

**THE RISKS AND HEALTH BEHAVIOURS
TOWARDS NON-COMMUNICABLE DISEASES
(NCDS) AMONG INDIGENOUS (ORANG ASLI) IN
NEGERI SEMBILAN, MALAYSIA:
A MIXED METHODS STUDY**

MUSLIMAH BINTI ITHNIN

UNIVERSITI SAINS ISLAM MALAYSIA

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INDIGENOUS (ORANG ASLI) IN NEGERI SEMBILAN,
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MUSLIMAH BINTI ITHNIN

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AUTHOR DECLARATION

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

Date :

Signature :

Name : Muslimah binti Ithnin

Matric No. : 4160315

Address : Faculty of Medicine and Health Sciences,
Universiti Sains Islam Malaysia,
Persiaran Ilmu, Putra Nilai
71800 Nilai, Negeri Sembilan

BIODATA OF AUTHOR

Muslimah binti Ithnin (4160315) was born on the 20th of August 1986. She is currently residing at No.7, Jalan Baru 8, Taman Bukit Kajang Baru 43000 Kajang, Selangor Darul Ehsan. She previously was a student of Universiti Kebangsaan Malaysia (UKM) and obtained a Bachelor Degree in Biomedical Science with Honors from the Faculty of Allied Health Science (FSKB). She then received a Master of Science from the Faculty of Medicine and Health Sciences (FPSK), Universiti Sains Islam Malaysia (USIM). She is at present a Doctor of Philosophy in Science and Technology candidature at the Faculty of Medicine and Health Sciences (FPSK), Universiti Sains Islam Malaysia (USIM).



DEDICATION

I dedicate this thesis

To my partner, soul-mate and love of my life En. Che Mat Muda and our precious gifts from Allah s.w.t - Che Alya Marissa and Che Muhammad Aqil Nauffal. Thank you for the tremendous support, continuous confidence and inspiring me to keep going even when I wanted to give up.

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ABSTRAK

Objektif: Kajian ini bertujuan mensintesis penjelasan yang koheren mengenai faktor risiko dan tingkahlaku terhadap kesihatan untuk penyakit tidak berjangkit (NCDs) di kalangan Orang Asli (OA) menggunakan tiga metodologi iaitu 1) kajian sistematik (SR): mengkaji secara sistematik artikel kelaziman risiko tingkah laku dan metabolik NCDs di kalangan Orang Asli dewasa, 2) penyelidikan kuantitatif: menentukan prevalen NCDs serta faktor risikonya, tahap pengetahuan, sikap, amalan terhadap NCDs dan tindakan dalam mendapatkan rawatan kesihatan, dan 3) kualitatif: menjelaskan dan memperdalam pemahaman tentang hasil penyelidikan kuantitatif yang dijalankan.

Metodologi: Pencarian sistematik dijalankan menggunakan empat pengkalan data. Artikel disaring, dipilih, dinilai dan diekstrak menggunakan protokol *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA). Kemudian, kajian gabung berturutan dua fasa digunakan. Di dalam fasa kuantitatif, kajian keratan lintang diadakan secara temubual bersemuka di kalangan Orang Asli dewasa berusia 18 tahun ke atas ($n = 325$) di Jelebu, Negeri Sembilan. Pelengkap kepada analisa kuantitatif, fasa kualitatif telah dijalankan melalui temuramah mendalam dalam kalangan 16 orang dewasa Orang Asli. Kajian ini telah dijalankan pada bulan Januari 2018 sehingga April 2019. Regresi logistik berbilang bagi analisa sampel kompleks telah digunakan untuk menganalisa kuantitatif data. Analisa kandungan telah digunakan untuk menganalisa kualitatif data.

