

Knowledge, attitude and practices of indigenous people towards non-communicable disease in Bera, Malaysia: A community-based study

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ABSTRACT

Introduction: With the current trend of increasing non-communicable diseases (NCD), like hypertension, diabetes and dyslipidaemia worldwide and in Malaysia, a comprehensive study is essential to find the local population's knowledge, attitude and practice towards NCD. Little is known about the indigenous people of Orang Asli's health conditions and health-seeking behaviours towards these chronic diseases. The study aimed to assess knowledge, attitudes and practices (KAP) status towards non-communicable disease and its association with demographic background among Orang Asli adults of the Semelai subgroup in central Pahang, Malaysia.

Materials and Methods: A cross-sectional study was conducted among 251 adult Semelai people in Bera district, Pahang. Data was collected through face-to-face interviews to obtain socio-demographic data, KAP towards NCD. Bivariate analysis was performed to test the association between the socio-demographic factor and the KAP score.

Results: Among respondents, 57.4% were female, 82.5% were married, and 46.2% completed primary school. The majority were animism believers (83.3%), self-employed (75.3%) and earning less than RM1000 (87.6%). The respondents' ages ranged from 18 to 77, with a mean age of 41.1 (S.D ± 13.9). The prevalence of known type-2 diabetes mellitus (T2DM), hypertension, and dyslipidaemia was 9.6%, 20.7%, and 8.8%, respectively. About 23.1% of respondents have a family history of chronic disease. Regarding KAP parameters, only 12.7% have good knowledge, and 35.5% have good practice in prevention and treatment. However, more than half (59.8%) have a positive attitude towards chronic diseases. This study also showed that higher household income and education levels were positively associated with higher scores of KAP ($p < 0.001$).

Conclusion: This study presented a low-to-moderate percentage of Orang Asli who have good KAP towards NCD. KAP levels were significantly associated with education levels and household income. Hence, improving education and poverty in the Orang Asli community may successively

increase the knowledge level, impart a positive attitude towards NCDs, and improve the practice level toward treatment and prevention.

KEYWORDS:

Indigenous, knowledge, attitude and practices, non-communicable disease

INTRODUCTION

Non-communicable diseases (NCDs) such as diabetes, hypertension and dyslipidaemia are the main leading causes of death globally. The World Health Organisation (WHO) reported that NCDs caused about 74% of all deaths annually around the globe, mainly resulting from a combination of genetic, social, environmental and behavioural factors.¹ NCDs disproportionately affect people in different countries, where 86% of people die from NCDs before the age of 70, particularly in low- and middle-income countries.¹ Non-modifiable risk factors, such as gender and age, and modifiable elements, such as smoking, a diet rich in lipids and carbohydrates, fewer vegetables and fruit intake, and a sedentary lifestyle increase the risk of metabolic diseases. Modifiable risk factors for metabolic disorders can be preventable by modifying lifestyles with a balanced diet, regular physical activity, and inhibiting excessive alcohol consumption and tobacco use. According to the 2019 National Health and Morbidity Survey (NHMS), cardiovascular diseases such as stroke and coronary heart disease are the leading cause of death in Malaysia.² NCDs are estimated to account for 74% of all deaths in Malaysia³, where about half (54.1 %) of Malaysian adults have at least one of three non-communicable diseases, either diabetes (18.3%), hypertension (30.0%) or hypercholesterolemia (38.1%).² This issue becomes more alarming as an estimated 17.2% of the population have undiagnosed hypertension, 8.9% undiagnosed diabetes mellitus and 38.6% undiagnosed hypercholesterolemia.⁴ Late diagnosis and inadequate management of chronic NCDs will cause a surge in patients with complications, such as ischemic heart disease and stroke.

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The Orang Asli, also known as the aborigines, are the indigenous minority people living in Peninsular Malaysia. Currently, little is known about the Orang Asli community concerning their health condition, health-seeking behaviour and socioeconomic status. Furthermore, the changing environment and health factors have impacted Orang Asli's quality of life and exposed the community to diseases that were more prevalent among urban populations as they were marginalised from financial and life quality development. This study aims to investigate the knowledge, attitude, practice (KAP) and sociodemographic status of Orang Asli, the Semelai community situated in central Pahang, Malaysia, towards NCDs (diabetes, hypertension and hypercholesterolemia). Additionally, the associations between the KAP levels and socio-demographic factors (gender, educational level and household income) were explored in this study. The results would contribute to the development of strategies and policies to assist the community of indigenous people in improving their health and enhancing NCDs intervention and prevention.

