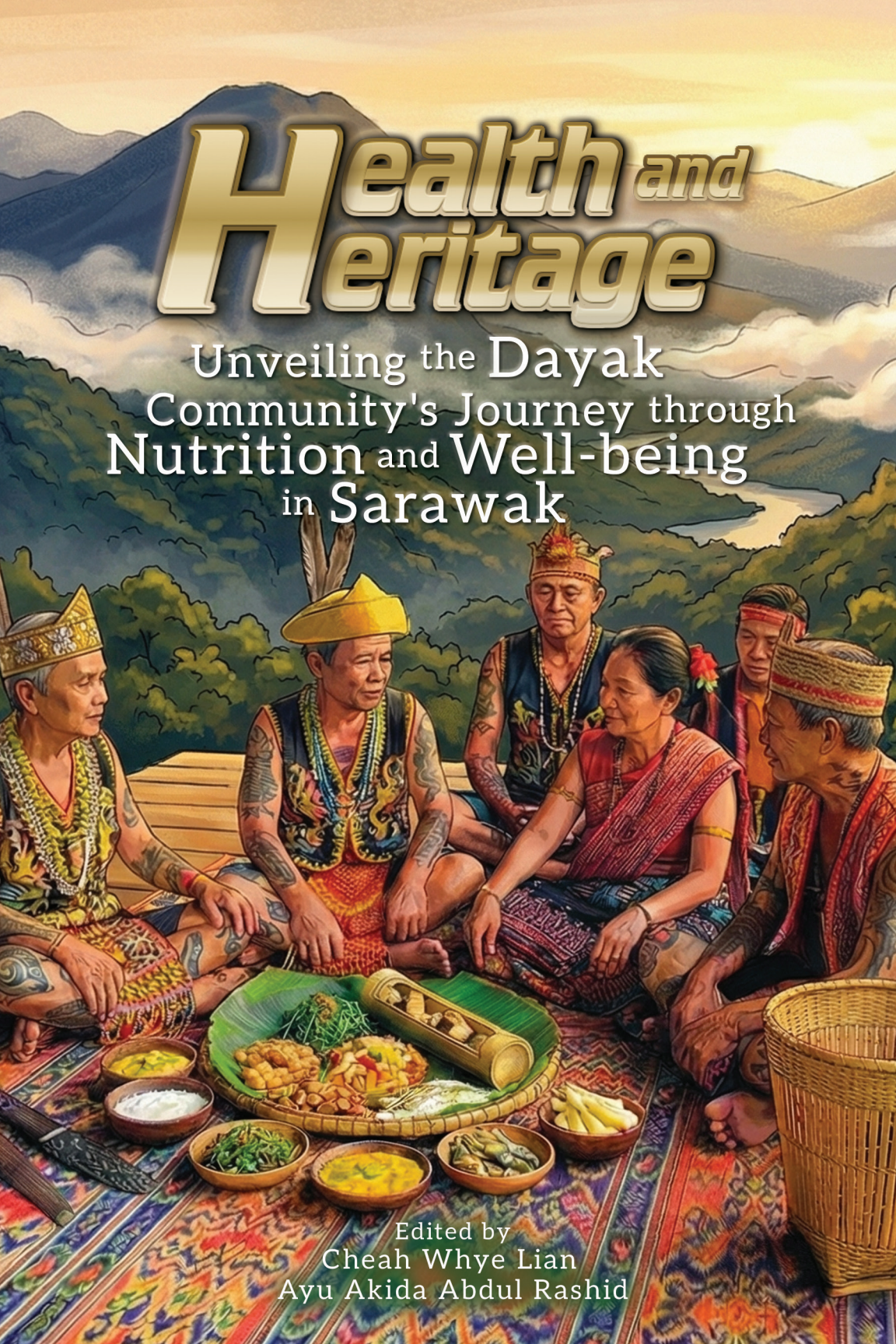
Health and Heritage

Unveiling the Dayak Community's Journey through Nutrition and Well-being in Sarawak



Edited by
Cheah Whye Lian
Ayu Akida Abdul Rashid

Health and Heritage

Unveiling the Dayak Community's Journey through Nutrition and Well-being in Sarawak

Health and Heritage

Unveiling the Dayak Community's Journey through Nutrition and Well-being in Sarawak

Edited by
Cheah Whye Lian
Ayu Akida Abdul Rashid

UNIMAS PUBLISHER
2026

Health and Heritage

Unveiling the Dayak Community's Journey through Nutrition and Well-being in Sarawak

© UNIMAS Publisher, 2026

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying,recording or otherwise, without the prior permission of the publisher.

Published in Malaysia by
UNIMAS Publisher,
Universiti Malaysia Sarawak,
94300 Kota Samarahan,
Sarawak, Malaysia.

