are seven types of physical and psychological status in Japan [27]. Wildsmith et al. [28] reported that few features need to be considered to ensure that the premium expense of the applicants is equal to their risk level and the probability of adverse selection. Age, sex, medical history, present physical condition, and behavioural risk factors, such as smoking or high-risk avocations, are among the characteristics.

OECD [29] stated that in England, most people can continue to live comfortably until they are aged, although some difficulties in basic activities of daily living (ADL), such as dressing, eating, and bathing, was identified by about one in five individuals aged 65 and over. People live longer, but many of these extra years are spent on health issues. The OECD [29] also reported that behavioral risk factors, such as tobacco smoking, poor diet, drinking habits, and insufficient physical activity could be linked to over one-third of all deaths in the United Kingdom.

Boyer et al. [30] suggested that due to the limitations in ADLs and Instrumental ADLs diseases, such as diabetes, high blood pressure, heart diseases, stroke, cancer, and lung contribute to the need for long-term care insurance policy in Canada. Boyer et al. [30] also indicated that older people with habits that are associated with less-healthy lifestyles spend more on healthcare costs and expenditures in the United States than the ones who were leaner, smoked lesser tobacco products over a lifetime, reduced their smoking or exercised regularly had higher cost savings. The people who practice unhealthy lifestyles have a high possibility of becoming ill and could suffer from health-related diseases.

Besides, smoking, alcohol, and drug use in Korea are the leading causes of disability-adjusted life years (DALYs), as

reported by Jeon and Kwon [31]. However, Jeon and Kwon [31] also said that in Korea, high socioeconomic status (SES) individuals were more likely to have experienced compression of morbidity since decent financial state and condition contributes to healthy aging with fewer disease possibilities. Therefore, because of the health-related diseases, it can be assumed that individuals with an unhealthy lifestyle have a high risk of being ill, hence, requiring long-term care services.

### III. LONG-TERM CARE INSURANCE

Long-term care is funded through a few ways, which are government programs, private pay, and long-term care insurance, or takaful. Some people have enough assets to self-insure, but some people are unable to plan accordingly due to their financial condition during their working and healthy period. They need to use their saving to fund the long-term care cost in their retirement period. The high cost to fund the long-term care services may be a huge burden for the elderly because they can no longer work and earn money to sustain the cost.

A long-term care insurance policy is one of the ways that can be used to fund long-term care costs. According to Schmitz and Giese [32], insurance can provide a way to plan for and finance the risk of paying long-term care (LTC) services. Insurance is the best way to fund long-term care because the risk is mitigated for individuals. People need to pay the premiums or contributions monthly, and they can be at ease for their future retirement period. Long-term care insurance is an effective tool in planning for risks since everyone will have to face a time where they need assistance in doing their daily life activities.

Long-term care insurance is available to provide financial protection against the possibility of the high cost of long-term care. According to Mulvey [33], long-term care insurance policies may be sold to an individual directly or to a group as part of an employer-supported policy.

Nowadays, the awareness of the importance of long-term care planning has arisen. The policies have been purchased by everyone regardless of their age. For long-term care insurance, the premiums charge differ by purchasing age, as higher premiums are charged for those purchased at an older age, and lower premiums are charged for younger individuals. This is due to the different levels of risk bore by a different level of age. Older people usually have a higher risk of getting diseases. Therefore, the need for long-term care insurance is essential to mitigate the risks and fund long-term care costs in the future.

### IV. CONCLUSIONS

This study sought to identify the insurability risk for long-term care insurance in Europe and Asian countries. This study examines many risks, including diseases as well as lifestyles, associated with the demand for long-term care insurance. Health-related disorders, such as stroke and Alzheimer's diseases, have been described as the greatest potential diseases to influence the long-term care insurance industry. Stroke and Alzheimer's disease have a high rate in European countries; meanwhile, the trend in Asian countries shows a

significant increase in the number of elderly people with Alzheimer's disease.

Furthermore, lifestyles and habits, including unhealthy lifestyles, such as smoking, alcohol misuse, overeating, high-stress levels, have also been recognized as long-term care risks that could later require long-term care services. This is because unhealthy lifestyles can affect health negatively and can cause severe health-related diseases. Therefore, long-term care service is needed in the period where a person is sick and unable to complete the daily life activities without getting assistance from other parties.