The study obtained ethical approval from the University Research Ethics Committee, International Islamic University Malaysia (IREC—2020-024), and written permission was granted from the Jabatan Kemajuan Orang Asli Malaysia (JKOAM), Jabatan Perdana Menteri, Kuala Lumpur. (Rujukan: JAKOA/PP.30.032Jld 47). All the data were kept confidential. Informed consent was obtained from all participants prior to data collection. This research did not receive any specific grants from public, commercial or not-for-profit funding agencies.

MATERIALS AND METHODS

Study Area Design, Sample Size and Sampling Method

A cross-sectional study was conducted by collecting data from the indigenous population of the Semelai community in Bera, Pahang, Malaysia. The data were collected from January 2020 to June 2021 to assess the level of KAP of NCDs and their socio-demographic data.

This study was part of a larger main study; hence, the sample size was calculated based on the main study's objective using a single proportion formula with an expected prevalence of NCDs of 14.8%,⁵ using OpenEpi version-3. The calculated sample size was 238 at the 95% confidence level. After considering a possible non-response rate of 5%, the required sample size was 251. A smaller non-response rate was used because of the planned face-to-face data collection where not many non-responses were expected.

A face-to-face interview with convenience sampling was conducted in the Malay language. A mobile Orang Asli team by Pejabat Kesihatan Daerah (PKD) in Bera visits the Orang Asli's villages daily for medical surveillance and health services. Three investigators in this research group followed the mobile team to conduct the interview. This study was conducted on a targeted sample size of 251 indigenous adults out of 9228 adults (based on information provided by Jabatan Kemajuan Orang Asli (JAKOA) from a total of 33 Orang Asli's villages in Bera, Pahang, Malaysia, selected by purposive sampling method.

Sampling Method

Inclusion criteria:

- Adults 18 years old and above
- Orang Asli people living in Bera
- Orang Asli from other states but staying permanently in the listed villages, were considered participants.

Exclusion criteria:

- Not willing to participate
- Unable to communicate in Malay.

Study Instrument:

The questionnaire was designed by adopting three different scales from three articles.⁶⁻⁸ The questionnaire was developed and validated in Malay language for use in its original form. It was rectified for the content validation qualitatively by three experts' opinions, namely a public health specialist and two family medicine specialists. A pilot study was conducted at Kampung Orang Asli Sungai Tuang with a sample size of 40. The pilot study focused on the flow of the study and tested the data collection form. The consistency of the questions was checked, and internal consistency was found to be acceptable, with the Cronbach Alpha value of > 0.6 for all domains.

The questionnaire comprised two sections: social-demographic data and KAP regarding NCDs. Section I referred to the respondent's socio-demographic details, and Section II was divided into a, b and c on the KAP regarding NCDs, respectively.

Section IIa – Knowledge - focused on respondents' knowledge and understanding towards NCDs in terms of how the diseases are acquired, risk factors, prevention and treatment. Marks were calculated based on the cumulative points collected from five main questions, which carry a total of 15 marks. The knowledge scores were then categorised proportionately into poor (0 – 5 marks), fair (6 – 10 marks) and good (11 – 15 marks), almost similar to the categorisation by Anita et al.⁹

Section IIb – Attitude - assessed the general feelings and beliefs towards NCD treatment and prevention, which could either be positive, neutral or negative. A 5-point Likert scale was adopted for this section. The total score was categorised as either a positive attitude or a negative attitude based on the mean/median of the total score.⁶

Section IIc - Practice - assessed the practices of different prevention and treatment options for NCD. A 4-point Likert scale was adopted for this section, and the total score was categorized either as good practice or poor practice based on the mean/median of the total score.⁶

Statistical Analysis

All collected data were analysed using SPSS version 22.0 for descriptive statistics where the categorical variables were expressed as frequency and percentage. The KAP scores were categorised to explain their levels but used as their original forms (numerical) to assess their associated factors. To assess the factors associated with the KAP levels, simple and multiple linear regression were used for the univariate and multivariable analysis to control for the possible

Table I: Socio-demographic characteristics of respondents (n = 251)