Printed in Malaysia by

Cataloguing-in-Publication Data

National Library of Malaysia

A catalogue record for this book is available from the National Library of Malaysia

ISBN 978-629-7783-28-4

CONTENTS

Preface viii
Acknowledgement x

Digital Literacy and Health Awareness **1**
Digital Health Literacy Among Elderly Dayak in Southern Sarawak 2
Johnny Ling Shean Kang, Cheah Whye Lian

Traditional Diets and Modern Health Challenges **15**
Consumption of Traditional Food and Its Relationship with Overweight/Obese Among Adult Dayak Community in Kuching and Samarahan, Sarawak 16
Joseph Unja anak Anjut, Jeffery Stephen, Cheah Whye Lian

Edible Oil Consumption Among Dayak Community in Southern Zone of Sarawak 36
Michael Pui Chia Shian, Cheah Whye Lian

Nutritional Health and Disease Prevalence **47**
Lifestyle and Nutrition Changes Towards the Health of Liver Among the Dayak Community 48
Azlan Arif Bolen, Jeffery Stephen, Cheah Whye Lian, Koa Ai Jiun

Non-Alcoholic Fatty Liver Disease and Gallstone Disease in Dayak Communities 59
Yew Ting Ting, Cheah Whye Lian, Koa Ai Jiun, Chow Han Bing, Ayu Akida Abdul Rashid

Cardiovascular Risk Factors and Association with Increased Carotid Intimal Thickness mong Dayak Communities In Sarawak 66
Koa Ai Jiun, Cheah Whye Lian, Yew Ting Ting, Mazlifah Ahadon, Ayu Akida Abdul Rashid

Food Security and Nutritional Status **73**
Dayak Elders in Southern Sarawak: The Struggle for Food Security 74
Abdullah Shauqi Kusairy, Law Leh Shii

Household food insecurity among the Indigenous communities in Sarawak : Predicting and Coping 87
Teoh Wan Jool, Law Leh Shii, Helmy Hazmi

Nutritional Paradox: The Double Burden of Malnutrition in Sarawak's Indigenous Communities 98
Yolanda Salleh, Cheah Whye Lian, Law Leh Shii

Metabolic Health and Risk Factors **111**
Investigation of Adiponectin Relation to Vascular Risk Factors Among Dayak Communities in Sarawak 112
Myat Su Bo, Cheah Whye Lian, Zunika Amit, Jeffery Stephen, Mar Mar Lwin

Metabolic syndrome in Dayak communities in Sarawak 122
Koa Ai Jiun, Cheah Whye Lian, Yew Ting Ting, Mazlifah Ahadon, Ayu Akida Abdul Rashid

List of Tables

Table 1.1:	Types of common traditional foods consumed	19

List of Figures

Figure 1.1:	Preferred source for health information among the elderlyin Southern Sarawak.	7
Figure 1.2:	Digital device usage among the elderly in Southern Sarawak.	7
Figure 2.1:	Loss of traditional food system and its consequences (Kuhnlein and Receveur, 1996)	32
Figure 3.1:	Carotid plaque in bifurcation of carotid artery showing how the blood flow (red arrow) to the brain can be affected.	68
Figure 3.2:	Numbers of Respondents with Carotid Plaque (Right: only right-sided carotid plaque, Left: only left-sided carotid plaque, Bilateral: concurrent bilateral carotid plaque, None: no carotidplaque bilaterally)	70
Figure 4.1:	Food Insecurity levels from Food and Agriculture Organization (FAO)	77
Figure 4.2:	Food Insecurity Experience Scale (FIES) question from Food and Agriculture Organization (FAO)	91
Figure 4.3:	Household food security status among the Indigenous communities (n=953)	91
Figure 4.4:	Double burden of malnutrition from World Health Organization	103
Figure 5.1:	Prevelance of component of MetS and MetS globally vs Dayak communities (WC: increased waist circumference, TG: elevated triglycerides level, HDL: low HDL-cholesterol level, HyperG: hyperglycemia, BP: hypertension, MetS: metabolic syndrome)	128

Preface

In the heart of Sarawak, a narrative unfolds that bridges the past with the present, tradition with modernity, and health with heritage. "Health and Heritage" embarks on an exploratory journey into the lives of the Dayak communities, revealing how their health and nutritional practices are being reshaped in the face of contemporary challenges. This book is a comprehensive compilation of research, stories, and insights divided into five thematic parts, each shedding light on different facets of the Dayak's health and nutritional landscape.

Chapter 1 opens the dialogue on digital health literacy, emphasising its significance among the elderly Dayak, a demographic traditionally secluded from the digital revolution yet increasingly reliant on it for health information and services.

Chapter 2 delves into the heart of Dayak culinary tradition, exploring the complex relationship between the consumption of traditional foods, the advent of modern dietary habits, and their collective impact on health outcomes such as obesity and metabolic diseases.

Chapter 3 focuses on the prevalence of specific health conditions within the community, including fatty liver disease, gallstone disease, and cardiovascular risks. It examines how these conditions correlate with nutritional habits and lifestyle choices, offering a critical look at the health challenges facing the Dayak today.

Chapter 4 addresses the critical issues of food security and nutritional status, highlighting the vulnerability of the Dayak elderly and the broader indigenous communities to food insecurity and malnutrition. This section dips into the tactics utilised by these communities to traverse the intricacies of

resource availability, loss, and coping processes through cross-sectional studies and analysis.