Keputusan: Carian artikel daripada kajian sistematik menemui 1632 artikel yang berpotensi bagi risiko tingkah laku, dengan 12 artikel menepati kriteria rangkuman. Daripada 170 artikel yang berpotensi bagi risiko metabolik, 16 artikel menepati kriteria rangkuman. SR mendedahkan kelaziman faktor risiko tingkahlaku dan metabolik NCDs yang tinggi di kalangan Orang Asli di Malaysia. Hasil dapatan kajian kuantitatif menunjukkan bahawa kadar NCDs tertinggi adalah hipertensi (14.8%), diikuti oleh hiperkolesterolemia (5.2%) dan Diabetes mellitus (4.3%). Untuk pengetahuan, sikap dan amalan (KAP) terhadap NCDs, hanya 28.0%, 48.9% dan 19.4% mempunyai skor KAP yang baik. Untuk tindakan dalam mendapatkan rawatan, 59.3% mendapatkan rawatan moden, manakala 40.7% menggunakan kedua-dua rawatan moden dan tradisional. Analisis regresi logistik berbilang menunjukkan, pesakit hipertensi berkait rapat dengan kumpulan usia 40 tahun ke atas tetapi berkait secara songsang dengan perokok. Kumpulan usia 40 tahun dan skor praktis terhadap NCDs yang tinggi berkait rapat dengan pesakit hiperkolesterolemia. Pesakit diabetes pula berkait rapat dengan kumpulan usia 40 tahun ke atas dan rendah aktiviti fizikal. Obesiti abdomen berkait rapat dengan wanita, kategori bukan miskin tegar dan peminum alkohol. Kumpulan usia 40 tahun ke atas, kurang pengambilan sayur, obesiti abdomen dan peningkatan glukosa dalam darah berkait secara signifikan dengan kumpulan yang mempunyai peningkatan tekanan darah. Tahap pengetahuan terhadap NCDs yang rendah berkait dengan tahap pendidikan yang rendah, kumpulan miskin tegar, kurang aktiviti fizikal dan kurang pengambilan sayuran. Peminum alkohol, kurang aktiviti fizikal dan kurang pengambilan sayur mempunyai tahap sikap

terhadap NCDs yang lebih rendah. Tema yang terbit daripada kajian kualitatif adalah perkembangan dan peralihan kehidupan, pengetahuan dan persepsi NCD, kesan kesihatan faktor risiko NCD, halangan untuk mencegah faktor tingkah laku, penggunaan perubatan moden dan kemudahan kesihatan, dan ubat tradisional. Masalah utama Orang Asli adalah tahap pengetahuan mereka yang rendah, persepsi negatif serta halangan dalam menjalani gaya hidup sihat dan akses kepada kemudahan kesihatan.

Kesimpulan: Hasil kajian mendapati kadar kelaziman NCDs dan risikonya yang tinggi di kalangan Orang Asli. Ini memberikan petanda aras yang membimbangkan terhadap status kesihatan mereka pada masa hadapan. Pelaksanaan strategi perlu menekankan kepada kepentingan penyaringan awal, program pendidikan dan kesedaran serta program intervensi yang menyasarkan ke arah mengurangkan risiko tingkah laku dan metabolik NCDs, meningkatkan tahap pengetahuan, sikap dan praktis terhadap NCDs selain menangani kepercayaan dan persepsi yang salah di kalangan masyarakat.

ABSTRACT

Objectives: This study aimed to synthesise a coherent explanation risks and health behaviours on non-communicable diseases (NCDs) among the Orang Asli (OA) using three methodologies, namely 1) systematic review (SR): to systematically review the prevalence of behavioural and metabolic risks of NCDs among adults Orang Asli, 2) quantitative research: to determine the prevalence of major NCDs and its risk factors, knowledge, attitudes, practices towards NCDs and health-seeking behaviours, and 3) qualitative study: to provide a deeper explanation and understanding of the quantitative results.