Socio-demographic variables	Frequency (%)
Age (years)	
18 – 39	123 (49.0)
40 – 59	97 (38.6)
60 and above	31 (12.4)
Gender	
Male	107 (42.6)
Female	114 (57.4)
Marital status	
Single	44 (42.6)
Married	114 (57.4)
Religion	
Animism	209 (83.3)
Islam	32 (12.7)
Buddhism	9 (3.6)
Christian	1 (0.4)
Education level	
None	62 (24.7)
Primary school	116 (46.2)
Secondary school	64 (25.5)
Tertiary education	9 (3.6)
Occupation	
Self-employed	189 (75.3)
Employed	28 (11.2)
Unemployed	32 (12.7)
Retired	2 (0.8)
Household income (RM per month)	
1000 and less ^b	220 (87.6)
1001 - 4000	28 (11.2)
More than 4000	3 (1.2)
Transport to health clinics	
Motorcycle	190 (75.7)
Car	59 (23.5)
Walking	2 (0.8)
Family history of NCDs ^a	
Yes	58 (23.1)
No	193 (76.9)

^aNon-communicable diseases

^bPendapatan Garis Kemiskinan (PGK) Mangikut Negeri dan Strata, 2019 (Data Asas Kementerian Pembangunan Luar Bandar (KPLB))

confounders, respectively, using Stata Intercooled software version 15. The level of significance was set at 0.05.

RESULTS

Section-A: Socio-demographic Characteristics of Participants

The survey was conducted among 251 respondents and their socio-demographic characteristics are summarized in Table I.

The majority were married (82.5%), practiced animistic (83.3%), had a household income of less than RM 1000 per month (87.6%) and were self-employed (75.3%), with 46.2% only attending primary school. The most common transportation used to the healthcare centre was by motorcycle (75.7%). Only 58 (23.1%) respondents had a positive family history of NCDs. The respondents' ages ranged from 18 to 77, with a mean age of 41.1 (S.D ± 13.9). The prevalence of known type-2 diabetes mellitus (T2DM), hypertension and dyslipidaemia was 9.6%, 20.7% and 8.8%, respectively. About 23.1% of respondents have a family history of chronic disease.

Section-B: Knowledge, Attitude and Knowledge of Orang Asli Regarding NCDs

Figure 1 reflects that only 12.7% of participants have good knowledge of NCDs, the majority (59.8%) have fair knowledge, and 35.5% have good practices on treatment and prevention. However, the majority (59.8%) demonstrated a positive attitude towards NCDs.

Section-C: Factors Associated with Knowledge, Attitude and Practice Regarding NCDs

The factors associated with KAP regarding NCDs are shown in Tables II and III for univariate and multivariable analysis using simple and multiple linear regression, respectively. As seen from those two tables, the KAP regarding NCDs are significantly positively associated with the education levels and significantly negatively associated with those who had no family history of NCDs on both the univariate and multivariable levels.

On the other hand, even though religion and income also show significant association with each of the KAP regarding NCDs at the univariate level, after controlling for the confounders on the multivariable level, only practice is found

Table II: Factors associated with knowledge, attitude and practices score regarding non-communicable diseases (NCDs) using simple linear regression (n = 251)

