

## CHAPTER 6 : CONCLUSION AND RECOMMENDATIONS

### 6.1 Introduction

This final chapter summarises the key findings of this study and then provides recommendations and suggestions for future research based on the findings of the study. The aim of this study was to synthesise a coherent explanation of NCDs risk factors and health behaviours among the Orang Asli using a mixed-methods approach. This growing population is particularly vulnerable and experiences significant health inequalities. The results of this study emphasise the need for improvement in increasing the knowledge, attitude and practices of the Orang Asli community on NCDs. There is also a barrier to accessing healthcare facilities among them. Thus, research on social determinants of health and policy-relevant research need to be expanded and strengthened to reduce the total NCD burden in this community.

### 6.2 Study Conclusions

In this study, a systematic review and mixed-methods sequential explanatory design were performed to investigate the NCDs prevalence and risks, NCDs knowledge, attitude and practices, health-seeking behaviours, beliefs, and influencing factors contributing to unhealthy NCDs behaviours among the Orang Asli communities. The systematic review of previous medical literature was conducted to investigate the behavioural and metabolic risk factors of NCDs among the Orang Asli

communities. The concrete groundwork research and the integration of the quantitative and qualitative studies appeared to be highly unique. They were able to provide an interface or convergence point of specific research areas and population of interest, which was the NCDs risks among the Orang Asli communities.

In the systematic review, the number of studies conducted among adult Orang Asli were increasing in trend over the past decade. Nevertheless, the number remains low, with numerous methodological limitations found in previously published studies that included small sample sizes, low quality of sampling methods, and non-standardised operational definitions for behavioural and metabolic risks of NCDs. Due to the heterogeneous nature of these studies, the meta-analysis for prevalence rates could not be conducted.

The prevalence of both behavioural and metabolic risks of NCDs among the Orang Asli was comparable with the general Malaysian population. The prevalence ranges for modifiable behavioural risk factors of NCDs of smoking, alcohol use, physical inactivity, and inadequate fibre intake were 27.8% - 56.9%; 0 - 34.8%; 15.8% - 50.0%; and 20.0% - 96.0%, respectively. A study also reported excessive daily intake of protein, carbohydrate, and fat at 27.6%, 19.0%, and 16.0%, respectively. The weighted mean prevalence of metabolic syndrome among the Orang Asli was 25.9% (12.0% - 39.8%). The highest weighted mean prevalence of metabolic syndrome conditions were low HDL-cholesterol levels, raised blood pressure, followed by abdominal obesity, high triglycerides, and hyperglycaemia with the prevalence was 41.0% (17.6% - 86.7%); 32.2% (21.8% - 73.6%); 24.6% (0.8% - 37.0%); 20.8% (6.9% - 23.9%); and 14.0% (1.5% - 34.8%), respectively.

From the quantitative study, several conclusions could be inferred as having implications for the management of NCDs risks and health behaviour among the

Orang Asli. Firstly, this study reported a high prevalence of NCDs and its risk factors among the Orang Asli from the Proto-Malay group living in a fringe category settlement in Jelebu, Malaysia. The highest number of NCDs was self-reported hypertension, followed by hypercholesterolemia and diabetes mellitus. Following physical examination, about three in ten respondents were hypertensive, six in one hundred had abnormal blood glucose, and one in two were in the obese category. Secondly, the results of the present study pointed out that the majority of the Orang Asli had poor KAP towards NCDs, with only fair correlation between knowledge and attitude towards NCDs. Nevertheless, most of them were receptive to modern medicine management and with good access to government healthcare facilities.

In the multivariate analysis, the non-modifiable factors associated with major NCDs were identified as being the older age group of 40-years-old and above. There was also an inverse relationship between smokers and hypertension. As for diabetes mellitus, the risks increased among those with insufficient physical activity and having increased blood glucose. The practices scores were significantly higher among diabetes mellitus sufferers, whereas, those with hypercholesterolemia had higher scores.

Females, those from the higher-income group and alcohol drinkers were more likely to have abdominal obesity. As for raised blood pressure, the odds were significantly higher among the older age group (40 and above), inadequate vegetables intake group, abdominal obesity group and increased blood glucose category. None of the factors was significant with the increased blood glucose category.

Those with lower education, belonging to the hardcore poverty group and having behavioural risks of being physically inactive and inadequate daily intake of vegetables are significantly more likely to have poor knowledge of NCDs. Moreover,

those with behavioural risks of alcohol consumption, being physically inactive and took less than three servings of vegetables daily were also significantly more likely to be in the poor attitude category towards NCDs. None of the factors were associated with the poor practices category towards NCDs.

