CHAPTER 2 : LITERATURE REVIEW

2.1 Introduction

This chapter is introducing the Indigenous peoples globally. And reviews the literature on demographics, environment, economic development and health attributes that have moulded the Orang Asli communities in Malaysia. Then, it highlights the shift in health status transitions from having to battle with infectious diseases to tackling chronic NCDs. It also reviewed the disparities on NCDs risk factors, KAP on diseases and health-seeking behaviour in the Orang Asli, comparing them with other ethnics in Malaysia.

2.2 Indigenous/Aboriginal Peoples

Article 33 of the UN Declaration on the Rights of Indigenous Peoples (2007) underlines the importance of self-identification in Indigenous peoples in which they define their own identity as indigenous:

a) Indigenous peoples have the right to determine their status or membership following their customs and traditions which do not impair the right of indigenous individuals to obtain citizenship of the States in which they live.
b) Indigenous peoples have the right to determine the structures and to select the membership of their institutions under their procedures.

This declaration also acknowledged international norms and evolving human rights standards for Indigenous peoples. The Rights of Indigenous Peoples states that Indigenous peoples have: a) the right to be actively involved in developing and determining their health programmes; b) the equal right to the enjoyment of the highest attainable standard of physical and mental health, and c) the right to their traditional medicines and to maintain their health practice (UN, 2007).

The health status of Indigenous peoples is highly dependent on their living conditions, income status, accessibility to safe water, sanitation, health services, and food availability (Gracey & King, 2009). These minorities are not only vulnerable to infectious diseases and malnutrition but also predisposed to an increased rate of NCDs (Foliaki & Pearce, 2003; Anderson et al., 2016). A systematic review conducted by Azzopardi et al. (2018) showed that infectious diseases were the leading contributors to morbidity among Indigenous peoples in Australia, alongside emerging NCDs, particularly CVDs and DM.

2.3 Orang Asli of Peninsular Malaysia

2.3.1 Introducing Orang Asli

Orang Asli (Malay: Original People) is the accepted term for the eighteen Indigenous ethnics minorities in Peninsular Malaysia. Under Section 3 in the Aboriginal Peoples Act 1954 (Act 134) from The Commissioner of Law Revision, Malaysia, 2006, the Orang Asli is:

a) Any of which the father is a member of the Orang Asli ethnic groups, who speak the Orang Asli languages and follows the way of life of the Orang Asli and traditions of the Orang Asli beliefs and includes the descent through the man, or

b) Any person of any race were to be adopted as a child by the Orang Asli and raised as an Orang Asli, habitually speaks the languages of the Orang Asli, follows to the way of life of the Orang Asli and traditions of the Orang Asli and becomes a member of the Orang Asli community, or

c) Children of any union between an Orang Asli woman and a man from another race, provided that the child habitually speaks the Orang Asli languages and beliefs of the Orang Asli and is still a member of an Orang Asli community.

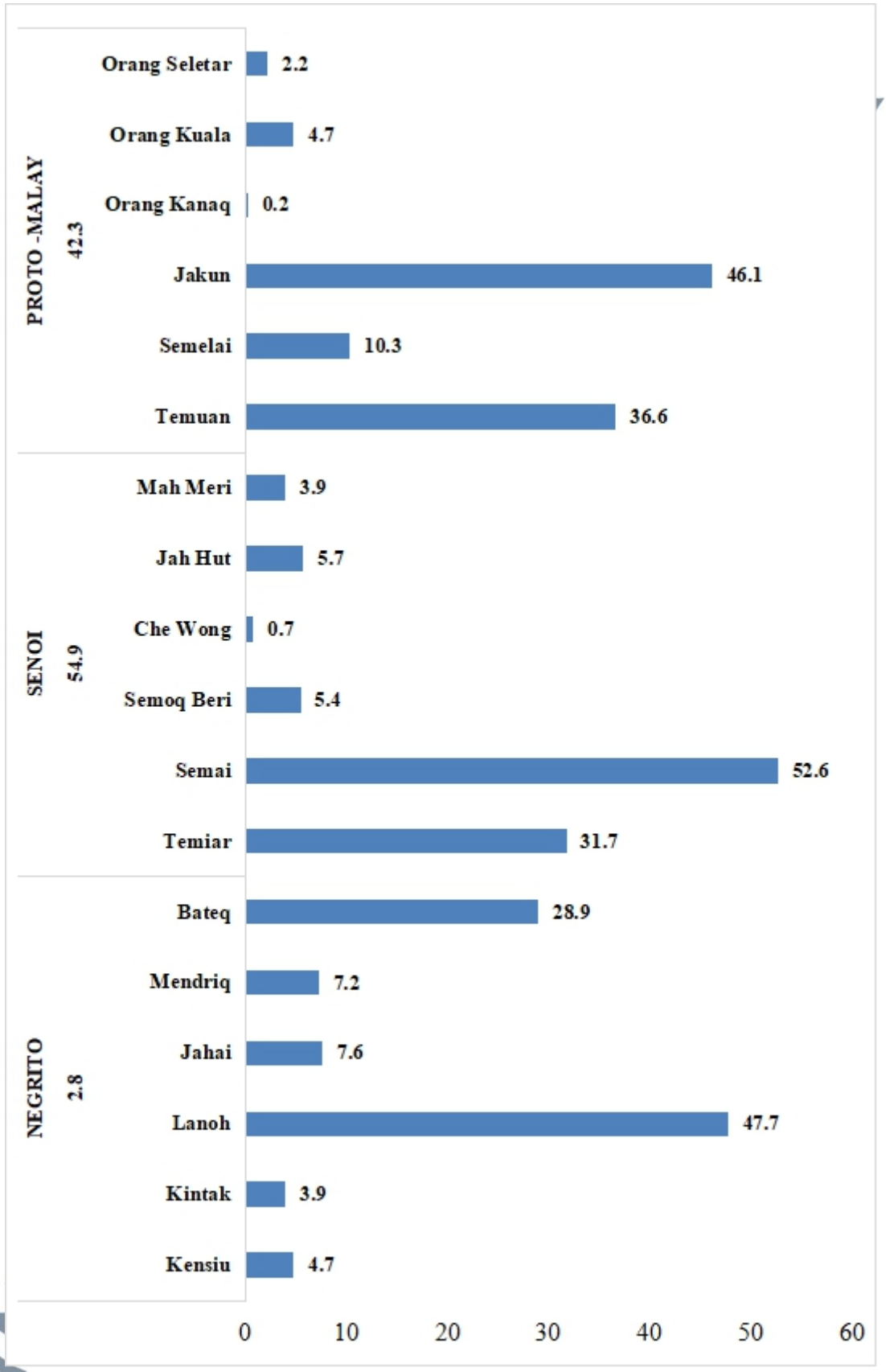
In Peninsular Malaysia, the Orang Aslis have existed since more than 25 000 years ago (Masron, Masami & Ismail, 2013). For many centuries, the Orang Asli community was surrounded by nature and confined to only close relationships among themselves. This enabled them to survive in a harmonious environment. Even during the Malay sultanate and British colonial eras, the Orang Asli managed to hold on to their robust cultural system and maintain their collective identity including culture, language, identity, belief system, and way of living (Edo, Williams-Hunt & Dentan, 2009; Baer, 2014; Endicott, 2015).