Methods: A SR was conducted on four electronic databases. Eligible studies were screened, selected and reviewed and summarised using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline. Then, a mixed-method sequential explanatory study was employed. In the quantitative phase, a cross-sectional survey via face to face interview was conducted among the adults Orang Asli ($n = 325$) in Jelebu, Negeri Sembilan. Subsequently, the qualitative phase was conducted via in-depth interviews among 16 adults Orang Asli. The study was conducted from January 2018 to April 2019. Multiple logistic regression analysis was used to analyse quantitative data. Content analysis was applied to analyse the qualitative data.

Results: Out of 1632 studies potentially relevant to behavioural risks, only 12 met the inclusion criteria. Among 170 studies that were potentially relevant to metabolic risk, only 16 were eligible for inclusion. The results from the SR revealed a high prevalence of behavioural and metabolic risk factors of NCDs among Orang Asli in Malaysia. Findings from quantitative research showed that the highest number of NCDs are self-reported hypertension (14.8%), followed by hypercholesterolemia (5.2%) and Diabetes mellitus (4.3%). Only 28.0%, 48.9% and 19.4% had good KAP category, respectively. In health-seeking behaviours, 59.3% seek modern treatment, while 40.7% use both modern and traditional treatment. Multivariate regression analysis showed that hypertension, hypercholesterolemia and Diabetes mellitus were significantly associated with the age group 40 years above. While hypertension inversely associated with non-smoker. Hypercholesterolemia had a significantly higher practices scores towards NCDs. Diabetes mellitus was significantly associated with low physical activity. Female, non-hardcore poverty group and alcohol drinker was significantly associated with abdominal obesity. The age group of 40 years and above, low vegetable intake, abdominal obesity and increased blood glucose were significantly associated with raised blood pressure group. The poorer level of knowledge of NCDs is related to lower education level, hardcore poverty group, physically inactive and inadequate vegetable intake. Low levels of attitude were also associated with alcohol consumers, physically inactive and inadequate vegetable intake group. The qualitative themes derived from this research include 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. We found that low knowledge,

negative attitude, obstacles towards healthy lifestyles, and barriers in accessing healthcare facilities were the main issues to tackle NCDs among Orang Asli.

Conclusion: The results of the study found that the prevalence rate of NCDs and their risk are high among the Orang Asli communities. This provides a worrying benchmark for their future health status. The implementation of the strategy should emphasize the importance of early screening, education and awareness programs as well as intervention programs aimed at reducing the behavioural and metabolic risks of NCDs, increasing the level of knowledge, attitudes and practices towards NCDs as well as addressing misconceptions and perceptions in the communities.

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ملخص البحث

الأهداف: هدفت هذه الدراسة إلى تجميع تفسير متماسك للأمراض غير المعدية (NCDs) وعوامل الخطر الخاصة بها بين Orang Asli (OA) باستخدام ثلاث منهجيات ، وهي (1) المراجعة المنهجية: (SR) مراجعة منهجية لانتشار المخاطر السلوكية والتمثيل الغذائي للأمراض غير المعدية بين البالغين Orang Asli ، (2) البحث الكمي: لتحديد مدى انتشار الأمراض غير المعدية وعوامل الخطر الخاصة بها ، والمعرفة ، والمواقف ، والممارسات تجاه الأمراض غير المعدية وسلوكيات البحث عن الصحة ، و (3) دراسة نوعية: لتقديم شرح وفهم أعمق للأمراض غير المعدية النتائج الكمية.

الأساليب: تم إجراء SR على أربع قواعد بيانات إلكترونية. تم فحص الدراسات المؤهلة واختيارها ومراجعتها وتلخيصها باستخدام إرشادات عناصر التقارير المفضلة للمراجعات المنهجية والتحليلات الوصفية (PRISMA) بعد ذلك ، تم استخدام دراسة تفسيرية متسلسلة مختلطة الطرق. في المرحلة الكمية ، تم إجراء مسح مقطعي عبر مقابلة وجهاً لوجه بين البالغين Orang Asli (ن = 325) في Jelebu ، Negeri Sembilan. بعد ذلك ، تم إجراء المرحلة النوعية من خلال مقابلات متعمقة مع 16 بالغاً من الزراعة العضوية. أجريت الدراسة في الفترة من يناير 2018 إلى أبريل 2019. تم استخدام تحليل الانحدار اللوجستي المتعدد لتحليل البيانات الكمية. تم تطبيق تحليل المحتوى لتحليل البيانات النوعية.