Socio-demographic variables	Knowledge		Attitude		Practices	
	β -coefficient (95% CI ^a)	p-value	β -coefficient (95% CI ^a)	p-value	β -coefficient (95% CI ^a)	p-value
Age (years)						
18 – 39 ^b	0.000	1.000	0.000	1.000	0.000	1.000
40 – 59	-0.093 (-0.914, 0.728)	0.824	-0.290 (-1.485, 0.905)	0.633	-0.358 (-1.558, 0.842)	0.558
60 and above	-1.090 (-2.305, 0.125)	0.079	-0.484 (-2.253, 1.285)	0.590	-0.967 (-2.743, 0.809)	0.284
Gender						
Male ^b	0.000	1.000	0.000	1.000	0.000	1.000
Female	0.282 (-0.493, 1.056)	0.474	0.865 (-0.252, 1.981)	0.129	1.295 (0.178, 2.411)	0.023
Marital status						
Single ^b	0.000	1.000	0.000	1.000	0.000	1.000
Married	-1.590 (-2.579, -0.602)	0.002	-0.665 (-2.122, 0.792)	0.369	-0.942 (-2.405, 0.520)	0.206
Religion						
Anemism ^b	0.000	1.000	0.000	1.000	0.000	1.000
Islam	1.967 (0.856, 3.078)	0.001	2.653 (1.050, 4.256)	0.001	1.314 (-0.345, 2.973)	0.120
Buddha	7.373 (1.508, 13.239)	0.014	5.684 (-2.781, 14.149)	0.187	1.627 (-7.134, 10.389)	0.715
Christian	2.151 (0.159, 4.143)	0.034	5.129 (2.254, 8.003)	0.001	3.627 (0.651, 6.602)	0.017
Education level						
None ^b	0.000	1.000	0.000	1.000	0.000	1.000
Primary school	1.133 (0.320, 1.946)	0.006	0.991 (-0.227, 2.210)	0.110	1.640 (0.351, 2.930)	0.013
Secondary school	3.584 (2.663, 4.505)	<0.001	4.203 (2.823, 5.583)	<0.001	3.932 (2.472, 5.393)	<0.001
Tertiary education	6.694 (4.850, 8.537)	<0.001	9.222 (6.460, 11.985)	<0.001	7.116 (4.192, 10.041)	<0.001
Occupation						
Self-employed ^b	0.000	1.000	0.000	1.000	0.000	1.000
Employed	1.306 (0.091, 2.520)	0.035	0.619 (-1.154, 2.392)	0.492	1.417 (-0.365, 3.198)	0.119
Unemployed	0.582 (-0.564, 1.729)	0.318	0.615 (-1.059, 2.288)	0.470	1.354 (-0.327, 3.036)	0.114
Retired	4.270 (0.008, 8.532)	0.050	5.833 (-0.389, 12.156)	0.066	1.667 (-4.586, 7.919)	0.600
Household income (RM per month)						
1000 and less ^{b,c}	0.000	1.000	0.000	1.000	0.000	1.000
1001 - 4000	2.981 (1.836, 4.125)	<0.001	4.482 (2.835, 6.129)	<0.001	4.645 (2.975, 6.316)	<0.001
More than 4000	5.076 (1.760, 8.392)	0.003	7.732 (2.961, 12.503)	0.002	4.562 (-0.278, 9.402)	0.065
Transport to health clinics						
Motorcycle ^b	0.000	1.000	0.000	1.000	0.000	1.000
Car	1.793 (0.914, 2.672)	<0.001	0.604 (-0.702, 1.910)	0.363	0.595 (-0.714, 1.904)	0.371
Walking	-0.063 (-4.254, 4.128)	0.976	4.316 (-1.913, 10.545)	0.174	6.011 (-0.233, 12.254)	0.059
Family history of NCDs						
Yes ^b	0.000	1.000	0.000	1.000	0.000	1.000
No	-1.904 (-2.782, -1.026)	<0.001	-3.612 (-4.849, -2.375)	<0.001	-2.640 (-3.922, -1.358)	<0.001

^a Confidence Interval

^b Reference group –

^c Pendapatan Garis Kemiskinan (PGK) Mangikut Negeri dan Strata, 2019 (Data Asas Kementerian Pembangunan Luar Bandar (KPLB))

Table III: Factors associated with knowledge, attitude and practices score regarding non-communicable diseases (NCDs) using multiple linear regression^a (n = 251)

Socio-demographic variables	Knowledge		Attitude		Practices	
	β -coefficient (95% CI ^b)	p-value	β -coefficient (95% CI ^b)	p-value	β -coefficient (95% CI ^b)	p-value
Gender						
Male ^c	-	-	-	-	0.000	1.000
Female	-	-	-	-	1.195 (0.175, 2.216)	0.022
Marital status						
Single ^c	-	-	0.000	1.000	-	-
Married	-	-	1.507 (0.151, 2.864)	0.030	-	-
Education level						
None ^c	0.000	1.000	0.000	1.000	0.000	1.000
Primary school	1.071 (0.270, 1.872)	0.009	1.035 (-0.151, 2.222)	0.087	1.401 (0.148, 2.655)	0.029
Secondary school	3.374 (2.438, 4.310)	<0.001	4.091 (2.679, 5.503)	<0.001	2.802 (1.284, 4.320)	<0.001
Tertiary education	5.598 (3.653, 7.544)	<0.001	9.154 (6.212, 12.096)	<0.001	3.952 (0.737, 7.166)	0.016
Household income (RM)						
1000 and less ^{c,d}	-	-	-	-	0.000	1.000
1001 - 4000	-	-	-	-	2.746 (0.913, 4.578)	0.003
More than 4000	-	-	-	-	2.792 (-2.004, 7.588)	0.253
Transport to health clinics						
Motorcycle ^c	0.000	1.000	-	-	-	-
Car	0.919 (0.122, 1.716)	0.024	-	-	-	-
Walking	-1.911 (-5.581, 1.759)	0.306	-	-	-	-
Family history of NCDs						
Yes ^c	0.000	1.000	0.000	1.000	0.000	1.000
No	-0.821 (-1.618, -0.023)	0.044	-2.217 (-3.391, -1.043)	<0.001	-2.640 (-3.922, -1.358)	<0.001