Even as Malaysia gradually become a developing country after its independence in 1957, the Orang Aslis remain as secluded, isolated, and marginalised communities compared to other major ethnicities in Malaysia (Zal, Omar & Salleh, 2016). The Orang Aslis are not a homogenous group as there is a diverse number of small tribes distributed around Peninsular Malaysia. According to Masron, Masami & Ismail (2013), Orang Aslis face problems just like other neglected segments of societies, such as limited administrative representation and support, economic marginalisation and poverty, deprivation of access to social services, and discrimination in terms of education and health matters.

The Department of Orang Asli Development (JAKOA) is the Malaysian government agency entrusted to oversee the affairs of the Orang Asli (Commissioner of Law Revision, 2006). One of the objectives of the agency is to improve the health of the Orang Asli towards a better life (JAKOA, 2019). Under JAKOA, various efforts have been undertaken by the government to develop the Orang Asli communities in Peninsular Malaysia (Noor, 2012). This is in line with the vital area under SDGs Goal number three for healthy lives and well-being for all by the UN in 2015. Nevertheless, the vulnerability of Orang Asli remains an issue because they continue to live in isolated areas that are far from regular government services such as education and healthcare.

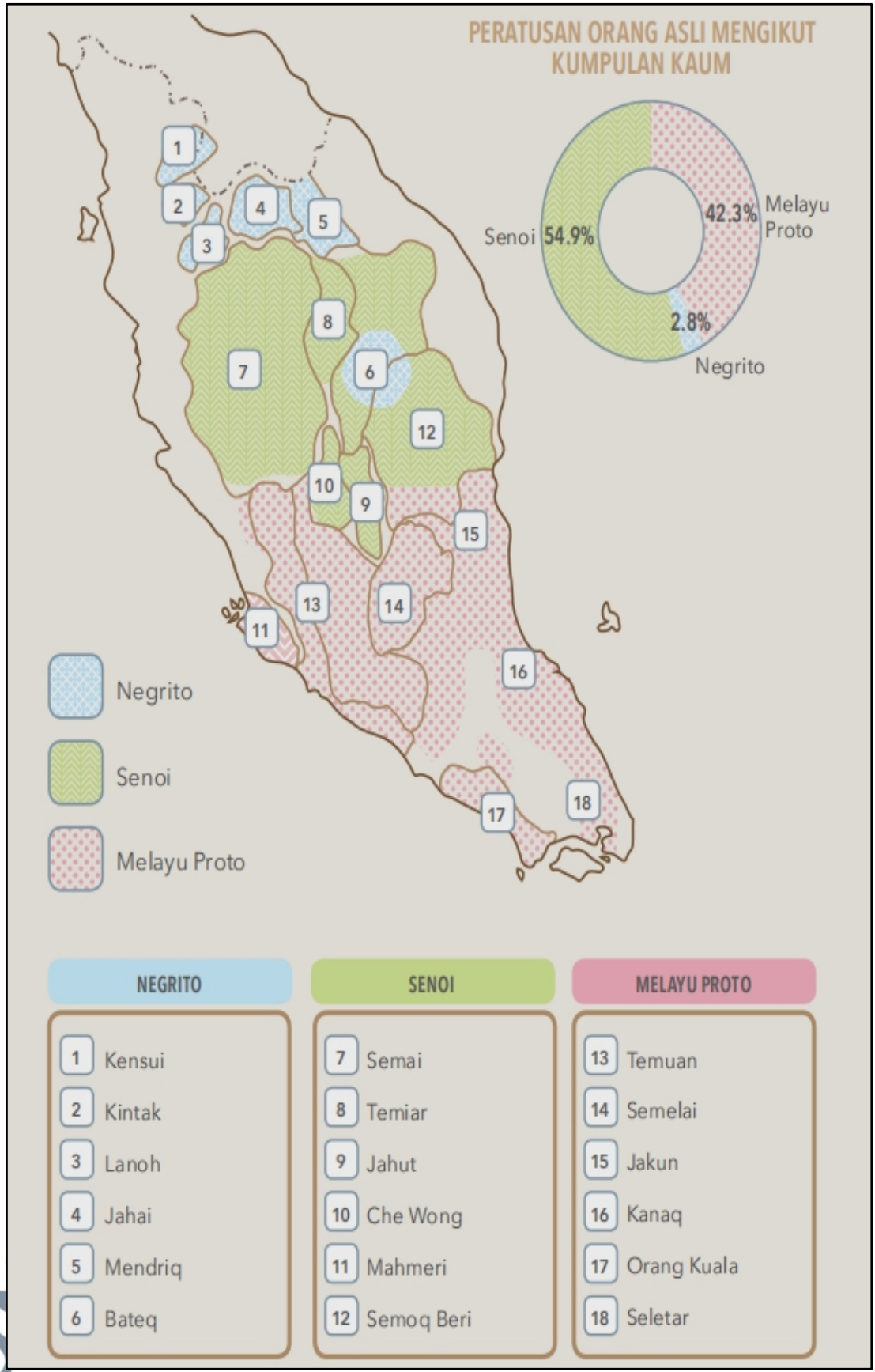
2.3.2 Demography

According to the 2010 Population and Housing Census of Malaysia (Department of Statistics Malaysia, 2011), Orang Asli accounts for only about 0.6% (*N*=178,197) of the total Malaysian populations (*N*=28,334,135) (DoSM, 2010). Orang Asli can be classified into three main ethnolinguistic groups, namely Senoi, Proto-Malays or Aboriginal Malays, and Negritos. Each group consists of several dialectic subgroups (JAKOA, 2016). Figure 2.1 showed the population percentages of the Orang Asli ethnic groups and the sub-tribes of each ethnic group. Map in Figure 2.2 showed the geographical distribution of the ethnic groups across Peninsular Malaysia. And Figure 2.3 showed the distribution of the ethnic groups across according to state by percentages.



