CHAPTER 1 : INTRODUCTION

1.1 Introduction

This introductory chapter presents the research background, problem statement, objectives, research questions, hypotheses and rationale of the study. Finally, a brief outline of the organisation of this thesis is presented.

1.2 Research Background

The World Health Organization's (WHO) defines health as the state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity (WHO, 2014). The enjoyment of the highest achievable standard of health is one of the requisite rights of every human being without the boundary of race, religion, political belief, economic, or social condition. According to the Lalonde Report in 1974, the decisive factors of the health of an individual or a society are determined by four basic things, namely biological, environment, lifestyle, and organisational healthcare (Hancock, 1986).

In Islam, practical advice for a balanced and healthy lifestyle stems from the primary sources of Allah (s.w.t.) through the Al-Quran and the Hadith from the Prophet Muhammad (PBUH) in the guidance of every part of human life. The advices are stated indirectly in the Al-Quran and Hadith, i.e., all foods should be consumed in moderation and people must maintain a healthy living:

"Eat and drink and do not commit excesses. Indeed, He does not love those who are excessive." (Al-Quran. Al-A'raf. 7:31).

"And spend in the way of Allah and do not throw [yourselves] with your [own] hands into destruction [by refraining]. And do good; indeed, Allah loves the doers of good." (Al-Quran. Al-Baqarah. 2:195)

The Prophet Muhammad (PBUH) also said: "Do not indulge in over-eating because it would quench the light of faith within your hearts." (Hadith, Al-Mustadrak. Volume 3: p. 81)

Indigenous peoples are present in various countries around the world. An estimated 5.3% of the world populations are Indigenous peoples residing in approximately 90 countries (Hall & Patrinos, 2012). They are referred to by several names such as the Aboriginal and Torres Strait Islander in Australia (Seear et al., 2020), Māori in New Zealand (Boot & Lowell, 2019), Native Hawaiians, Pacific Islanders, American Indians and Alaska Natives in the United States of America (Shaw et al., 2013; Isaac et al., 2018) and also Métis, Inuit and First Nations in Canada (Prince et al., 2018).

In different parts of Asia, Indigenous peoples are called *minzu* in China (Dong, 2019), Scheduled Tribes or Adivasis in India (Radhakrishna, 2016), *Masyarakat Adat* in Indonesia (Tobroni, 2013), ethnic minorities, and among others, distinguishing them as sociocultural groups distinct from the majority (UN, 2009). In Malaysia, Indigenous peoples account for 12% of the total population. They consist of the Orang Asli in Peninsular Malaysia, the Bukitans, Bidayuhs, Dusuns, Sea Dayaks, Land Dayaks groups of Sarawak, and the natives of Sabah (UN, 2009; Boon, 2010).

People who are defined as Indigenous, or who identify as Indigenous, and who are present in almost all regions of the world, have also had a distinct way of

describing their health. The cultures and world views of Indigenous peoples are not taken into account in the definition of health by WHO, which is the essential element in the Indigenous peoples' concept of health. The definition of aboriginal health is more comprehensive, which extends beyond the physical, mental, and social well-being of an individual to the spiritual balance and well-being of the community as a whole (Wong, Allotey & Reidpath, 2014; Paradies, 2016). The Indigenous peoples' concept of health is holistic, and balance in health is vital as any changes in one element can cause a rippling effect on all other components (UN, 2009).

The Orang Asli minority group constitutes approximately 0.6% of the total Malaysian population (JAKOA, 2010). Based on the theory of Indigenous world view of health, Salahudin, Baharuddin & Alwi (2017) identified the determinants of well-being for the Orang Asli, which include the physical, mental, emotional and also harmonious interpersonal relationships with other humans, the environment and spirit world. The Orang Asli are struggling to preserve their traditional customary systems as they are always being affected by the rapid development of Malaysia (Endicott, 2015; Andaya, 2016; Abdullah et al., 2019).

Comparing the global health data status, Indigenous peoples experience lower health and social outcomes than non-Indigenous populations (Anderson et al., 2016). Similarly, the Orang Asli in Peninsular Malaysia also records lower health and social status than the general population. The average life expectancy for the Orang Asli is 53 years, compared to the national average of 73 years (Rusaslina, 2010). Many studies have shown that they are still struggling with infectious diseases (Phua, 2015; Elyana et al., 2016) and disturbingly, increasing prevalence of chronic diseases (Tuan Abdul Aziz et al., 2016; Aghakhanian et al., 2018). Moreover, 76.9% of the

population of Orang Asli lies below the poverty line, with 35.2% listed as living in hardcore poverty, compared to 1.4% nationwide (DoSM, 2010).

1.3 Research Issue

Non-communicable diseases (NCDs) are closely related to the health determinants and well-being of individuals and the society. The US Centers for Disease Control and Prevention (CDC) defines NCDs as a chronic condition that does not result from an acute or infectious process, has a prolonged course, that does not resolve spontaneously, and for which a complete cure is rarely achieved (CDC, 2013).