In addition, the qualitative research provided a chance for the selected respondents to voice out their opinions, barriers, behaviours, and frustrations. This facilitated a better understanding of the key findings in the quantitative study. The main themes derived from the interviews included development and life transitions, knowledge and perception of NCDs, health effects of NCDs risk factors, barriers to preventing behavioural factors, utilisation of modern medicine and healthcare facilities, and traditional medicines. Many of them had low knowledge of diseases and a negative attitude. Coupled with the barriers they faced, many struggled to lead a healthy lifestyle. Some of them also had transportation issues and were dependant on other family members to get access to modern medicine. A few of them did not go for regular follow-up treatments and instead used traditional natural resources for diabetes and hypertension. The respondents' beliefs and attitudes may also be the barriers for them to lead a healthy lifestyle or attending a doctor consultation at the clinic.

### **6.3 Study Recommendations**

From this research, an executive summary is given to community leaders and essential policymakers detailing the key findings and conclusions of the study, and indicating the recommendations for future studies, programming and appropriate interventions.

### 6.3.1 Surveillance, Monitoring and Evaluation, and Research

Future work involving medical sociologists and medical anthropologists should be conducted. Medical anthropologists examine problems in a cultural context, while medical sociologists perceive them in a social context. Through a lengthy research process of gaining community trust and gathering data, information and stories, the findings by medical sociologists and medical anthropologists are relevant to better understand the view of health in these marginalised communities.

Research should be implemented in this vulnerable group to achieve the objective of reducing modifiable risk factors for NCDs and underlying social determinants through the creation of health-promoting environments in the National Strategic Plan for Non-Communicable Disease (NSPNCD) 2016-2025 by the Ministry of Health Malaysia. In addition, a comprehensive and standardised data collection on behavioural and metabolic risk factors of NCDs should be established and strengthened to assist public health researchers and policymakers in the monitoring of the national effect of NCDs risks to the population. It is recommended that for future studies, standardised tools of measurement should be used to address NCDs risks and disease management.

Subsequent to the National Strategic Plan for Tobacco Control 2015-2020 and Malaysia Alcohol Control Action Plan 2013-2020, quantitative research on the exact quantities of cigarettes and alcohol consumed by the Orang Asli would be of value in determining their definite risks of developing NCDs. To provide input on the government's Policy Options to Combat Obesity in Malaysia 2016-2025 and National Strategic Plan for Active Living 2016-2025, validated and quantitative food and nutrition frequency and physical activity questionnaires should be used, followed by qualitative observations to give a more accurate assessment of the respondents' dietary

and exercise behaviours. By understanding determinant behaviours and their barriers in these vulnerable communities, suitable activities can be suggested and implemented in these communities .

Many questions arose from this study, one of which was about the consumption of fast-foods following lifestyle transition and the consequential development of obesity. Studies have showed that those who are females, younger, and in the hardcore poverty income category are more at risk of obesity-associated comorbidities of NCDs. Further research is warranted to delineate the reasons why these groups of people are exposed to a higher risk of obesity indicators.

The Malaysian National Medicines Policy 2012 directly stresses the importance of medication adherence. Health care providers need to be aware that some of their patients, especially the vulnerable Orang Asli might not adhere to the prescribed medication. Therefore, healthcare providers should probe into their patients' compliance and to remind them of the importance of adhering to their medication and renew the prescriptions as well as returning for follow-up assessments. NCDs are well known to be silent killers. The patients need to be counselled that they might not be able to feel the symptoms until they developed complications of NCDs. Also, due to growing numbers of Orang Asli with chronic diseases, studies on their medication adherence are crucial. They should also be classified in their own ethnicity category in the national survey, as their issues and barriers may differ from other ethnicities in Malaysia.

### 6.3.2 Population-based Screening

In recent years, the published literature has outlined the criteria for the behavioural and metabolic risk factors of NCDs to be used as a screening tool to identify individuals at an increased risk of developing NCDs, in particular hypertension, diabetes mellitus, and CVDs. However, there is a concern of under-reporting of NCDs among the Orang Asli. Therefore, increasing the human resources and strengthening the institutional capacity for screening programmes and surveillance for NCDs can be conducted at the population level. Integrating NCDs surveillance and monitoring into a national health information system would be helpful, providing policymakers with the communities' data and other recommended interventions to address NCDs.