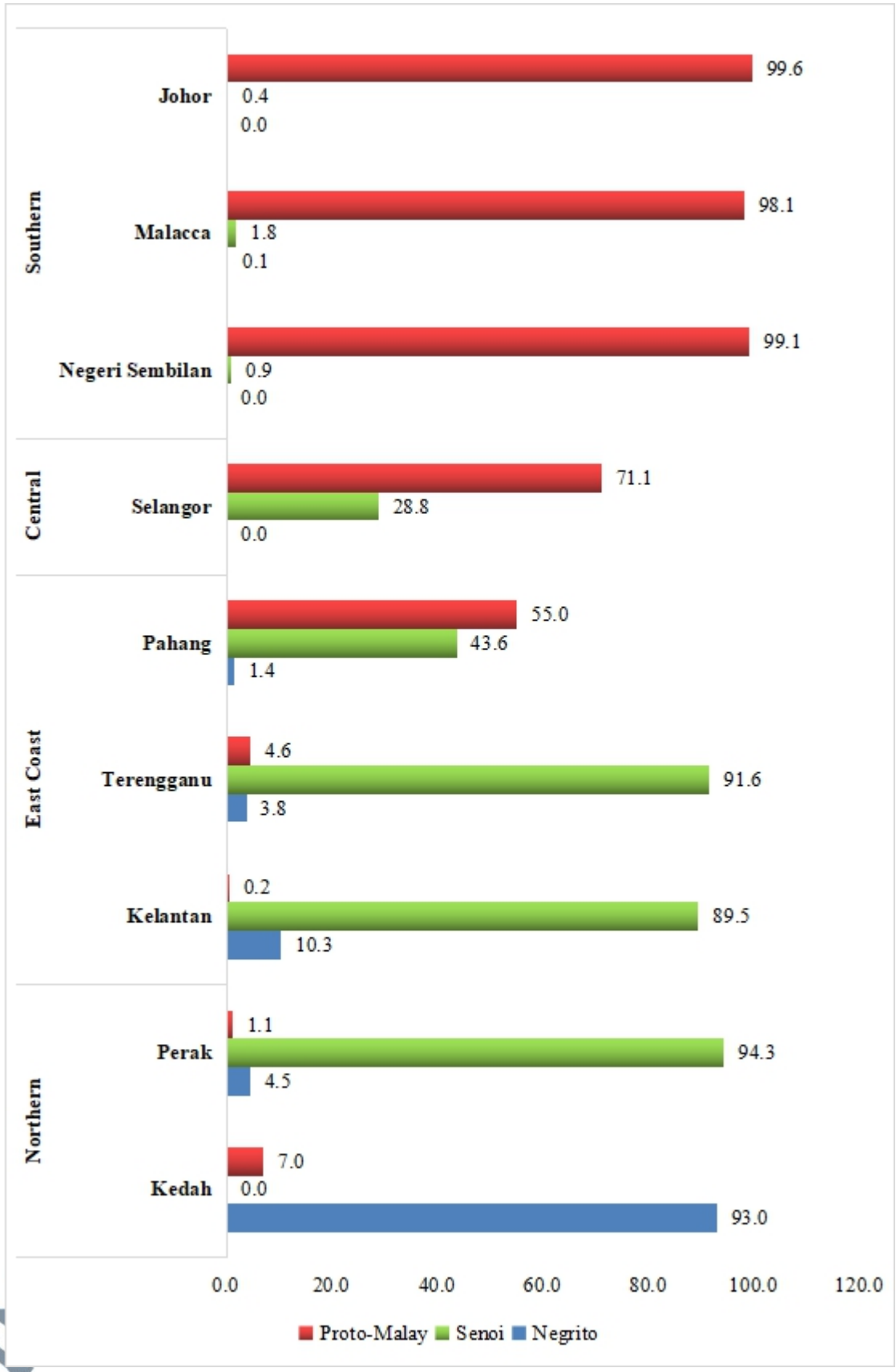
Source: JAKOA (2010)

Figure 2.1: Orang Asli Ethnic Groups in Peninsular Malaysia



Source: JAKOA (2016)

Figure 2.2: Map of Orang Asli Ethnic and Sub-ethnic Distribution in Peninsular Malaysia



Source: JAKOA (2010)

Figure 2.3: Percentages of Orang Asli Distribution in Peninsular Malaysia by State

The Senoi is the largest Orang Aslis tribe in Peninsular Malaysia, constituting 54.9% of the total Orang Asli population. The Senoi subgroups include the Semai, Temiar, Che Wong, Semoq Beri, Mah Meri, and Jah Hut. The Senoi settlements are located in the Titiwangsa ranges in the remote areas of Perak, Kelantan, and Pahang. They are expert hunters and foragers. Some of them also carry out upland agricultural activities (Nicholas, 2000; Endicott, 2015). The Senois are slightly different from the Negritos as they are taller and lighter-skinned and they have wavy hair without curls (Shah et al., 2018).

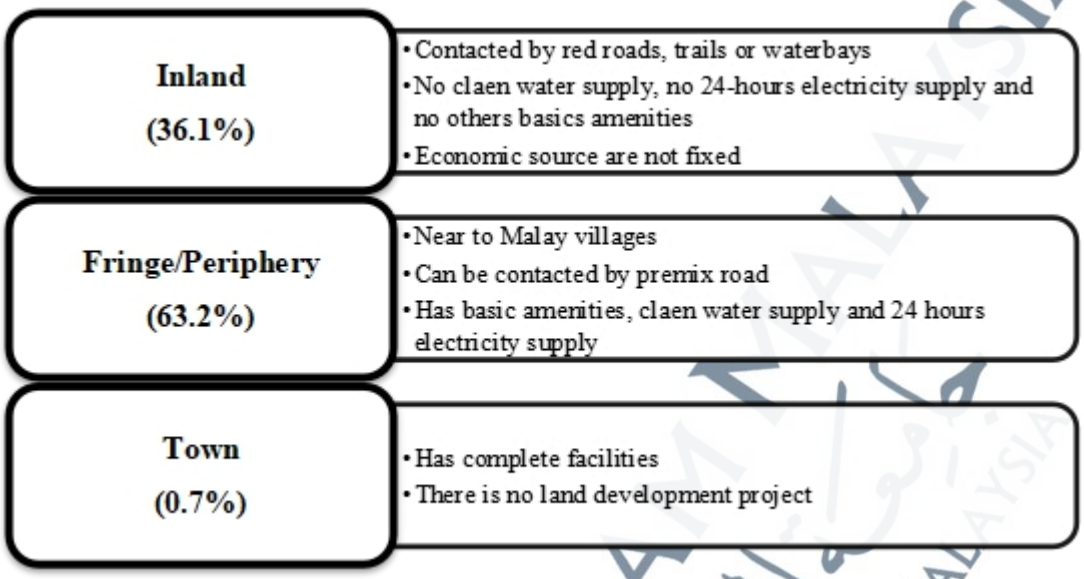
Proto-Malay or also known as the Aboriginal Malay is the second largest tribe of Orang Aslis. They make up 42.3% of the Orang Asli population. Proto-Malays include the subgroups Jakun, Temuan, Semelai, Orang Kuala, Orang Seletar, and Orang Kanaq. They originated from the Polynesian Malay group that settled near the seas and rivers (Baer, 2014). Now, the Proto-Malay mostly live in the southern and central states of Peninsular Malaysia. Their main economic activities are fishing and farming (Nicholas, 2000).

The Negrito is the smallest Orang Aslis tribe and comprises only 2.8% of the total Orang Asli population. The Negritos include the Lanoh, Bateq, Jahai, Mendriq, Kensiu, and Kintak. Physically, the Negrito Orang Aslis are relatively small in size (1.5 meters or less), dark-skinned, frizzy curly-haired, large-nosed, low-cheeked with round eyes. The majority of them are still semi-nomadic and live in settlements that are near natural resources to support their needs (Shah et al., 2018).