Under the United Nations (UN) 2030 Agenda, multiple targets have been established under the 17 Sustainable Development Goals (SDGs). The goals included the full range of aspects that contribute to equitable and sustainable well-being agreed by all countries. One of the goals set in the SDGs is to ensure healthy lives and to promote well-being at all ages (UN, 2015). Under this goal, the UN established a target to reduce premature mortality from NCDs by one-third by 2030 via the prevention and treatment of NCDs as well as the promotion of mental health and well-being.

In the past few decades, economic progress and urbanisation have widened the spread of unhealthy diet and lifestyles (Amuna & Zotor, 2008). Globally, the four leading NCDs ranked by WHO in 2017 are cardiovascular diseases (CVDs), cancer, chronic respiratory diseases, and diabetes mellitus (DM). The increased prevalence of these leading NCDs has been driven primarily by four major modifiable lifestyle risk factors, namely tobacco use, alcohol consumption, decreased physical activity, and unbalanced diet (WHO, 2017). These unhealthy lifestyle risk factors contribute to four critical metabolic or biological changes that subsequently increase the future risk

of developing NCDs. These changes include raised blood pressure (BP), obesity, high blood glucose levels, and high levels of lipid in the blood (Forouzanfar et al., 2016).

At the community level, particularly in the vulnerable community of the Orang Asli, the critical question arises as to the practical steps that should be taken to optimise health and wellness. It is well established that the adoption of a healthy and balanced lifestyle can prevent NCDs and ultimately reduces the disease burden. By measuring the risks and health behaviour towards NCDs, it would be an invaluable resource to researchers working in this area. The health issues facing by the Orang Asli will be viewed from their point of perspective as the intervention strategy initiatives are created with the communities through in-depth study. This type of research on the determinants of risks and health behaviour has the potential to make a valuable contribution to efforts in improving the health of this targeted community.

1.4 Statement of the Problem

Non-communicable diseases are the leading cause of death worldwide, and one of the 21st century's most prominent health threats. As per the WHO report in 2018, the global burden of NCDs is unwelcoming. Non-communicable diseases accounted for 41 million (71.9%) of the 57 million deaths around the world in 2016. Of such deaths, 15 million were premature (30 to 70 years). The burden is the largest in low- and middle-income countries, where 78% of all NCDs deaths and 85% of premature deaths occurred. The four leading NCDs that contribute to high morbidity, and mortality globally are CVDs, cancer, chronic respiratory diseases, and diabetes (WHO, 2017).

Health inequalities exist between Indigenous peoples and non-Indigenous populations in the burden of NCDs and their common risk factors (UN, 2015,

Anderson et al., 2016). The Indigenous peoples, with no exception, are also involved in public health crises. These disorders are now prevalent in Indigenous populations (Gracey & King, 2009; Yeates et al., 2015). As a result of the urbanisation process and rapidly changing lifestyles, these disorders have emerged in these groups (Chen et al., 2017; Fernández-Cao & Doepking, 2018). This issue is severe, particularly among Indigenous peoples living in urban and peri-urban communities (Brown et al., 2014; Ebenezer & Mariam Wallet Med, 2019).

The disease burden among the global Indigenous population is similar in many countries where the NCDs prevalence rates are rising rapidly in a setting of persistently high infection rates. Studies reveal substantial racial disparities in the rates of infection and of NCDs, reflecting the dual burden of disease that affects the Indigenous populations (Haddad et al., 2012; Einsiedel et al., 2013).

Previous reports suggested that Malaysia, as a developing country, is in an intermediate stage of the disease transition whereby infectious diseases coexist with increasing rates of chronic-related conditions (Yusoff et al., 2013). Non-communicable diseases now contributed to an estimated two-thirds of the total deaths in Malaysia, with the most significant contributor being CVD or coronary heart diseases (IPH, 2015b). Malaysia continues to experience economic transformation from an agricultural to an industrial country. At the same time, a lifestyle modification towards a more sedentary habit also becomes more common among Malaysians, with comparable rates as other developed countries (Abdullah & Nakagoshi, 2006; Amuna & Zotor, 2008).

As this country transition continues, it is expected that NCDs and their risk factors would increase among Indigenous communities in Malaysia, including the Orang Asli (Masron, Masami & Ismail, 2013). For the Orang Asli communities, the

changing environment and health factors have impacted their quality of life and exposing the Orang Asli community to the diseases that are more prevalent among dominant ethnicities and urban communities. Already burdened with poorer health compared with the national population, studies showed that there is a growing problem of NCDs among the Orang Asli (Phipps et al., 2015; Tuan Abdul Aziz et al., 2016). Changes in the ecosystems have also affected their quality of life. As a result, this has indirectly resulted in the change of disease trends from infectious diseases to NCDs, especially among Orang Asli living in the fringe and urban areas (Adrian Jinam et al., 2008).