The Knowledge of Healthy Community Empowers Nation (KOSPEN) Programme was initiated in 2013 by the Malaysian government to reduce the NCDs burden in Malaysia. Volunteers from the Orang Asli communities were given training on health-related issues so that they can share and disseminate the knowledge with others in the Orang Asli community. The involvement of KOSPEN volunteers from the Orang Asli may again give an added value as target individuals who are at risks will be easier to be approached and screened regularly. Some of the barriers reported stated by the respondents regarding follow-up disease management were time constraints and also transportation issues. Therefore, it is suggested that KOSPEN volunteers are to play a role in this matter by providing regular health screenings and referring those individuals with risks to the nearest health facility.

The government agencies must strive to collaborate with other sectors, especially local university researchers who can provide evidence-based information from their research and evaluation studies. One possible way is to collaborate with the

universities by tapping into their expertise and human resource capabilities during the community screening programmes. Such information can enhance health-promoting environmental policies, planning, and management towards lessening the burden of the diseases in the marginalised and vulnerable community. University students can also be invited to volunteer in the Orang Asli community for community screening and health services. Earlier exposure to the Orang Asli communities will reduce and possibly avoid any negative perceptions or stereotypical behaviours towards the Orang Asli.

### **6.3.3 Public Education and Awareness**

The present study indicates that there is social inequity in the occurrence of NCDs risks, with higher prevalence among those with low income and education. Taken together, the findings of the present study indicate an increasing trend in NCDs risk factors that will increase NCDs morbidity and mortality. This will put enormous pressure on the Malaysian health system, and prevention strategies should be given a high priority. It is recommended that a strategy should be put forward, targeting the whole Orang Asli population.

A community-wide public education and awareness campaign for behavioural changes for NCDs risk factors, which includes a mass media campaign combined with other community-based education, motivational and environmental programs should be implemented. Health education awareness programmes should also focus on educating the diseased populations and also their spouses and first-degree relatives. The empowerment of individuals and families is essential to inculcate lifelong positive behaviours to prevent NCDs or delay the onset of complications.

This study also found that medical doctors would be the most influential persons in persuading the Orang Asli to change their health-seeking behaviour towards modern medicine. The Orang Asli communities wanted clarification of their medical conditions so that they can understand their health issues better and be more knowledgeable when addressing unhealthy lifestyle habits. The medical doctors should take the lead in delivering health education during the consultations with their patients and via public forums and mass media to highlight the consequences of NCDs on health. Sharing sessions among their own Orang Asli community members who suffer from NCDs would also be beneficial in increasing the awareness of the diseases and their complications.

In truly ensuring that the community education and awareness programs strategies work best for the community, the involvement of Orang Asli community leaders and KOSPEN volunteers from the Orang Asli with the community should be strengthened via collaborations with universities. The Orang Asli involvement in the designing and implementation, and actively supportive involvement in administrating the educational material and health promotional strategies will allow for better targeted health care, in line with their views and perspectives.

In addition, KOSPEN is also active in certain Orang Asli villages to increase awareness of chronic illnesses and promote a healthy lifestyle at the community level. Again, it is recommended that the KOSPEN volunteers from the Orang Asli may give an added value by increasing the effectiveness of the strategies as they will be able to approach and educate the Orang Asli in their own communities. Also, it is suggested to conduct future studies among the Orang Asli volunteers of KOSPEN to determine their awareness about their roles and functions as well as the knowledge of NCDs at the community level.

The Ministry of Communications and Multimedia Malaysia has created the Asyikfm, which is the Orang Asli radio channel broadcasted by Radio Television Malaysia (RTM) in Peninsular Malaysia. They broadcast in Malay and also other Orang Asli languages of Semai, Temiar, Temuan, and Jakun ethnicities. It is therefore suggested that elements of health education and awareness should be channelled through the Asyikfm. However, the educational process carried out for the Orang Asli must be based on their views and follow their strong cultural beliefs.

#### **6.3.4 Individual and Population Interventions Program**

When choosing the right interventions for the control and prevention of NCDs, several considerations should be taken into account. Interventions should consider the efficiency, cost-effectiveness, affordability, capacity for implementation, feasibility following national circumstances and the impact of interventions on health equity and the need for a combination of population-wide policy interventions and individual interventions.

For the construction of intervention modules for behaviour modification, the integration of the use of technology can further increase the level of user compliance to the intervention modules. Due to the lack of literacy among the Orang Asli, it is recommended to use digital intervention. The use of digital intervention, including video and social media intervention, can have a positive impact in conveying information and knowledge about the disease to the communities. The intervention planning and module can also integrate the cultural sensitivity, language, beliefs and the barriers to conducting healthy behaviour that suits the needs of the communities.