2.3.3 Settlements Category

According to the statistics from JAKOA, there were a total of 853 Orang Asli villages in Malaysia in 2018. They could be divided into three categories of settlements, namely town, periphery, and inland. This categorisation based on location,

level of economic development, basic amenities, and infrastructure, is shown in Figure 2.4 below.



Source: JAKOA (2016)

Figure 2.4: The Orang Asli Settlement Distribution in Peninsular Malaysia (*N*=853)

The majority of the villages (63.2%) were in the periphery, compared to 36.1% in the inland and 0.7% in the urban areas. The different locations affect the diversity of the environment and thus impact all aspects of their health. According to Phipps et al. (2015), cardio-metabolic risk factors of obesity and diabetes are higher among the Orang Asli in urbanised city-fringe dwellers than their counterparts elsewhere. The finding is also in line with another study by Aghakhanian et al. (2018) which reported that Proto-Malays in the urbanised areas recorded the highest prevalence of metabolic syndrome compared to Negritos and Senois.

2.3.4 Education

In term of education vulnerability, Orang Asli face severe problems especially in terms of academic achievements (Ministry of Education, 2013). Their level of academic performance is still low compared to other ethnicities in Malaysia. In 2013,

the Ministry of Education (MOE) Malaysia reported that economic factors such as higher incidences of poverty among the Orang Asli are the main barrier that limits the Orang Asli students' access to quality education. Additionally, geographical and cultural factors also restrict their access to education (Abdullah et al., 2013). There is also a high drop-out rate among the minority groups of the Orang Asli community from pre-school to secondary level (Md Nor et al., 2011). A report by JAKOA in 2015 showed that the drop-out rate in 2014 is 21.1% among Orang Asli students in 2009. Moreover, in 2014, 22.1% of the students from Standard six did not proceed to Form One of secondary school. In addition, the drop-out rate in secondary school was also much higher among the Orang Asli students in which about 41.1% of them did not complete Form 5 (JAKOA, 2015). Thus, many of them have low literacy and numeracy levels.

According to the 1986 Ottawa Charter for Health Promotion, education is one of the fundamental conditions and resources for health (WHO, 1986). It is also a classic socioeconomic indicator. Very often, a low education level is the root cause of poor health. Health promotion is the process of enabling people to increase control of, and to improve their health. To perform effective health promotion, the education level of an individual or group must be identified (WHO, 2009).

The association between socioeconomic factors of lower educational and literacy level, and also parental influence on the health-related findings among the Orang Asli were discussed in several studies. A study by Wong et al. (2015) reported that mothers with higher education levels were associated with higher odds of being obese and having a stunted child. In another finding by Elyana et al. (2016), the low level of maternal education was the principal risk factor for intestinal poly-parasitism among the Orang Asli children. Furthermore, in a study among the Jakun tribe by

Wong et al. (2018), a low education level was found to be associated with thirteen times higher likelihood of getting hypertension.

2.3.5 Income

In the 1986 Ottawa Charter for Health Promotion, income is another fundamental socioeconomic condition and resource needed for health. In addition to the underlying problem of poor development in education, Orang Aslis continue to struggle with poverty. Poverty among the Orang Asli is said to be the principal constituent to the national poverty data. In 2010, as many as 11.2% and 20.0% of the Orang Asli were identified as belonging to the poor and hardcore poverty groups (JAKOA, 2011).

Low socioeconomic status is a significant risk factor of low quality of life (QOL) and poor health status of the population (Wan Puteh et al., 2019). A few elements contributed to the delay in development and poverty faced by Orang Asli, for example, their reliance on forest produce as an economic source, their remote settlement in the deep jungles, low self-confidence, detachment from other communities, low levels of schooling, little or no savings, shortage of skills and modern work ethic (Dentan & Edo, 2008; Gill, Rosnon & Redzuan, 2010; Abdullah et al., 2019).

Besides, the community of Orang Asli is still bound by the traditional way of thinking and practice. Many of them have a high dependence on government aid. In a study at the Desa Temuan resettlement village at Bukit Lanjan, Selangor an urbanised area of Malaysia, it was found that many Orang Asli in the community faced difficulties in coping with the new environment despite receiving assistance from government and the developer. Apart from low education levels, they also struggled with low income status and health problems. Continuous support encompassing

socioeconomic, education, health, and infrastructure elements is needed for them to cope in an urban environment (Abdullah, Borhan & Ahmad, 2015).

2.3.6 General Health Status

The Malaysian Ministry of Health (MOH) is the primary provider of healthcare services in Malaysia. The MOH provides preventive, curative, and rehabilitative services to support the health status of the entire population. The Ministry of Rural Development (KPLB) complements the role of MOH to conserve the health of the Indigenous people in Malaysia, including the Orang Asli (Thomas, Beh & Nordin, 2011).

An extensive network and cost-effective healthcare services are vital for the nation's socioeconomic development. Among the healthcare facilities provided for the Orang Asli is the Hospital Orang Asli Gombak located in the state of Selangor (Bedford, 2009). Apart from that, transit centre, healthcare clinic, mobile clinic to the Orang Asli villages, and landing zone for the remote areas are also provided by MOH to improve the indigenous health (Ariff & Teng, 2002). According to a circular letter by the Director-General of Health Malaysia (KA)/09/62/03/11/155 dated 27 February 2012, Orang Aslis in Peninsular Malaysia receive free treatment for out-patient services and in-patient third class wards at any public healthcare facilities. However, despite extensive efforts in establishing both components in the Malaysian healthcare system, there are still issues in equity and accessibility, especially for the Indigenous groups of Orang Asli living in rural and remote areas (Ariff & Teng, 2002; Wong, Allotey & Reidpath, 2019).

The Orang Aslis in Peninsular Malaysia have a lower health status than the general population. In the 2010 Population and Housing Census of Malaysia, the life expectancy of the Malaysian population increased with a reduction in the national

fertility and mortality rates. The overall infant mortality rate was 8.9 out of 1,000 live births. However, for Orang Asli ethnicity, the infant mortality rate was at a high of 51.7. Moreover, the average life expectancy for Orang Asli was only 53 years compared to the national average of 73 years (DoSM, 2011; Rashid, Ghani & Daud, 2014).

A systematic review of published scientific literature by Phua (2015) showed that the Malaysian Orang Asli continues to experience poor health, especially in terms of nutritional deficiency and parasitic infections. As Malaysia undergoes epidemiological changes, there is a shift in the population disease trend from infectious and nutritional diseases to chronic diseases (Safurah et al., 2013). However, the shift occurs at a slower rate among the Orang Asli compared to other major Malaysian ethnic groups. Thus, infectious and nutritional diseases remain a significant disease burden among the Orang Asli (Phua, 2015).