According to the WHO, risk factor refers to any attribute, characteristic, or exposure of an individual that increases his or her likelihood of developing NCDs (WHO, 2001). In public health, the densities of the population who have these risk factors can reflect the actual scenario of the expected disease in a population rather than just predicting the health of a particular individual. Meanwhile, health behaviours are ignorance and harmful behaviour that can affect the onset and progression of diseases. It includes awareness, prevention and control of risk factors and also in the detection and healthcare-seeking behaviour (Conner & Norman, 2017; Rahman, 2018; Seear et al., 2020).

The understanding of the Orang Asli communities' risks and health behaviour is a crucial aspect in the context of public health interventions. The transition to a more urbanised lifestyle, together with a low education level, limited knowledge on diseases, and a lack of accessibility to healthcare facilities have exposed the Orang Asli to the threat of NCDs. These factors consequently expose them to the increasing threat of chronic diseases.

The emergent threat of NCDs among the vulnerable groups at risk in the Malaysian population needs to be combated by effectively monitoring its prevalence and the occurrence of risk factors. Also, the NCDs occurrence is manageable and preventable via understanding the NCDs risk factors from the Orang Asli communities' perspectives and views. This challenge has driven the undertaking of this study among the Orang Asli, where the data are still scanty.

1.5 Gap of Knowledge

The Orang Asli are plagued by an inferior health status compared with the national population. As they slowly shift towards a more urbanised lifestyle, they are exposed to the threat of lifestyle-related NCDs. The available studies on the risks and health behaviours of the Orang Asli are still lacking. The Orang Asli community may view the concepts of health in different perspectives. Together with the challenge of adopting the urbanisation that changes their traditional way of life, better understanding on this issue will allow incorporation of their views as central to the design and management of state health systems.

A systematic review (SR) is a review of a formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review (Moher et al., 2009). There are many systematic reviews that had been conducted previously among the Indigenous peoples globally which had an impact on government policies (Welch, Boyer & Chamberlain, 2015; Anderson et al., 2016). To the best of the researcher's knowledge, there is no published study conducted looking into the NCDs risk factors among the Orang Asli. By performing a systematic review

of published data, it enables invaluable evidence to support an accountable decision-making process to improve the health of the Orang Asli.

The baseline data on risks and health behaviour in the targeted population are essential as it provide a valuable input for the intervention strategies and programs (Blaga, Vasilescu & Chereches, 2018). However, research in this area among the Temuan subtribe of Orang Asli remains scanty. To be able to increase the population awareness in NCDs prevention and early screening, it is essential to establish the level of knowledge, attitude and practices (KAP) towards the diseases among individuals and communities in the targeted community. Information on the current level of KAP for NCDs among Orang Asli is minimal, as most of the earlier studies were more focused on KAP for infectious diseases. This study, therefore, sought to fill this gap in knowledge.

The health-seeking behaviour of the Orang Asli is so far, not extensively studied. It includes the quantity, quality, management, traits, and relationships with resources in the process of getting treatment or medicine (Redzuan & Gill, 2008). The Orang Asli communities receive health and medical services from the Ministry of Health (MOH) Malaysia and the Department of Orang Asli Development (JAKOA). However, the accessibility or access for health facilities remains one of the barriers for the Orang Asli to seek treatment. To date, there is no mixed-method study on knowledge, attitude, practice, and health-seeking behaviours among the Orang Asli communities.

A systematic review of published data will generate a summary of the current state of literature and studies conducted on modifiable behaviour and metabolic risk factors of NCDs among the Orang Asli. Following this, a mixed-method sequential explanatory study was conducted among selected Orang Asli communities. By doing

so, this thesis pursues to better understand the health-seeking behaviour of the Temuan Orang Asli.

1.6 Research Questions

The research questions guiding this study are:

i. What is the prevalence of behavioural and metabolic risks of NCDs in the adult Orang Asli in Malaysia?
ii. What is the prevalence of major NCDs, risks of NCDs, KAP towards NCDs and health-seeking behaviour among the adult Orang Asli in Negeri Sembilan?
iii. What are the factors associated with major NCDs and KAP to NCDs,
iv. What are the behavioural risk factors, knowledge and perception towards NCDs among the Orang Asli respondents?
v. What barriers do Orang Asli perceive in seeking modern healthcare?

1.7 Objective of the Study

1.7.1 General Objective

The purpose of this study is to identify the risk factors and health behaviours on non-communicable diseases among the Orang Asli in Negeri Sembilan, Malaysia.