Chapter 5 rounds off the discussion by investigating metabolic health markers, specifically adiponectin, and their association with vascular risk factors. This section underscores the importance of understanding metabolic health in the context of community-wide health assessments and interventions.

"Health and Heritage" goes beyond being a mere book; it serves as a call to action and a plea for empathy, urging readers, researchers, and policymakers to recognise and address the unique health and nutritional challenges faced by the Dayak communities in Sarawak. Through this detailed exploration, the book aims to contribute valuable knowledge to the fields of nutrition, public health, and indigenous studies, fostering a deeper understanding of how tradition and modernity coalesce in the realm of health and well-being.

Acknowledgement

First and foremost, I must thank myself for managing to complete this book before my retirement. It turns out that writing a book is a bit like running a marathon—except with more backaches from sitting too long and fewer medals. A heartfelt thanks to my co-editor, Ayu Akida, whose motivation and encouragement were pivotal in starting this book project.

To my amazing colleagues and graduate students, thank you for your invaluable contributions to the chapters of this book. Your insights, encouragement, and camaraderie have been instrumental, especially during the challenging phases of my life. Your support has been like a warm cup of teh tarik on a rainy day—comforting and essential.

A heartfelt thank you goes to my wonderful mum, whose unwavering support and years of perseverance have shaped me into the person I am today. Since the passing of my father, she has been the cornerstone of our family, guiding me with her strength and wisdom. Although she may not fully see my achievements as she once did, her influence and love are deeply woven into every page of this book. I dedicate this book to her.

Finally, here's to fulfilling a lifelong dream and proving that it's never too late to write a book. Cheers to ticking this off the bucket list!

谢伟莲

Metabolic Syndrome in Dayak Communities in Sarawak

Koa Ai Jiun, Cheah Whye Lian, Yew Ting Ting, Mazlifah Ahadon, Ayu Akida Abdul Rashid

The Story of John and Jane

"Dad, can you send me to school earlier this morning? I need to return some books to the school library today. It was due yesterday.", Sarah was shouting from her room. "Dad, don't be late from picking me up from my tuition class today. Remember it is at 7pm!! I waited for you for nearly an hour yesterday.", Emily was yelling from the toilet. "Dear, can you make a quick breakfast for the kids this morning? I am running late for my meeting.", Jane, the wife, is calling out from the toilet.

This is the life of John Ak Johnson, a typical 40 year-old city man, with a demanding job as a software enginner in a bustling tech firm. His wife, Jane, was a successful lawyer, and together they juggled the responsibilities of raising two school-going kids while managing their high-pressure careers. Their days were a blur of meetings, a whirlwind of deadlines, dinner preparations, and late-night emails. Evenings were dedicated to his two energetic school-going kids. Sarah and Emily, who always seemed to have endless homework and extracurricular activities.

Amidst the demands of work and parenting, John often overlooked his own health. Years of sedentary work hours and a penchant for fast food had taken their toll. Recently, his doctor had warned him about the early signs of metabolic syndrome, which is a cluster of diseases including high blood pressure, high blood sugar, abnormal cholesterol levels and excess body fat, especially around the waist. John knew he needed to make changes, but finding the time and motivation seemed like an impossible task.

Health and Heritage

Unveiling the Dayak Community's Journey through Nutrition and Well-being in Sarawak

Health and Heritage is not just a book; it's a call to action and empathy, urging readers, researchers, and policymakers to recognise and address the unique health and nutritional challenges faced by the Dayak communities in Sarawak. Through this detailed exploration, the book aims to contribute valuable knowledge to the fields of nutrition, public health, and indigenous studies, fostering a deeper understanding of how tradition and modernity coalesce in the realm of health and well-being.



Cheah Whye Lian is a Professor of Nutrition at the Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences. She holds a degree in Nutrition, a Master's in Public Health, and a Ph.D. in Community Nutrition. Cheah's research focuses on nutrition and well-being from childhood to adulthood, specializing in community settings. She is skilled in quantitative, qualitative, and mixed-methods research. Her work includes studies among Sarawak's indigenous groups, exploring cultural and health behavior interactions, particularly among the Iban and Bidayuh communities. She has co-established a research cluster on health and well-being under the Institute of Borneo Studies.



Ayu Akida Abdul Rashid is a senior lecturer at the Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS), and a research fellow at the Malaria Research Centre, UNIMAS. She holds an MD and an MPH, with interests in family, mental, and community health. Ayu co-edited "Health and Heritage: Unveiling the Dayak Community's Journey Through Nutrition and Well-being in Sarawak" with Professor Dr Cheah Whye Lian, whose leadership she greatly appreciates. She thanks all chapter authors for their dedication. Passionate about public health, Ayu believes in teamwork, creativity, and humor. Through research, teaching, and editorial work, she is committed to advancing community well-being and fostering positive change.

UNIMAS
UNIVERSITI MALAYSIA SARAWAK

ISBN 978-629-7783-28-4

UNIMAS PUBLISHER

One tree planted for every book published