To the best of our knowledge, there is no systematic review conducted on risk factor on NCDs among the Orang Asli. However, few studies have shown a high prevalence of chronic diseases and its risk factors especially among the Orang Asli staying in urban and periphery areas (Phipps et al., 2015; Tuan Abdul Aziz et al., 2016; Ashari et al., 2016). These chronic diseases place a substantial economic burden on the Orang Asli society. As a result, the Malaysian healthcare delivery systems are facing increasing pressure to provide quality care to patients with NCDs to prevent all the possible complications.

2.3.7 Urbanisation and the Emergence of NCDs

Since its independence in 1957, Malaysia has transformed from a low-income country to a middle-high-income country (Saleh et al., 2016). Along with this economic growth, there has been an epidemiological shift from traditional to modern

lifestyle among Malaysians. This shift included demographic, social, economic, psychological, cultural, and also nutritional transition (Aziz, Hassan & Saud, 2012; Sharkawi, Mohamed & Rezai, 2014; Saleh et al., 2016). Modern lifestyles lead to the nutritional transition that is the change in the diet structure of the population, the widespread of a sedentary lifestyle, and the rapid increase in obesity rate (Sharkawi, Mohamed & Rezai, 2014).

In view of the nutritional transition in Malaysia, the National Strategic Plan for Non-Communicable Disease (NSPNCD) 2016-2025 (MOH, 2016) has been established for the prevention and control of NCDs. The government aims to meet the UN's commitment to decrease one-third of the premature mortality from NCDs by the years 2030. To achieve this target, it is vital to obtain an estimation of the burden of NCDs and their risk factors so that public health policies can be implemented effectively.

In the 2015 National Health Morbidity Survey (NHMS) report among the Malaysian population, Orang Asli was categorised under the Other Bumiputera ethnicity which included Orang Asli from Peninsular Malaysia and Indigenous people of Sabah, and Sarawak (IPH, 2015b). This report provided useful information on the prevalence of major NCDs and its risks including behavioural risk factors such as tobacco use, alcohol consumption, fibre intake, and physical activity and metabolic risk factors such as obesity, high BP, elevated blood glucose, and cholesterol levels in Malaysian adults.

From this report, the prevalence of hypertension, hypercholesterolemia, and DM diseases among Other Bumiputera were 15.7%, 11.2%, and 6.8%, respectively (IPH, 2015b). The report also showed a worrying trend of high numbers of under-diagnosed NCDs. The prevalence of under-diagnosed hypertension and DM were

17.6 % and 8.1%, respectively. As the prevalence of NCDs continues to increase not only in both the general population and the Orang Asli, this has led to an emergence of NCDs among the Malaysian minority population.

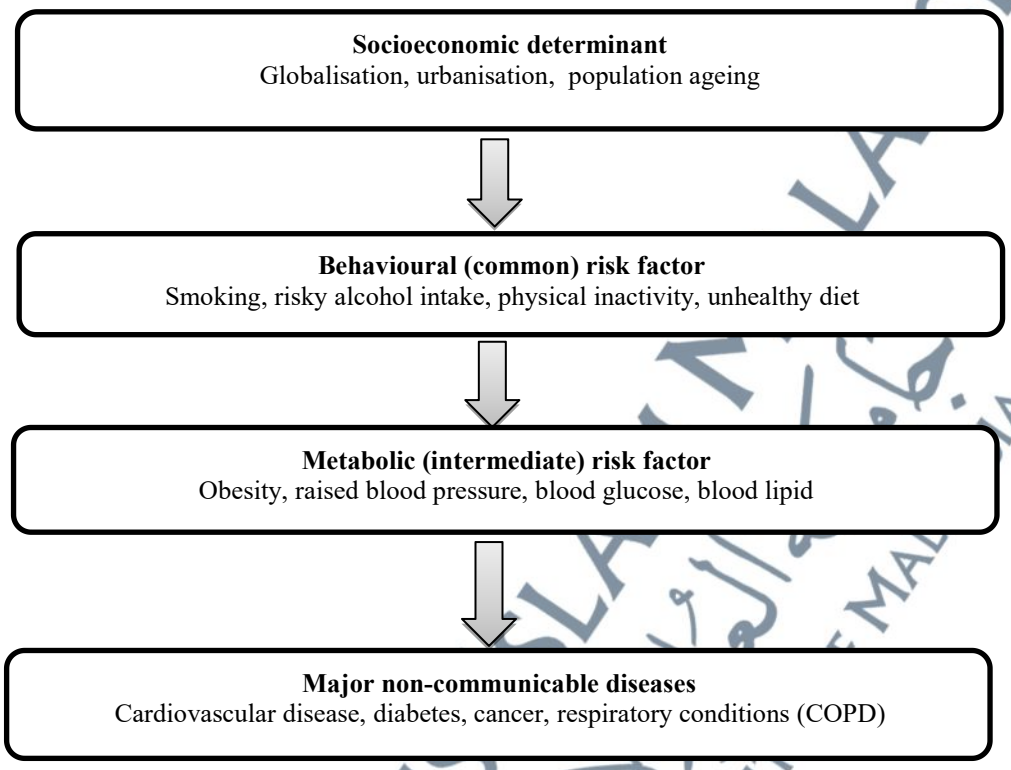
Urbanisation has greatly influenced the lifestyle behaviour of the Orang Asli, especially in terms of nutritional transition. As a result of modern development in these vulnerable communities, there is an increasing trend of NCDs and its risk factors among the Orang Asli, particularly those living in urban and periphery areas. Tuan Abdul Aziz et al. (2016) reported high percentages of CVDs and insulin resistance among Orang Asli living in both the remote and periphery areas. In another articles by Adrian Jinam et al. (2008) and Aghakhanian et al. (2018), there was an alarmingly high rate of NCDs risks among the Orang Asli. Finding showed that the Proto-Malay tribe who were more urbanised than the Negrito and Senoi had the highest prevalence of NCDs risks. Their rate was comparable to other dominant ethnic groups in Malaysia (Rampal et al., 2012).

2.4 Determinants of NCDs

2.4.1 The Role of Health Risk Factors

There has been extensive evidence for a multi-factorial interaction between the underlying sociodemographic determinants and the risk factors of NCDs in the population. Figure 2.5 shows the multi-factorial risk factors underlying the development of chronic NCDs adapted from WHO & Public Health Agency of Canada in 2005. These analyses, together with many other studies conducted in this discipline presented NCDs as an aftermath of the adverse effects of modern lifestyles that not only affect the population in the urban areas but also the vulnerable

population of Indigenous peoples (Yeates et al., 2015; Chen et al., 2017; Fernández-Cao & Doepking, 2018).



Source: WHO & Public Health Agency of Canada (2005)

Figure 2.5: Causes of Major Non-communicable Diseases

In recent years, changing patterns in behaviours and risk factors related to health which lead to health disparities between Indigenous and non-Indigenous people. In non-Indigenous peoples, the root causes of poor health is the social determinants of health but especially true for Indigenous health (Haddad et al., 2012; Einsiedel et al., 2013; Anderson, 2016). Such determinants are universally thought to include the classic socioeconomic indicators defined, by the 1986 Ottawa Charter for Health Promotion including the determinants of income, education, employment, living conditions, social support, and access to health services (Thompson, Watson & Tilford, 2018). These factors certainly apply to the health of Indigenous population.