^a Only the significant variables in the final models for each knowledge, attitude and practice are presented in the table

^b Confidence Interval

^c Reference Group

^d Pendapatan Garis Kemiskinan (PGK) Mangikut Negeri dan Strata, 2019 (Data Asas Kementerian Pembangunan Luar Bandar (KPLB))

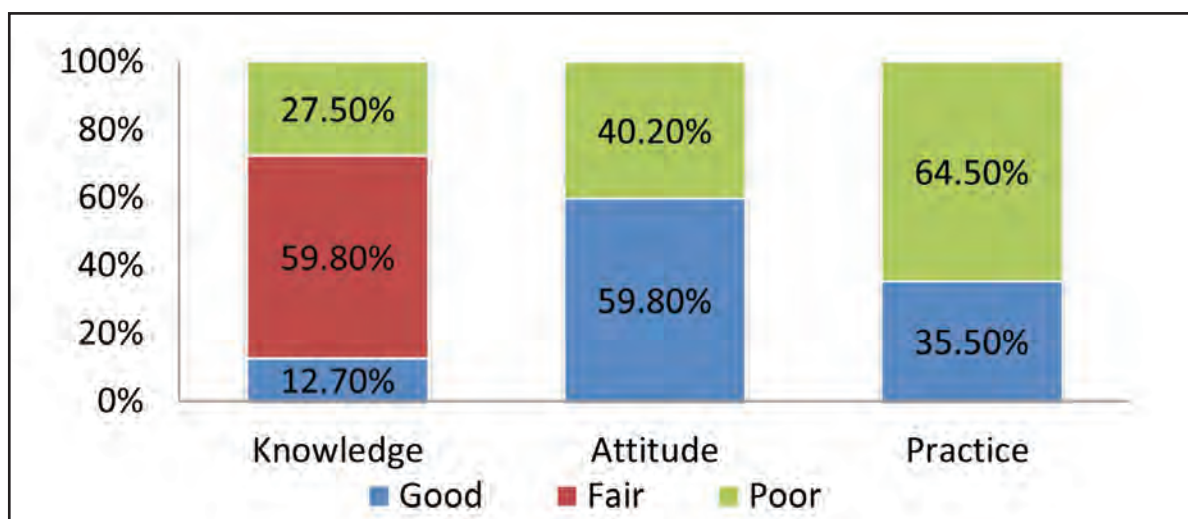


Fig. 1: Knowledge, attitude and practice scores of Orang Asli regarding non-communicable diseases (n = 251).

to have a positive significant association with income still. It is interesting to note that those who use a car to go to the clinic have better knowledge regarding NCDs compared to those who use motorcycles, and females have better practices than males at both the univariate and multivariable levels.

Comparison of the results in Tables II and III also shows that marital and employment status are only significantly associated with knowledge at the univariate level, while those who were married are found to significantly have better attitudes regarding NCDs compared to those who were single at the multivariable level.

DISCUSSION

Socio-Demographic Characteristics

In this study, participants were equally balanced by gender, unlike other studies, where more respondents were women.⁷ This might be due to data collection visits in the evening when male respondents were back home after work. Most respondents attained only primary education and nearly a quarter had never received any formal education. Poverty and lack of social and family support might contribute to these circumstances, especially in older generations. Those with higher education were expected to have a better level of knowledge and attitude regarding NCDs. Several studies reported that the risk of developing NCDs was firmly related to the educational background.^{7,10} The present study found that about three-quarters were self-employed with an income of less than RM 1000 per month and their occupations were mostly rubber tappers or palm fruit collectors. This finding is comparable to other studies in which most Orang Asli in Peninsular Malaysia live in poverty.^{9,11} Although the national poverty rate of Malaysia has declined over the years, the Orang Asli community are still in the poverty group, hence contributing to inadequate self-support for healthy food and living. Poverty is a risk factor for chronic diseases and is prevalent among indigenous peoples worldwide.¹² This insufficient income would make it difficult for Orang Asli to pay for their healthcare expenses.