1.7.8 Specific Objective

i. To carry out a systematic review to identify the prevalence of behavioural and metabolic risks of NCDs in the adult Orang Asli in Malaysia.
ii. To describe the prevalence of major NCDs, risks of NCDs, knowledge, attitude, practices (KAP) towards NCDs and health-seeking behaviour among the respondents.

iii. To identify the predisposing factors such as sociodemographic and risks of NCDs towards major NCDs and KAP among the respondents.

iv. To explore the behavioural risk factors, knowledge and perception towards NCDs among the respondents.

v. To explore the perceived barriers to seeking modern treatment among the respondents.

1.8 Hypotheses

i. There is an association between predisposing factors and the major NCDs among the Orang Asli respondents.

ii. There is an association between a predisposing factor and NCDs risks among the Orang Asli respondents.

iii. There is an association between a predisposing factor and KAP towards NCDs among the Orang Asli respondents.

1.9 Expected Research Outcome

In order to provide robust evidence and in-depth understanding on risks and health behaviours towards NCDs among the Orang Asli, the researcher tried used numbers of research design for integration of finding thus filling the gap of the methodology of previous research. Research is carried out by conducting a systematic review on behavioural and metabolic risks of NCDs in the first phase, followed by sequential explanatory mixed methods in the second and third phase of the study.

The primary function of systematic review research is to produce a detailed and comprehensive review follow the systematic review methodology outline. By doing the review, produce can be confident that not only are we conducting research, but also are producing some of the highest quality research possible. When we are an

encounter with research questions, we aim to identify, assess and bring together the evidence relating to that problem. Thus, this information can then be used to inform changes to policy and also professional practice.

The quantitative data collection and analysis are providing the prevalence of major NCDs, risks to NCDs and health behaviour in a selected population of the Orang Asli. Besides that, through statistics, a multivariate analysis will show the sociodemographic, behavioural risks and metabolic risks associated with major NCDs. Then, the metabolic risks and health behaviour of knowledge, attitude and practices towards NCDs analyses will shown the associated factors to these risks and health behaviour on NCDs. All the factors associated with major NCDs, risks and health behaviours can be used as a targetted intervention program and strategy in the selected Orang Asli communities.

The results of the quantitative research explained with qualitative research. By doing so, the results of the qualitative research should help to provide an in-depth understanding of the risks and health behaviours towards NCDs among the selected Orang Asli who are undergoing urbanisation. In addition, by using a different methodology, finding data validated using triangulation methods.

Lastly, this design can be especially useful when in-depth data is required as findings from the study will show Orang Asli community risks and health behaviour towards NCDs, thus addressing the needs of the community. This finding will improve understanding and provide a suggestion for future interventions strategy.

1.10 Significance of the study

Major NCDs, namely cardiovascular diseases, type 2 diabetes, cancers, and chronic respiratory diseases are the leading causes of poor health and premature

mortality worldwide, also accounting for seven out of ten deaths annually in Malaysia (WHO, 2018). Most NCDs share predisposing risk factors such as obesity and unhealthy lifestyle behaviours, including alcohol consumption, cigarette smoking, insufficient physical activity and low vegetables and fibres intake (Forouzanfar et al., 2016). These risk factors are unlikely to occur in isolation, but, instead, can cluster and interact to exponentially elevate the risks of NCDs (GBD 2016 Disease and Injury Incidence and Prevalence Collaborators, 2017). While these risk factors can negatively affect morbidity and mortality, compliance to healthier lifestyle habits can decrease the risks proportionately (Lee et al., 2019; Scear et al., 2020). Understanding the clustering of risk factors for NCD will help guide plans to prevent, manage and mitigate poor health and premature deaths associated with NCDs (Oetzel et al., 2017; Blaga, Vasilescu & Chereches, 2018).

Non-communicable diseases are closely related to the health determinant and well-being of the individual and their society. There are limited studies that determine the prevalence and risk factors of NCDs among the vulnerable population of Orang Asli in Malaysia. To gain a better understanding of NCDs among Orang Asli communities, a comprehensive mixed-method approach was conducted in the present study to determine the prevalence, KAP towards NCDs, and health behaviours among Orang Asli communities. This thesis is significant as provides important information to serve as a foundation in improving the knowledge of this issue amongst this vulnerable population.

One of the essential ways to control the NCDs is to focus on reducing the risk factors associated with the disease. The Orang Asli are a heterogeneous community because they have unique characteristics among each tribe (Masron, Masami & Ismail, 2013). Even though there are a few studies on the prevalence and risk factors of

NCDs among specific Orang Asli communities, the results cannot be extrapolated to all the Orang Asli communities due to the underlying heterogeneity of the communities and their settlement locations. Nevertheless, this study on the prevalence of NCDs among the Orang Asli in Jelebu, Negeri Sembilan, is an essential first step in the process so that appropriate plans can be designed to fulfil their healthcare needs. It can also serve as a guide for similar studies among other communities. Furthermore, the prevalence and risk factors of NCDs from this study will add to the body of knowledge about local Orang Asli communities.