WHO listed four common behavioural NCDs risk factors that contributed to increased risk of major NCDs. They are tobacco use, alcohol consumption, physical inactivity, and poor diet of inadequate intake of fruits and vegetables. All these factors are closely related to the lifestyle of an individual, thus they are modifiable and preventable (WHO, 2017). According to WHO and the Public Health Agency of Canada (2005), if these risk factors are eliminated, at least 80% of all heart diseases, stroke, and type 2 Diabetes mellitus and over 40% of cancer can be prevented. Therefore, it is important to obtain knowledge about NCDs risk factors so that population distributions of these factors can be modified (Riley et al., 2016).

The metabolic risk factors of NCDs include raised blood pressure, abdominal obesity, increased fasting blood glucose, and dyslipidemia (raised triglyceride and lowered high-density lipoprotein cholesterol) (Riley et al., 2016). This cluster of risk factors often occur together than alone, thus they are collectively known as metabolic syndrome. A few diagnostic criteria have been proposed and used by different organisations for the purpose of research in population. However, all the criteria that categorised metabolic syndrome shared the four common behavioural risk factors of NCDs (Lee et al., 2008; Simmons et al., 2010).

There is an obvious ethnic disparity in the prevalence of metabolic syndrome in Malaysia among major ethnic with 26.4% among Malays, 26.2% among Chinese, 35.6% among Indian, and 30.5% among indigenous Sarawakians (Rampal et al., 2012). A few other studies conducted by Zahary et al. (2019), Aghakhanian et al. (2018), and Ali et al. (2016) showed a high overall prevalence of metabolic syndrome among the Orang Asli of 39.8%, 29.6%, and 25.2%, respectively which is comparable with major ethnic in Malaysia.

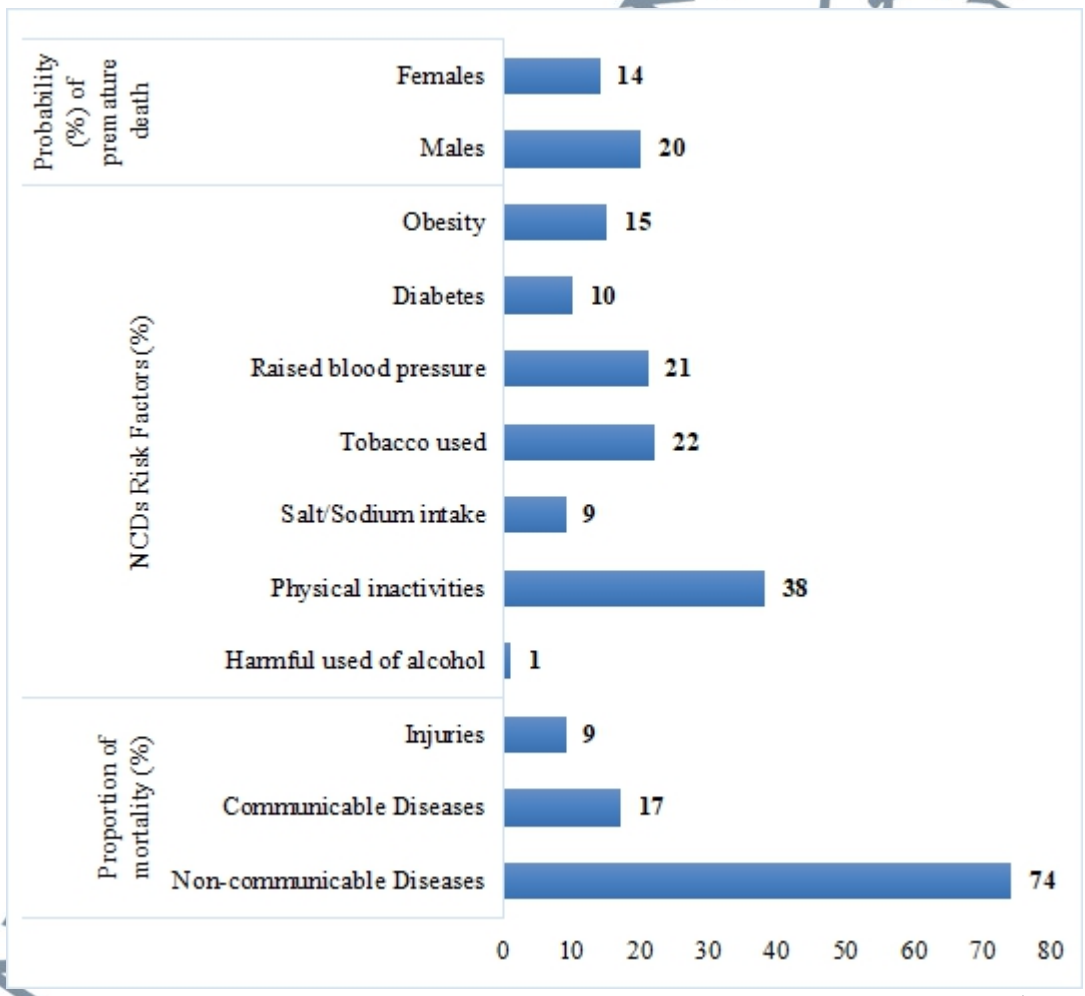
2.4.2 The Role of Indigenous Health Determinants

Indigenous health is widely understood to also be affected by a range of cultural factors, including racism, along with various Indigenous-specific factors, such as loss of language and connection to the land, environmental deprivation, and spiritual, emotional, and mental disconnectedness. Indigenous peoples define wellbeing far more broadly than merely physical health or the absence of disease. Besides to the sociodemographic determinants and the risk factors of NCDs in the population, for the vulnerable community of Indigenous peoples, four elements of life, the physical, emotional, mental, and spiritual, are represented in the four directions of the medicine wheel (Waterworth et al., 2015; Salahudin, Baharuddin & Alwi, 2017; Gallagher, 2018). The holistic and balance physical, mental, emotional and spiritual is essential as any changes in one component can cause rippling effect on all other health components.

Orang Asli in Malaysia is also undergoing urbanisation which is part of the continuing transformation of Indigenous peoples' culture (Noor, 2012; Abdullah et al., 2015). In addition to Indigenous health determinants, the traditional health care system of Orang Asli was further conceptualised by Salahudin, Baharuddin & Alwi (2017) and Wong, Allotey & Reidpath (2014) as a common health system that integrates group rights and obligations for the use of natural resources, knowledge transfer and social security. This emerged as a result of an egalitarian social structure, the broad diffusion of power and the administration of joint property ownership found in the societies of Orang Asli.