النتائج: من بين 1632 دراسة يحتمل أن تكون ذات صلة بالمخاطر السلوكية ، حققت 12 فقط معايير الاشتمال. من بين 170 دراسة يحتمل أن تكون ذات صلة بالمخاطر الأيضية ، كانت 16 فقط مؤهلة لتشمل. كشفت النتائج من SR عن ارتفاع معدل انتشار عوامل الخطر السلوكية والتمثيل الغذائي للأمراض غير المعدية بين Orang Asli في ماليزيا. أظهرت نتائج البحث الكمي أن أكبر عدد من الأمراض غير المعدية هو ارتفاع ضغط الدم المبلغ عنه ذاتياً (14.8٪) ، يليه ارتفاع الكوليسترول (5.2٪) ومرض السكري (4.3٪). فقط 28.0٪ و 48.9٪ و 19.4٪ لديهم فئة جيدة من المعرفة والممارسات والمهارات على التوالي. في سلوكيات البحث عن الصحة ، 59.3٪ يسعون إلى العلاج الحديث ، بينما 40.7٪ يستخدمون العلاج الحديث والتقليدي. أظهر تحليل الانحدار متعدد المتغيرات أن ارتفاع ضغط الدم وفرط كوليسترول الدم ومرض السكري ارتبطت بشكل كبير بالفئة العمرية 40 سنة أعلاه. بينما يرتبط ارتفاع ضغط الدم عكسياً مع غير المدخن. كان لفرط كوليسترول الدم درجات ممارسات أعلى بكثير تجاه الأمراض غير المعدية. ارتبط مرض السكري

بشكل كبير مع انخفاض النشاط البدني. ارتبطت مجموعة الإناث والفقر غير المتشدد وشاربي الكحول بشكل كبير بسمنة البطن. ارتبطت الفئة العمرية من 40 سنة وما فوق ، وانخفاض تناول الخضار ، والسمنة في منطقة البطن وزيادة نسبة السكر في الدم بشكل كبير مع مجموعة ضغط الدم. يرتبط المستوى الأضعف من المعرفة بالأمراض غير المعدية بانخفاض مستوى التعليم وفئة الفقر المدقع وعدم ممارسة النشاط البدني وعدم كفاية تناول الخضروات. كما ارتبطت المستويات المنخفضة من الموقف مع مستهلكي الكحول ، ومجموعة الخضار غير النشطة جسديًا وغير الكافية. تشمل الموضوعات النوعية المستمدة من هذا البحث التطور وتحولات الحياة ، والمعرفة والإدراك للأمراض غير المعدية ، والآثار الصحية لعوامل خطر الأمراض غير المعدية ، والعوائق التي تحول دون منع العوامل السلوكية ، واستخدام الطب الحديث ومرافق الرعاية الصحية ، والأدوية التقليدية وجدنا أن المعرفة المنخفضة ، والمواقف السلبية ، والعقبات التي تحول دون أنماط الحياة الصحية ، والحوافز التي تحول دون الوصول إلى مرافق الرعاية الصحية كانت القضايا الرئيسية لمعالجة الأمراض غير المعدية بين Orang Asli

الخلاصة: وجدت نتائج الدراسة أن معدل انتشار الأمراض غير المعدية وخطورها مرتفع بين مجتمعات أورانغ أسلي. يوفر هذا معيارًا مقلقًا لحالتهم الصحية في المستقبل. يجب أن يؤكد تنفيذ الاستراتيجية على أهمية برامج الفحص المبكر والتثقيف والتوعية وكذلك برامج التدخل التي تهدف إلى الحد من المخاطر السلوكية والتمثيل الغذائي للأمراض غير المعدية ، وزيادة مستوى المعرفة والمواقف والممارسات تجاه الأمراض غير المعدية وكذلك معالجة المفاهيم الخاطئة و التصورات في المجتمعات.