This study will benefit the respondents by providing free health screening to identify abnormalities. If needed, the respondents will be advised to go for further follow-up at a healthcare facility. If detected and intervened early, the development of NCDs and the associated complications can be slowed. Furthermore, the respondents will also be given additional knowledge about NCDs and recommendations on healthy lifestyles. Thus, this study will also provide added value to the Orang Asli community.

Additionally, this study employed a mixed-method approach of quantitative and qualitative research to answer the research questions. In the real world, explanation provided by the numerical data in the quantitative analysis may not be sufficient to represent the perspective of the whole community. Therefore, the in-depth qualitative research carried out among the Orang Asli using a pre-determined theme will provide further information to support the answers to the research questions besides eliminating biases and validity threats derived from a single source or method used (Puvenesvary et al., 2008).

In summary, this thesis aims to elucidate NCDs risk factors among selected Orang Asli communities in Malaysia using a systematic review, quantitative, and

qualitative data collection. This thesis seeks to understand the local situation better to facilitate knowledge transfer to the Orang Asli. Analysis of the results will identify the local factors associated with an increased risk of the development of NCDs in the Orang Asli population. Additionally, understanding their current state of knowledge of NCDs as well as their attitude and practice will guide the development of future intervention and education programmes targeted for the Orang Asli. This will contribute to the improvement of NCDs surveillance and health awareness, as well as risk reduction among this vulnerable community. By empowering the Orang Asli communities to make wise decisions regarding their health and lifestyle, their risks of NCDs can be reduced.

1.11 Justification of the Study

To address this global health problem of chronic diseases, in 2013, the World Health Assembly, who is the decision-making body of the WHO, adopted a Global Monitoring Framework for NCDs known as 25 by 25. The World Health Assembly agreed on a set of global voluntary targets linked to the Global Monitoring Framework to prevent and control NCDs by 2025, with 25 key indicators to track progress in prevention and control of NCDs. Among the targets are to reduce premature mortality from the four major NCDs by 25%, and also targets the leading behavioural and metabolic NCD risk factors (WHO, 2013). In 2016, Malaysia selected seven indicators as the major NCD targets for the National Strategic Plan for Non-Communicable Disease 2016-2025, and the targets have been set in line with voluntary global targets by the WHO (MOH, 2016).

The Indigenous populations are also increasingly suffering from the lifestyle diseases burden, including obesity, cardiovascular diseases, cancer, diabetes mellitus,

as well as socio-economic disadvantages (Anderson et al., 2016). Therefore, the vulnerable groups of the population, including Indigenous peoples, were also included as the target population in the Global Monitoring Framework for NCDs by WHO (2013). By the year of 2030, the United Nations' Agenda for Sustainable Development also targeted to reduce premature mortality from NCDs by one-third, through prevention and treatment and promoting mental health and well-being (UN, 2015).

As for the Indigenous peoples including the Orang Asli, the integration of the prevention and control of NCDs into health-planning processes and development plans requires special attention as the equity and health needs of this vulnerable and marginalised population pose different challenges and strategies than the general population (Salahudin, Baharuddin & Alwi, 2017; Shah et al., 2018). The right information is vital to the relevant stakeholders, especially the government so that any planning made will be able to produce optimal results. Thus, studies specifically on Orang Asli populations are needed to follow the development and provide a baseline for preventive strategies suggested by the STEPwise approach to surveillance (STEPS) framework by WHO in 2001 and the United Nations in 2015. This is needed to facilitate knowledge transfer for the empowerment of communities. Through awareness programs, it the Orang Asli will be guided to make wise decisions regarding their health and lifestyle and eventually to reduce their risk of NCDs.

1.12 Scope of the Study

The scope of this study involves a systematic review and a mixed methods sequential explanatory study. Mainly, this study was divided into three different stages: a) systematic review b) cross-sectional survey and c) in-depth interviews.

A systematic review will allow a robust epidemiological evidence identification of NCDs risks in the adults' Orang Asli and to gather the prevalence of previously reported data on behavioural and metabolic risks factor of NCDs.

Urbanisation has been spreading rapidly in Malaysia since the early 20th century, including in Negeri Sembilan, which lies on the western side of Peninsular Malaysia, located 35 km from the Malaysian capital of Kuala Lumpur. Fast-growing social, physical and economic development are not only experienced by the major ethnicities but also the minority Orang Asli living in Negeri Sembilan (DoSM, 2010). From the 10,531 Orang Asli living in Negeri Sembilan, 0.9 % are from the Senoi tribe and a majority of 99.1% are from the Proto-Malay tribe. Among the Proto-Malay, 75.6% are from the Temuan sub-tribe living in Jelebu and Kuala Pilah district of Negeri Sembilan (DoSM, 2010, JAKOA, 2016).