2.5 The Impact of Chronic NCDs and Their Risk Factors

Figure 2.6 below shows the NCDs profiles for Malaysian adults in 2016 (WHO, 2018). As high as 74% of the mortality was attributed to NCDs. Among the modifiable NCDs risk factors, physical inactivity and tobacco usage accounted for the highest prevalence at 38% and 22% respectively. As for the metabolic risk factors, the highest prevalence was raised BP with 21%, followed by obesity and diabetes with 15% and 10%, respectively. It is also important to note that NCDs contributed to one-fifth of the premature death among males.



Source: WHO (2018)

Figure 2.6: Malaysia NCDs Profiles in 2016 by Percentages

For the Orang Asli, land and natural resources, such as forests, are the most valuable properties. From it comes to their food, water, medicinal plants, energy and building materials for shelter foundational to maintaining physical health and livelihoods (Kamil, Nasffi & Rashid, 2011; Bartholomew et al., 2017). Many Orang Asli has created land and forest uses that preserve and maintain the environment for their ecological functions, such as erosion control and climate management, which are essential to human health (Keat, Nath & Jose, 2018; Lambin et al., 2019). For them, land and forests form their social and spiritual context, providing the society with their belief structure, their human and ethnic identification as a unique group, and their cultural traditions, each contributing to the self-esteem and social stability of the community (Ibrahim, 2019). The depletion of such socio-cultural environments by communities traditionally attached to their land and forest habitats harms the culture of Orang Asli (Shaleh, Guth & Rahman, 2016; Abdullah, 2018).

Detachment to land and cultural problems indirectly triggered food scarcity and hunger in the populations of Orang Asli, as the habitat where they search and harvest food is being affected (Law et al., 2018; Rosman et al., 2020). Along with increased exposure among the Orang Asli to raising the prevalence of overweight, obesity, and nutrition-related NCDs, the prevalence of nutrition-related NCDs is also growing steadily, concurrent with chronic under-nutrition. Multiple forms of malnutrition can be found within one individual of an overweight woman with micronutrient deficiencies, within a household an overweight parent and a stunted child, or within the same Orang Asli community as reported by Wong et al. in 2015. The study found in Orang Asli villages surrounding the Krau Wildlife Reserve, 26 % of overweight and obese adults coexisting with high proportions of underweight and stunted children with 49% and 64%, respectively. Due to the vulnerability of the

Orang Asli community, this poses other risks challenge as childhood malnutrition could also contribute to the development of NCD in adult live (Jacob et al., 2017; Wells, 2018; Mwene-Batu et al., 2020).

The impact and profile of NCDs among Orang Asli are not well understood as most studies were devoted to infectious diseases (Phua, 2015). As minorities struggle to adapt to the urbanisation, they are still plagued by common infectious diseases. The emerging NCDs that threaten their communities make them even vulnerable to morbidities and mortalities. Previous studies have shown that in developing countries, the negative health impact of chronic NCDs and risk factors among the minorities and poor income groups can be a bigger burden as compared with the high-income group (Amuna & Zotor, 2008; Angkurawaranon et la., 2014).

To achieve the government's objective of enhancing the well-being of Orang Asli, more extensive research on NCDs is needed due to the epidemiological changes experienced by the Orang Asli in the transition from traditional to modern lifestyle. Therefore, it is vital to perform a SR to investigate this risk based on the results synthesised from previous studies. The review will provide a summary of the issues surrounding the behavioural and metabolic NCDs risk factors among the vulnerable population of Orang Asli.

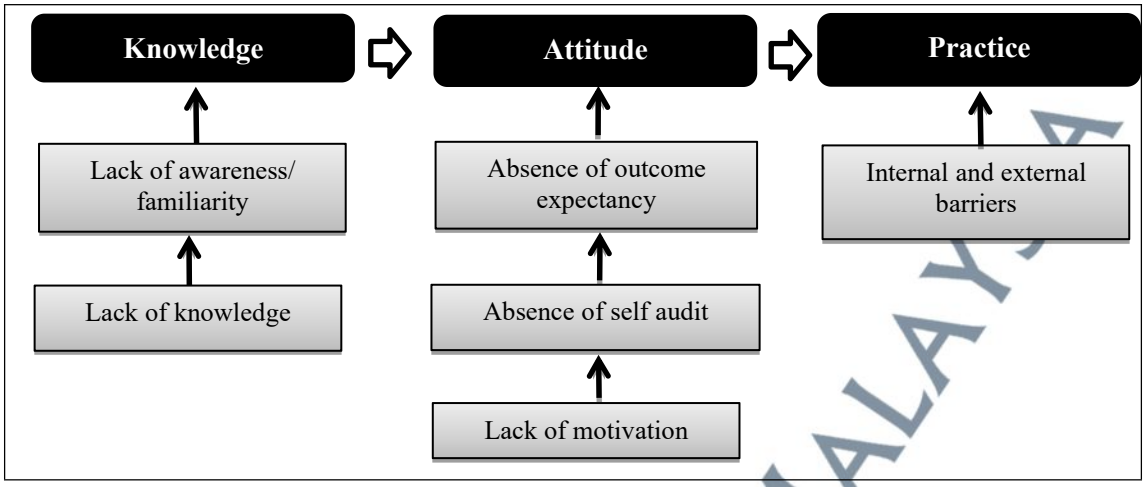
2.6 Knowledge, Attitude, and Practices (KAP)

Health belief model include four cognitive constructs of perceived susceptibility, perceived severity, perceived barriers and perceived benefits (Rosenstock, 1974). These constructs can be expanded to apply to specific areas of behavioural change including for the lifestyle modification (Conner & Norman, 2017; Blaga, Vasilescu & Chereches, 2018). Previous studies had reported that success in public health interventions (PHIs) in resource-limited settings relies highly on the

understanding of the socio-anthropological and knowledge aspects of the communities towards the interventions (WHO & Stop TB Partnership, 2008). Such context-specific public health information can be collected through knowledge, attitude, and practices (KAP) studies.

According to WHO (2014), KAP studies are commonly conducted to gather information on the knowledge (i.e., what is understood), attitude (i.e., what is thought), and practice (i.e., what is done) concerning general or particular issues in a specific population. In a systematic review by Wan, Rav-Marathe & Marathe, 2016, findings support the positive effect of health education interventions on improved individual' knowledge, attitude, and preventive practice, and health care outcomes on the diseases. The positive finding also reported on a study on soil-transmitted helminth infections, knowledge, attitude and practices (KAP) of Orang Asli people on diseases were increased significantly after a health education being conducted (Al-Delaimy et al., 2014). Thus, by understanding the knowledge level on specific diseases, effective intervention, and strategic programme can be established to reduce the occurrence of the diseases in the targeted communities.

Figure 2.7 shows the conceptual framework of the KAP study based on mixed-method quantitative and qualitative data collected by Muleme et al. (2017). There are remarkably few KAP studies that combine both quantitative and qualitative data collection (Launiala, 2009; Muleme et al., 2017). The combination of quantitative and qualitative methods allows a more robust interpretation and the results will be generalisable for context-specific problems (Bhattacharyya, 1997). No study found use of this research design when determining the level of KAP among the Orang Asli.