This study has uncovered the health disparities between the Orang Asli and the general population. The susceptibilities of the Orang Asli to NCDs and other health

problems could have emerged due to the impact of urbanisation. Public community campaigns should not only be carried out by the MOH but also by JAKOA, NGOs and university experts to initiate intervention strategies that address this issue. This includes involving the experts in the area of behavioural modification, and the media in raising awareness that NCDs are lifestyle behaviour choices that could be prevented.

Ideally, in community-based research, a control group is required to determine whether the environmental factors are masking the underlying genetic factors. Changes in lifestyle that resulted in poor diet and lack of exercise, together with environmental factors such as lack of housing space, green area, and recreational amenities, as well as the use of modern gadgets such as televisions and smart-phones are affecting both the cases and controls alike. If all of the environmental factors were to be removed or if all of the environmental factors were ideal, would the genetic factors of ethnicity cast a more significant effect on the Orang Asli community? These questions need further investigation.

Furthermore, studies have shown that the lack of physical activity facilities was the main barrier to the uptake of physical activities. Therefore, in the planning of a sustainable healthy environment, the municipal councils should incorporate innovative planning aimed at preventing unhealthy lifestyles for all citizens, including the Orang Asli by providing convenient and safe access to quality public open spaces and adequate infrastructure to support physical activity. By doing so, it helps in supporting the behavioural change of physical activity levels in the Orang Asli communities.

## 6.4 Concluding Thought



Photograph 1:  
'Healthy and Balanced' Tautan Kasih Program on 6 February 2018 at Kampung Orang Asli Dusun Kubur, Jelebu, Negeri Sembilan organized by MIZAN Research Center, USIM and Jelebu District Health Office

(Photograph by the research assistant)

The Orang Asli in this study had increased susceptibility to metabolic and behavioural risk factors of NCDs, as their living conditions are moving towards modernisation. This study demonstrated that major NCDs are prevalent among the Orang Asli communities. As a whole, the under-diagnosed NCDs, behavioural risks and metabolic risks rate among the Orang Asli are also high and encompasses all sociodemographic variables.

The Orang Asli showed a lack of elementary knowledge regarding NCDs that is closely related to behavioural risk factors of NCDs that are preventable and modifiable. This low knowledge towards NCDs resulted in an added burden to their vulnerable communities that suffer education, economic and social marginalisation. Their attitude on NCDs was low, with many still relying on traditional medicines,

even though the acceptance rate towards modern health care facilities was high. Meanwhile, the high prevalence of Orang Asli with NCDs behavioural risks practices is worrying since these preventable behaviours may lead to the tragic consequences of chronic NCDs. In addition, the Orang Asli face many barriers, including the negative social influence of smoking and alcohol behaviour, environmentally-unfriendly living conditions for physical activity, limited availability of fruits and vegetables and also financial constraints.

Malaysia is leads the region for obesity and chronic NCDs that are the consequences of preventable unhealthy behaviours. Medical and nutritional professionals, along with educators, should therefore organise and provide recurrent health screenings and awareness seminars to empower individuals to make positive behavioural changes and healthy choices. By paying special consideration to local knowledge, cultural sensitivity as well as promoting self-monitoring by the respondents and empowerment of communities as highlighted in this study, the participation of Orang Asli will be enhanced to ensure the success of health awareness and intervention programmes. Moreover, patients and their spouses and first-degree relatives should also be informed on the importance of compliance with medication and disease follow-ups to avert morbidity and premature death.

The growth and urbanisation of the country have affected the Orang Asli communities in the transition to urbanising populations. This study also provides significant necessary evidence for the State Government and JAKOA Unit to incorporate more health programmes to enhance the Orang Asli's health and to improve their well-being, as indicated in these organizations' objectives. Thus, humanity, stewardship and ethical-politics in society are central to the creation of

safer surroundings that are conducive to the practice of safe lifestyles, thereby enhancing the quality of life for everyone.

Continuing attention must be given to the Orang Asli population as prevention is better than cure. Sustaining healthy practices, free from health-seeking distress, while respecting the autonomy, integrity and well-being of all Orang Asli would be a precious legacy to leave for posterity as they are integral members of the nation.

*'Health is a crown that the healthy wears, but only the sick can see it'.  
(Imam al-Shafi'ee rahimahullaah)*