The Orang Asli constitutes many sub-tribes which have high diversity genetically, socio-economically, linguistically and geographically. As the present study was intended to provide data on the baseline and the perceived barriers on risks and health behaviour towards NCDs, the population selected for the field study was the Temuan sub-tribe of the Proto-Malay Orang Asli group in Jelebu, Negeri Sembilan. It is hoped that this study will provide a better view of this targeted population, so that intervention strategies and plans can be suggested based on the findings of this study for this community.

1.13 Research Conceptual Framework

In predicting and understanding the risks and health behaviour towards NCDs, several factors were included in the study, including demographic characteristics,

behavioural and metabolic risks, cognitive factors, personality factors and social factors.

According to the WHO and the Public Health Agency of Canada (2005), urbanisation and underlying demographic determinants such as age, gender, education level and economic status show reliable associations with the performance of NCDs risks and health behaviours. This is driving modifiable behavioural risk factors that contribute to four key metabolic changes that increase the risk of developing major NCDs.

The basis of predicting health behaviours factors were derived from Conner & Norman (2005). Its includes the elements of cognitive, personalities and social. For cognitive factors its determine whether or not an individual practises healthy behaviour. This includes the essential element of risk awareness of diseases and knowledge about behaviour and health links, or in informing choice concerning a healthy lifestyle in individuals (Schwarzer, 2001; Renner & Schwarzer, 2003). An individual's personality factors and attitude of either positive or negative, are also associated with the practice of health behaviours (O'Connor, 2020). Finally, social factors such as peer influences, environmental influences, cultural values, and accessibility of healthcare services have been found to influence the use of health services and also on the health behaviour of individuals and the community (Crowshoe et al., 2019).

Figure 1.1 shows the individual determinants of the factors included in this study. These factors are enduring characteristics of the individual which shape behaviour and are acquired through socialisation and urbanisation processes among the Orang Asli (Salahudin, Baharuddin& Alwi, 2017). They are also open to change and hence represent one route to influence the performance of health behaviours

(Noble et al., 2016; Harding & Oetzel, 2019). This would enable researchers to contribute to the understanding of the variation in the distribution of health across this vulnerable community. It might also indicate targets for interventions designed to change the risks and health behaviours towards NCDs.