The most common transportation utilised to the adjacent healthcare service centre was motorcycles (75.7%). This is due to low household income and unsuitable roads through their villages, which are mostly earthen roads (village roads). However, their transportation burden may be reduced following periodic services of mobile health clinics provided by the government.

Knowledge, Attitude and Practice Towards Non-Communicable Diseases

The results from this study reflect that the respondents generally have a fair knowledge of NCDs. Poor knowledge towards NCDs may result in a negative attitude, poor practices and ignorance of a healthy lifestyle. Another study exploring understanding diabetes disease among Orang Asli reported similar poor knowledge scores.¹³ Nevertheless, more than half (59.8%) exhibited a positive attitude towards NCDs. For example, when asked in the questionnaire whether they 'will give extra attention to control chronic diseases effectively', 'will take preventive measures to reduce the risk of getting chronic diseases', or 'will receive treatment

from a doctor for a chronic illness even if it is inconvenient', more than half of the respondents agreed with the statements.

In addition, this study revealed one-third (35.5%) had good practice. When asked in the questionnaire about 'steps that can be taken to reduce the risk of chronic disease', less than half of the participants chose reducing sugar intake, reducing salt intake or stopping smoking as their 'preferred and most preferred' practices. Most of them preferred to listen to family or friends for advice or take traditional medication. Nevertheless, the majority claimed they would get a health screening for NCDs as a preferred practice. This result is consistent with the finding from a previous study reporting a high percentage of good attitudes and a moderate practice level toward lifestyle-related NCDs among Orang Asli.⁵

Association Between Knowledge, Attitude and Practices Regarding Non-Communicable Diseases with Socio-Demographic Characteristics

This study found a positive significant association between the KAP regarding NCDs and the respondents' education level at both the univariate and multivariable levels, similar to a few other studies done among Orang Asli in rural Malaysia.^{5,8,9} This result also correlates with the findings by Jaafar et al., which indicate that higher education leads to better health literacy.¹⁴ The revised definition of health literacy by WHO is 'the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions.'¹⁵ This indicates that health literacy not only limits the ability of someone to read health materials, but it is also critical to the empowerment of a person to take care of their health. Hence, better education can indirectly lead to better population health status.

On the other hand, this study also found that those with no family history of NCDs had lower KAP scores as compared to those with a positive family history of NCDs at both the univariate and multivariable levels. This is understandable because having someone with the disease in the family can familiarize the person with the condition.

Similar to the study by Ithnin et al., found that females have better practice regarding NCDs compared to males with the KAP regarding NCDs. They explained that females are less prone to smoking and consuming alcohol, hence the better practice scores.⁵

In this study, at the univariate level, the respondents with higher household incomes had significantly better KAP scores than those with lower household incomes. The lower incomes among the Orang Asli posed a severe financial limitation for acquiring knowledge practice on health-related diseases, including NCDs. The financial burden also makes them avoid modern medicine and opt for cheaper traditional medicine. Several international and local studies revealed that poverty will cause chronic disease burdens in the future as it leads to a lack of prevention and health-seeking behaviour.^{3,13,16}

LIMITATIONS

Logistic issues and fear among the respondents about interacting with researchers during the COVID-19 pandemic were among the challenges faced in this study. Data was collected among the Orang Asli Semelai community using convenience sampling. Thus, the present results may not represent the entire Orang Asli population in Pahang. The study only disclosed the levels and association between the KAP toward NCDs with the socio-demographic data and did not report the cause-and-effect relationship between them.

CONCLUSION

This study provides a community-based picture of the Orang Asli community's knowledge, attitude and practices (KAP) regarding non-communicable diseases (NCDs). Although the Orang Asli community's knowledge of NCDs was found to be low, they have a decent attitude and moderate practice levels. KAP levels were significantly associated with education levels, household income, and the presence of a family history of NCDs. Hence, improving education and poverty in the Orang Asli community may successively increase the knowledge level, impart a positive attitude towards NCDs, and improve the practice level toward treatment and prevention.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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