### ACKNOWLEDGEMENT

The authors would like to express their gratitude to the Ministry of Education Malaysia (MOE) and Universiti Sains Islam Malaysia (USIM) for the support and facilities provided. This work is supported in part by MOE USIM/FRGS/FST/055002/53819.

### REFERENCES

- [1] Roser, M., Ortiz-Ospina, E., and Ritchie, H., *Life Expectancy, 2019*. Available: <https://ourworldindata.org/life-expectancy>.
- [2] OECD, *Health at a Glance 2019: OECD Indicators, 2019*.
- [3] Hamdy, M., S., and Md Yusuf, M., "Article Review on Public Long-Term Care Services for Older People in Malaysia," in *MJoSHT*, 2018, Volume 2, Special Issue, eISSN: 2601-0003.
- [4] Eling, M., and Ghavibazoo, O., "Research on Long-Term Care Insurance: Status Quo and Directions for Future Research," in *Geneva Pap Risk Insur Issues Pract*, 2018.
- [5] Nazarian, A., Yashin, A., I., and Kulminski, A. M., "Genome-wide Analysis of Genetic Predisposition to Alzheimer's Disease and Related Sex Disparities," in *Alzheimer's Research & Therapy*, 2019.
- [6] Donkor, E., S., "Stroke in the 21st Century: A Snapshot of the Burden, Epidemiology, and Quality of Life," in *Stroke Research and Treatment Volume 2018*, Article ID 3238165, 10 pages, 2018.
- [7] Venketasubramanian, N., Yoon, B., W., Pandian, J., and Navarro, J., C., "Stroke Epidemiology in South, East, and South-East Asia: A Review," in *Journal of Stroke*;19(3):286-294, 2017.
- [8] Pei, L., Zang, X., Y., Wang, Y., Chai, Q., W., Wang, J., Y., Sun, C., Y., and Zhang, Q., "Factors Associated with Activities of Daily Living Among the Disabled Elders with Stroke," in *International Journal of Nursing Sciences* 3, 29-34, 2016.
- [9] Chen, X., Zhou, L., Zhang, Y., Yi, D., Liu, L., Rao, W., Wu, Y., Ma, D., Liu, X., Zhou, X., A., Lin, H., Cheng, D., and Yi, D., "Risk Factors of Stroke in Western and Asian Countries: A Systematic Review and Meta-analysis of Prospective Cohort Studies," in *BMC Public Health*, 14:776, 2014.
- [10] Vat, L., E., Middelkoop, I., Buijck, B., I., and Minkman, M., M., N., "The Development of Integrated Stroke Care in the Netherlands a Benchmark Study," in *International Journal of Integrated Care*, 16(4): 12, pp. 1-10, 2016.
- [11] Kooi, C. W., Peng, H. C., Aziz, Z. A., and Looi, I., "A Review of Stroke Research in Malaysia from 2000 - 2014," in *Med J Malaysia* Vol 71 Supplement 1 June, 2016.
- [12] Hotter, B., Padberg, I., Liebenau, A., Knispel, P., Heel, S., Steube, D., Wissel, J., Wellwood, I., and Meisel, A., "Identifying unmet needs in long-term stroke care using in-depth assessment and the Post-Stroke Checklist - The Managing Aftercare for Stroke (MAS-I) study," in *European Stroke Journal*, Vol. 3(3) 237-245, 2018.
- [13] Gaugler, J. E., Yu, F., Davila, H. W., and Shippee, T., "Alzheimer's Disease and Nursing Homes," in *Health Aff (Millwood)*, April; 33(4): 650-657, 2014.
- [14] World Health Organization, First WHO Ministerial Conference on Global Action Against Dementia: Meeting Report; 16-17 March 2015, WHO Headquarters, Geneva, Switzerland, 2015.
- [15] Nadash, P., and Cuellar, A., "The Emerging Market for Supplemental Long-Term Care Insurance in Germany in the Context of the 2013 Pflege-Bahr Reform," in *Health Policy*, 2017. Available: <http://dx.doi.org/10.1016/j.healthpol.2017.03.006>.