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LIST OF UNIT OF MEASUREMENTS

centimetre	cm
kilogram	kg
kilometer	km
meter	m
millimetre of mercury	mmHg
millimoles per litre	mmol/L

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LIST OF SYMBOLS

aOR	adjusted Odds Ratio
B	logistic coefficient
d	Absolute precision
$Exp(B)$	exponentiation of the B coefficient
M	Mean
n	Sample size
N	Population size
OR	Odds Ratio
P	Prevalence of interest
p	Level of significance
r	Correlation coefficient
R^2	Percent of variance explained
SD	Standard deviation
χ^2	Chi-squared
%	Percentage

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LIST OF ABBREVIATION

AMO	Assistant medical officer
BFP	Body Fat Percentage
BMI	Body Mass Index
BP	Blood pressure
CDC	Centers for Disease Control and Prevention
CI	Confidence Interval
COPD	Chronic Obstructive Pulmonary Disease
CVDs	Cardiovascular Disease
DALYs	disability adjusted life years
DM	Diabetes mellitus
DoSM	Department of Statistics Malaysia
ed	edition
Eds	Editors
et al.	Others
FELCRA	Federal Land Consolidation and Rehabilitation Authority
GBD	Global Burden of Disease
HDL	High-density lipoprotein
IDF	International Diabetes Federation
i.e.	that is
IPH	Institute for Public Health
JIS	Joint Interim Societies
JAKOA	Department of Orang Asli Development (<i>Jabatan Kemajuan Orang Asli</i>)
KAP	Knowledge, Attitude and Practices
max	Maximum
min	Minimum
MREC	Medical Research & Ethics Committee
MOH	Ministry of Health
NCCFN	National Coordinating Committee on Food and Nutrition
NCDs	Non-Communicable Diseases
NCEP-ATP	National Cholesterol Education Program-Adult Treatment Panel
NHMS	National Health Morbidity Survey
NMRR	National Medical Research Register
OA	Orang Asli
PBUH	Peace Be Upon Him
p.	page
pp.	pages
PPRT	Housing Project for the Hardcore Poverty (<i>Projek Perumahan Rakyat Miskin Tegar</i>)
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analyses
Quan	Quantitative
Qual	Qualitative
Ref	Reference
RM	Ringgit Malaysia

SDGs	Sustainable Development goals
SPSS	Statistical Package for the Social Sciences
Supp	Supplementary
s.w.t.	Subhanahu Wa Ta'ala
UN	United Nations
vol	Volume
vs.	Versus (in contrast with)
WHO	World Health Organization
YLL	years of life lost

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LIST OF TERMINOLOGIES

There are several terms frequently used throughout this thesis. The list below gives a brief explanation of the terms used in Malaysia to help the reader to understand the context of the terminology in this study better.

<i>Air penawar</i>	Treatment given by traditional healer for illness
Bumiputera	Malaysian term meaning 'Sons of the Earth'. The term refers to Malay, Orang Asli and Indigenous peoples of Sabah and Sarawak
<i>Klinik Desa</i>	Rural / remote outpost clinic. It is a small primary public healthcare clinic provided by the government located in most rural areas
Indigenous	An Aboriginal person
<i>Kampung</i>	An organised community is often containing related members of one's family or ethnic group (Malay, Chinese, Indian or Indigenous). A small village-like community. Used (slang) to enquire where one comes from or grew up
<i>Kedai</i>	Small stall or shop
Orang Asli Tribal	Peninsular Malaysian term for the Indigenous tribal people Belonging to an Indigenous tribe.
<i>Tok Batin</i>	Orang Asli village head
<i>Tok Halaq</i>	Traditional shaman and healer, among the Indigenous peoples of Peninsular Malaysia