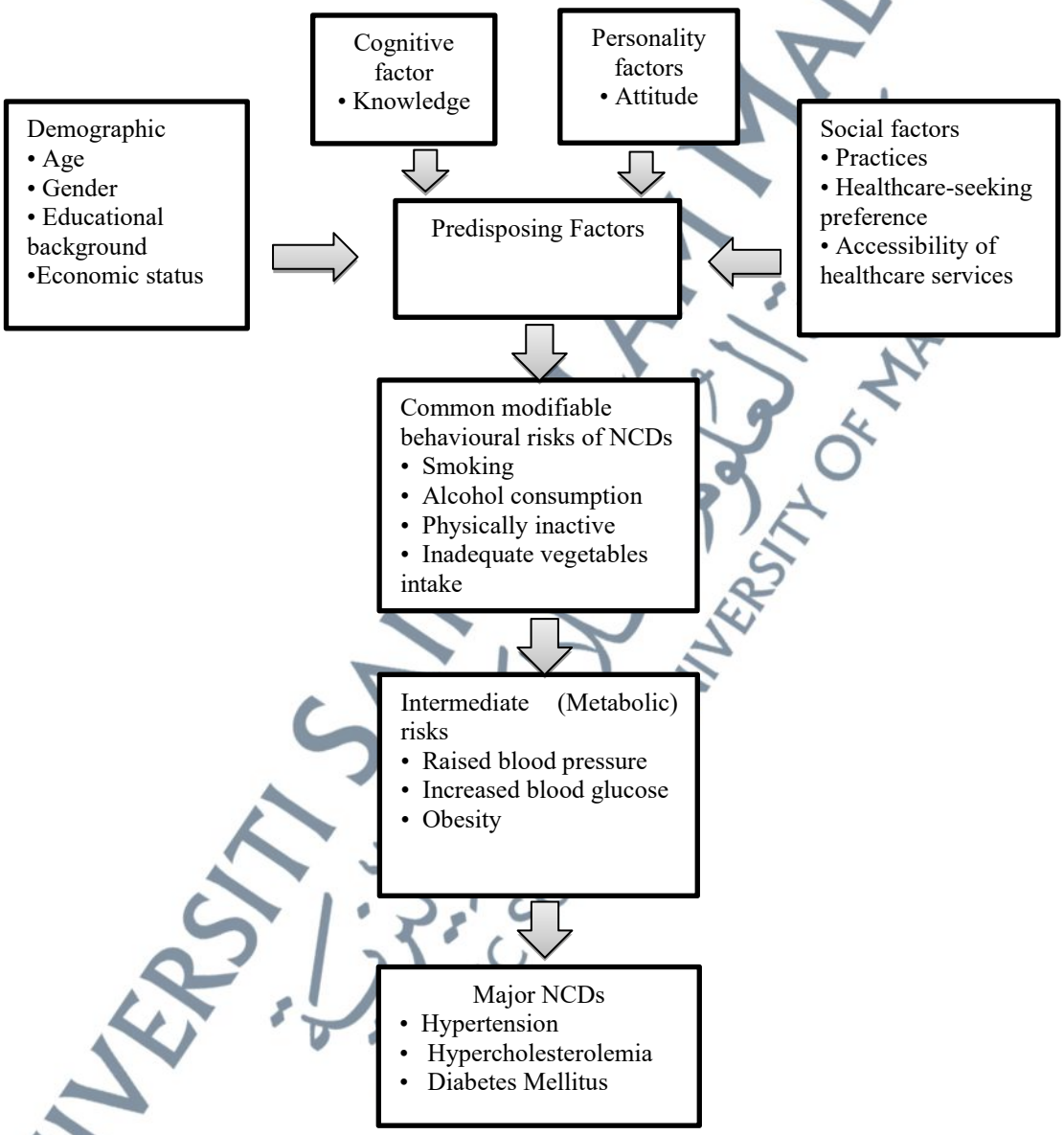

Figure 1.1: A Conceptual Framework Showing the Individual Determinants of Major NCDs

1.14 Operational Definition

a) Orang Asli - The Orang Asli ethnic classification was based on the Aboriginal Peoples Act 1954 (Act 134) from The Commissioner of Law Revision, Malaysia, 2006. In this study, for the systematic review of included Orang Asli studies were based on the definition by the authors. Whereas, for the survey, the respondents were asked on their ethnicity group, including their subtribe.

b) Major NCDs - From National Health Morbidity Surveys 2015, the three major categories NCDs in the adults Malaysian are hypertension, hypercholesterolemia and Diabetes mellitus (IPH, 2015b).

c) Behavioural risk factors of NCDs - This refer to the four key health behaviours of NCDs that are modifiable and preventable, namely, smoking, alcohol consumption, physically inactivity and inadequate fibre intake (WHO, 2013).

d) Metabolic risk factors of NCDs - Interrelated risk factors for cardiovascular disease (CVD) and diabetes which include dysglycemia, raised blood pressure, elevated triglyceride levels, low high-density lipoprotein cholesterol levels, and abdominal obesity (WHO, 2013).

e) Health behaviours - In predicting health behaviours, this study included the demographic factors, knowledge, attitude and practices towards NCDs, healthcare-seeking behaviour and accessibility to a healthcare facility (Conner & Norman, 2005).

f) Knowledge towards NCDs - Knowledge or risk awareness about behavioural links towards NCDs is an essential factor in an informed choice concerning a healthy lifestyle. In this study, knowledge assessed the extent to which individuals from Orang Asli ethnicity know the major NCDs that are related to behavioural risks of NCDs. The respondents were assessed on their knowledge of

the types of NCDs and to differentiate from communicable diseases using a six items questionnaire. Four items focusing on CVDs of heart attack, stroke and hypertension, diabetes mellitus and chronic obstructive pulmonary disease were used to measure their knowledge on the respective NCDs.

g) Attitudes - The attitude attribute characterises an individual's feelings, inclinations and with regards to NCDs behavioural risks, disease management, prevention, screening and social support. These were characterised as negative (bad) or positive (good) statements. Fifteen questions on attitude in the questionnaire were used to determine the level of health perception of major NCDs.

h) Practices - The practices attribute documents the actions related to behavioural risks factors of NCDs. Five questions were asked on the modifiable behaviours of NCDs risk factors, including physical activity, vegetable consumption, smoking behaviour, alcohol intake and body weighing practices.

i) Health-seeking behaviour - By referring to IPH, (2015b), health seeking behaviour can be defined as actions taken by individuals in seeking treatment by self-medication, purchased medicines from pharmacies, seeking treatment from traditional healers as well as from government and/or private healthcare facilities.

j) Accessibility to healthcare facility - Accessibility of modern healthcare services has been found to influence the behaviours to use such health services (Conner & Norman, 2005). This study looked into the perceived barrier in getting modern health services and the influence of traditional medicines on the Orang Asli community.

1.15 Structure of the Thesis

This thesis is divided into six chapters. Chapter One introduces the study by providing a background of the research and detailing the objectives and rationale of the study. Chapter Two reviews the literature on sociodemographic and health components that have shaped the Orang Asli community in Malaysia. The NCDs risk factors and implication of the diseases are also reviewed. By doing so, the gaps found in the literature were identified. Following that, Chapter Three presents the study methodology, namely the systematic review and sequential explanatory mixed-methods design. It is divided into quantitative and qualitative phases. Meanwhile, Chapter Four documents the systematic review synthesis, quantitative results and qualitative findings. Chapter Five contains the discussion and interpretation of the study findings and their implications. Finally, Chapter Six concludes the study with a summary of the overall findings. It also provides recommendations based on the study findings for future research. The overview of the thesis is presented graphically in Figure 1.2.