- [16] Othman, H., "Perceptions and Experiences of Elderly Residents in Asylum," 2012.
- [17] Comas-Herrera, A., Pickard, L., Wittenberg, R., Malley, J., and King, D., "The Long-Term Care System for The Elderly in England," in *ENEPRI Research Report No. 74*, 2010.
- [18] OECD, "United Kingdom, Highlights from A Good Life in Old Age? Monitoring and Improving Quality in Long-Term Care," in *OECD Publishing*, 2013.
- [19] Chuakhamfoo, N., N., Phanthunane, P., Chansirikarn, S., and Pannarunothai, S., "Health and Long-Term Care of The Elderly With Dementia in Rural Thailand: A Cross-Sectional Survey Through Their Caregivers," in *BMJ Open*, 2019.
- [20] Asia Pacific Members of Alzheimer's Disease International, Alzheimer's Australia. Dementia in the Asia Pacific region; the Epidemics here Access Economics, 2014.
- [21] Farhud, D. D., "Impact of Lifestyle on Health," in *Iran J Public Health*, Vol. 44, No.11, Nov 2015, pp.1442-1444, 2015.
- [22] Dima-Cozma, C., Gavrilutã, C., Mitrea, G., and Cojocaru, D., "The Importance of a Healthy Lifestyle in Modern Society: A Medical, Social And Spiritual Perspective," in *European Journal of Science and Theology*, Vol.10, No.3, 111-120, June 2014.
- [23] Schliemann, D., Ismail, R., Donnelly, M., Cardwell, C., R., and Su, T., T., "Cancer Symptom and Risk Factor Awareness in Malaysia: Findings from a Nationwide Cross-Sectional Study," in *BMC Public Health*, 20:464, 2020.
- [24] Amiri, M., Majid, H., A., Hairi, F., Thangiah, N., Bulgiba, A., and Su, T., T., "Prevalence and Determinants of Cardiovascular Disease Risk Factors Among the Residents of Urban Community Housing Projects in Malaysia," in *International Research Symposium on Population Health*, 2013.
- [25] Chang, C., T., Lee, P., Y., and Cheah, W., L., "The Prevalence of Cardiovascular Risk Factors in the Young and Middle-Aged Rural Population in Sarawak, Malaysia," in *Malays J Med Sci*, 19(2): 27-34, Apr-Jun 2012.
- [26] Heckman, G., A., Boscart, V., M., Huson, K., Costa, A., Harkness, K., Hirdes, J., P., Stolee, P., and McKelvie, R., S., "Enhancing Knowledge and InterProfessional care for Heart Failure (EKWIP-HF) in long-term care: a pilot study," in *Pilot and Feasibility Studies* 4:9, 2018.
- [27] Houde, S. C., Gautam, R., and Kai, I., "Long-term Care Insurance in Japan Implications for U.S. Long-term Care Policy," in *Journal of Gerontological Nursing*, February 2007.
- [28] Wildsmith, T. F., Bykerk, C. D., Marek, A. D., Skwire, D. D., Spell, D. D., Underwood, H. R., and Yee, R. K. W., "The Use of Genetic Information In Disability Income And Long-Term Care Insurance," in *The American Academy of Actuaries*, 2002.
- [29] OECD, State of Health in the E.U. United Kingdom Country Health Profile, 2019.
- [30] Boyer, M., Donder, P., D., Fluet, C., Leroux, M., and Michaud, P., "Long-Term Care Insurance: Knowledge Barriers, Risk Perception, and Adverse Selection," in *SSRN Electronic Journal*, January 2017.
- [31] Jeon, B., and Kwon, S., "Health and Long-Term Care Systems for Older People in the Republic of Korea: Policy Challenges and Lessons," in *Health Systems & Reform*, 3(3):214-223, 2017.
- [32] Schmitz, A. and Giese, C., "Is Insurance the Answer to the Long-Term-Care Financing Challenge?" in *Journal of the American Society on Aging*, Vol. 43, No. 1, The Financing of Long-Term Care: An American Conundrum pp. 88-90, Spring 2019.
- [33] Mulvey, J., "Factors Affecting the Demand for Long-Term Care Insurance: Issues for Congress," in *Congressional Research Service* 7-5700, 2009.