Source: Muleme et al. (2017)

Figure 2.7: A Conceptual Framework of the KAP Study using Mixed-method Design

Most KAP surveys apply quantitative data collection because they are easy to design and the data output is quantifiable (Wan, Rav-Marathe & Marathe, 2016), including the studies among the Orang Asli (Ahmad et al., 2013a; Chandren, Wong & Abu Bakar, 2015; Elyana et al., 2016). Furthermore, almost all of the quantitative studies in the Orang Asli community focused on infectious diseases since they remain the common illnesses among the Orang Asli (Al-Adhroey et al., 2010; Tan, 2013; Nasr et al., 2013; Chandren, Wong & AbuBakar, 2015; Elyana et al., 2016). From that, most of these studies reported poor knowledge of infectious diseases.

Studies on KAP regarding NCDs among the Orang Asli are very minimal compared to the general population in Malaysia (Ding, Teng, & Koh, 2006; Rosmini Remali, Zakaria & Yusof, 2017; Abbasi et al., 2018; Buang, Rahman & Haque, 2019). A study conducted by Ahmad et al. (2013a) compared the level of knowledge of diabetes among Orang Asli from three different localities. Overall, the level of knowledge of diabetes among the Orang Asli population was very poor. Specifically, the results also showed that Proto-Malays in the periphery had a low level of knowledge of diabetes. Many Orang Aslis also manifested unhealthy eating

behaviours. In another study conducted among the Orang Asli living in the periphery category, only 3.1% had good nutrition knowledge while the majority of them (82.9%) fell under the poor nutrition knowledge category (Chong, Appannah & Sulaiman, 2019).

2.7 Health-seeking Behaviour

According to MacKian (2003), to understand health-seeking behaviours, research was commonly conducted to study the causal factors of the use of health services and the determining factors behind the different behaviours each person has concerning their health. These two components are known as utilisation of the formal system or healthcare-seeking behaviour. However, if the emphasis is on the individual's response to the illness, then it will be labelled as health-seeking behaviour. Again, the 'health belief model' was the most widely applied theory for health-seeking behaviours in the process of illness response (MacKian, 2003; Champion & Skinner, 2008; Lee et al., 2019).

In Islam, health-seeking treatment is part of the Prophet's practice for the cure of diseases as narrated from Anas: Prophet Rasulullah (PBUH) said the following:

> "For every disease, there is a medicine, and if that medicine is applied to the disease, he will recover by Allah's Leave" (Sahih al-Bukhari. Vol. 7, Book 71, Hadith 582).

Under the traditional Aboriginal health beliefs and medical system, the model of illness highlighted social and spiritual dysfunctions as a cause of illness (Maher, 1999; Saub & Jaafar 2001; Abdullah et al., 2014; Yew, 2017). Among Indigenous peoples, there are several determinant factors affecting how they engage and respond as part of their health-seeking behaviours. The determinants include sociodemographic factors such as education, social structures, cultural beliefs and

practice, gender issues, economic and political systems, environmental conditions, disease patterns, and modern healthcare system (Wong, Allotey & Reidpath, 2014; Yew, 2017; Wong, Allotey & Reidpath, 2019).

Different researchers have measured health-seeking behaviours among Orang Asli in various ways. To be specific, some authors used quantitative methods of data collection via surveys (Al-Adhroey et al., 2010; Othman et al., 2012; Ahmad et al., 2013a; Cheng et al. 2014; Elyana et al., 2016). Data collected via this method showed that in terms of healthcare utilisation, the majority of the Orang Asli preferred to use public healthcare facilities (Othman et al., 2012; Cheng et al., 2014; Rosnon et al., 2019). However, other studies reported that the number of Orang Asli seeking traditional treatment remains high. A survey by Al-Adhroey et al. (2010) on malaria treatment-seeking behaviour indicated a significant number of Orang Asli living in the deep forest continued to use herbal remedies and witchcraft as first-line treatment. Very few of them would seek treatment at the clinic as a first-line treatment, compared to other major ethnicities in the rural communities of Malaysia. Another study by Elyana et al. (2016), showed lower percentages of Orang Asli who went to the clinic compared to Malay as a first-line treatment for gastrointestinal tract symptoms. Many of them did not do anything to treat the symptoms.

Apart from that, some authors also attempted to use qualitative methods to gain insight into the pattern of health-seeking behaviour among Orang Asli. This method can address any issues in the utilisation of the modern healthcare system versus traditional healing practice among the Orang Asli. Many of the Orang Asli do not simply accept modern medicine even though they might have been exposed to it through contacts made with outside communities (Abdullah et al., 2014). However, a study also showed that they would not completely reject the benefits of modern health

services. By providing them with sufficient health information and convenient services that are easily accessible, they can decide between traditional or modern health services, whichever that gives a better outcome (Wong, Allotey & Reidpath, 2019).

Nevertheless, several pertinent issues in chronic illness conditions such as hypertension and diabetes need to be taken into consideration, for instance, the changes in lifestyle and a better approach to health behaviours. Such changes can occur if the individual can manifest self-efficacy in their health-seeking behaviours in terms of their expectations about treatment outcomes (MacKian, 2003). Ahmad et al. (2013a) studied the behaviours of Orang Asli in seeking treatment for diabetes. Most of the respondents preferred to seek modern medical treatment compared to seeing a faith healer. However, 30% of respondents chose to self-treat with traditional medicine. Furthermore, the study showed that knowledge of disease is associated with health-seeking behaviour. The Senois with the highest level of knowledge pertaining to diabetes also showed the highest preference to seek modern treatment if they had diabetes, compared to the Proto-Malays and Negritos who had lower knowledge levels on diabetes.

In view of an increasing trend of Orang Asli inflicted with chronic illnesses and undiagnosed NCDs, mixed-method approach will be potentially useful in exploring these issues. Chronic diseases require long-term disease management and treatment, thus placing an additional burden on these marginalised communities (Cheng et al., 2014). The mixed-method research approach allows a better insight into the opinions of the users of the healthcare facility, especially in terms of accessibility and barrier towards the service. It will also provide in-depth information about the

chronic diseases that involve high medical costs, reduced individual productivity, increased morbidity and premature mortality.

2.8 Summary of the Chapter Two

This literature review was divided into two areas, namely the background about the Orang Asli and the problems faced by them. This chapter outlined each area separately before reviewing the connections between them thoroughly. Non-communicable diseases are often asymptomatic in the pre-clinical stage. Early detection and intervention can prevent NCDs from progressing to end-stage of the disease as well as reducing the morbidity and mortality from the conditions.

We addressed some ethnic, social, and economical disparities between Orang Asli and general populations in this chapter. Through this literature review, we also attempted to bridge the gap between the existing knowledge and methodological studies used in the research regarding NCDs among the Orang Asli. This thesis aimed to provide a better understanding of the major NCDs risk and health behaviours through the prevalence, KAP, and health-seeking behaviour study among the Orang Asli using a mixed-method approach.

The following chapter focuses on the methodology used to archieved the study objectives.