1.16 Summary of the Chapter One

Chapter One sets the scene for this thesis by introducing the NCDs as the issue and Orang Asli as the focus of this study. The critical contributing risk factors of NCDs, the reasons why urbanisation intensifies the problem, and the reasons why the study is significant to the vulnerable populations of Orang Asli communities were outlined. This chapter defined the rationale for the study, including the focus, research questions, aims, and objectives. An overview of the scope and organisation of the thesis was also presented. This chapter established the thesis framework and study flow. The next chapter is the literature review of past research conducted in the area.

The consequences of NCDs to affected individuals as well as the local community of Orang Asli will be discussed.

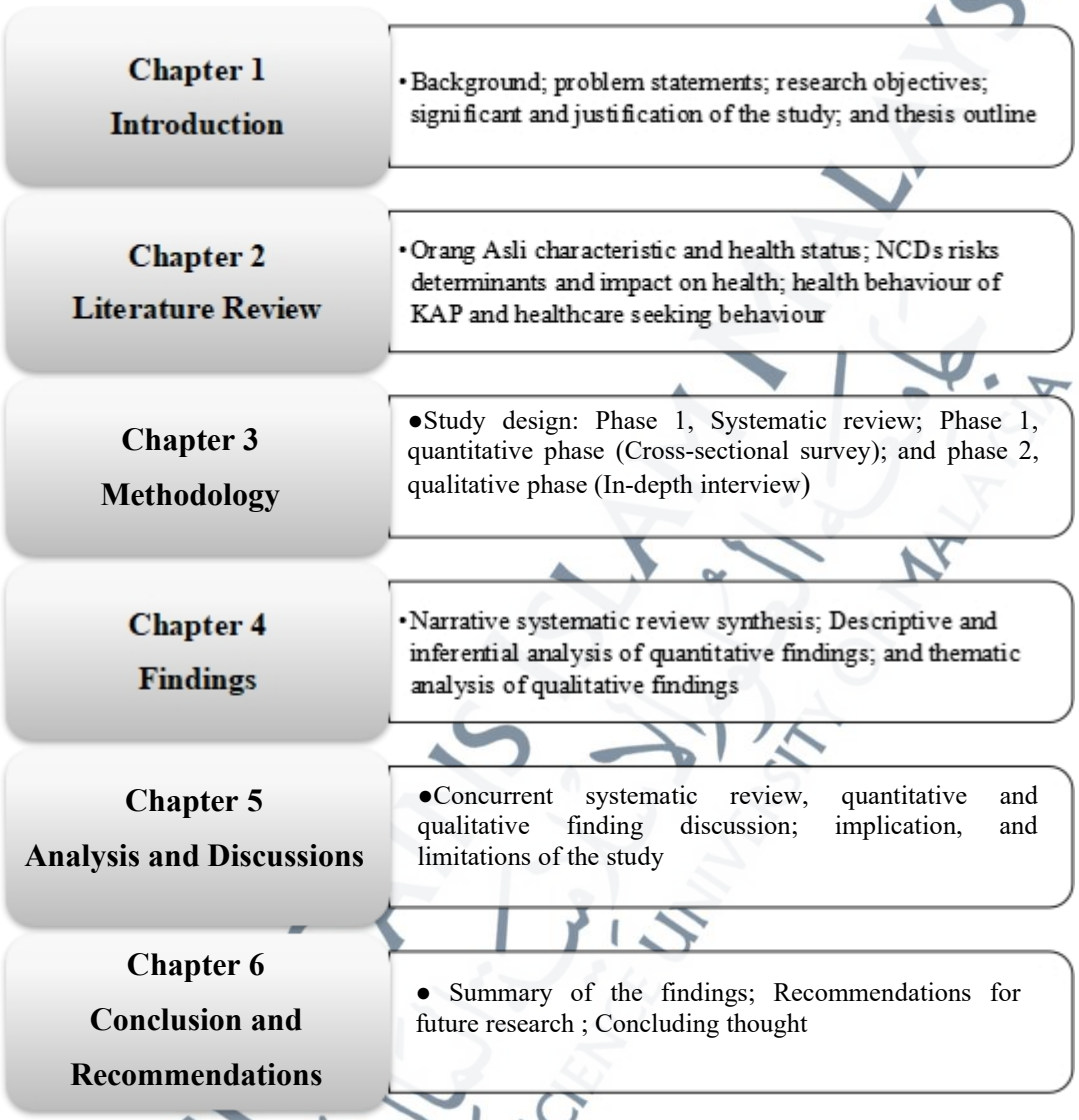

Figure 1.2: Thesis Outline