

The Social Determinants of Health Theory and Indigenous Health Equity: A Conceptual Perspective on Orang Asli Communities in Peninsular Malaysia

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Abstract

The health disparities experienced by Orang Asli communities in Peninsular Malaysia constitute one of the most longstanding and complex public health issues in the country. This conceptual article examines the usefulness of Social Determinants of Health (SDH) theory, as advanced by the World Health Organization Commission on Social Determinants of Health, as a framework for analysing Orang Asli health equity. Using a conceptual review approach, the article synthesises peer-reviewed studies, official reports, and foundational SDH literature on Indigenous health, health equity, land dispossession, food security, and healthcare access. Through the Rainbow Model by Dahlgren and Whitehead and the WHO Conceptual Framework for Action on the Social Determinants of Health, the paper discusses how health inequities among Orang Asli populations are shaped by structural determinants, including socioeconomic position, political governance, historical marginalisation, and land insecurity, as well as intermediary determinants such as living conditions, food insecurity, and access to culturally appropriate healthcare. The analysis demonstrates the importance of a culturally sensitive, rights-based, and decolonial SDH framework for addressing Indigenous health inequities in Peninsular Malaysia.

1. Introduction

Health inequalities among Indigenous populations remain a global concern that transcends national boundaries and development statuses. In Malaysia, the Orang Asli is a diverse group comprising approximately 200,000 people across 18 subgroups, who are the oldest indigenous inhabitants of Peninsular Malaysia. Despite this, they continue to face significantly higher health burdens compared to the majority Malay population and other ethnic groups (Abd Razak et al., 2026). While Malaysia has made notable strides in healthcare infrastructure, the health outcomes for Orang Asli communities remain consistently inferior. This is evident in higher rates of communicable

diseases, malnutrition, infant mortality, and limited access to quality healthcare services (Mahmud et al., 2022; Selvaratnam et al., 2023).

The persistence of these health disparities cannot be adequately explained by biomedical or individual-behavioural frameworks alone. Rather, they reflect deeply embedded structural and social inequalities that have shaped the lived experiences of Orang Asli communities over centuries. The Social Determinants of Health (SDH) theory offers a comprehensive theoretical lens through which these inequalities can be understood, interrogated, and addressed. The SDH framework as advanced by the World Health Organisation (WHO) Commission on Social Determinants of Health posits that the conditions in which people are born, grow, live work and age shaped by the distribution of money power and resources which are the fundamental causes of health inequities.

While there is a growing body of research on Indigenous health in Malaysia, a significant gap exists in theoretical and conceptual analyses that integrate Social Determinants of Health (SDH) theory with Orang Asli-specific contexts. Most existing studies focus on epidemiological profiles, disease burden, or single-issue interventions without adequately exploring the upstream social, political, and economic structures that perpetuate health disparities (Mahmud et al., 2022; Wallace et al., 2022; Abd Razak et al., 2026). This conceptual paper addresses this gap by systematically applying SDH theory to Orang Asli health conditions. This approach offers a more holistic and structurally informed understanding of Indigenous health inequity in Malaysia.

The objectives of this paper are threefold: (1) to provide a theoretical overview of the SDH framework and its principal conceptual models; (2) to apply these theoretical constructs to the social, historical and structural conditions affecting Orang Asli health; and (3) to propose policy directions for culturally sensitive, rights-based health policy and research in the Malaysian Indigenous context.

2. Methodology

This paper adopts a conceptual review design to examine the relevance of Social Determinants of Health (SDH) theory for analysing health inequities among Orang Asli communities in Peninsular Malaysia. Literature was sourced from Scopus, Web of Science, PubMed, Google Scholar, and official institutional sources, including publications by the World Health Organization (WHO), the United Nations, and Malaysian policy-related sources. The search used combinations of keywords such as 'Orang Asli', 'Social Determinants of Health', 'SDH', 'Indigenous health equity', 'Indigenous health Malaysia', 'Rainbow Model', 'CSDH framework', 'land dispossession', 'food security', 'healthcare access', and 'Peninsular Malaysia'.

The inclusion criteria comprised peer-reviewed journal articles, conceptual papers, systematic reviews, books, and official reports that addressed Orang Asli health, Indigenous health equity, SDH theory, health policy, land rights, food security, living conditions, or healthcare access in Malaysia and related Indigenous contexts. Foundational theoretical texts such as the Dahlgren and Whitehead Rainbow Model and the WHO CSDH framework were retained regardless of publication year because of their conceptual significance. Materials were excluded if they were not relevant to Orang Asli or Indigenous health equity, lacked a clear connection to social or structural determinants, were duplicated across databases, or did not provide sufficient conceptual or empirical relevance for the paper's analytical focus.

The selected literature was synthesised thematically using the two principal dimensions of the CSDH framework: structural determinants and intermediary determinants. The Rainbow Model was used to organise multilevel determinants, whereas the WHO CSDH framework was used to interpret the links between socioeconomic position, ethnicity, governance, material circumstances, health-system access, and health equity. Because this paper is based exclusively on previously published literature and publicly available documents, no human participants were involved and no ethical approval was required.

3. Theoretical Framework: Social Determinants of Health

3.1 Origins and Evolution of the SDH Theory

The concept of social determinants of health has its intellectual roots in nineteenth-century social medicine, particularly in the work of Rudolf Virchow, who famously argued that medicine is a social science and that politics is nothing more than medicine at a larger scale (Marmot & Bell, 2016). The modern understanding of Social Determinants of Health (SDH) theory emerged with the publication of the Black Report in the UK in 1980. This was followed by further consolidation through key reports like the Acheson Report in 1998 and the final report of the WHO Commission on Social Determinants of Health in 2008. These documents collectively shifted the focus of public health discourse from individual risk factors to the structural conditions that generate and sustain health inequalities across populations (Marmot & Bell, 2016).

Under the SDH approach, determinants are classified into two major categories, which include the structural determinants and the intermediary determinants. The structural determinants refer to the societal processes at the macro level such as income distribution, education systems, labour market and governance systems, which result in socioeconomic stratification that is responsible for differential health risks. The intermediary

determinants, on the other hand, are the conditions in the immediate environment that act as channels through which the structural inequalities result in health outcomes (Solar & Irwin, 2010).

3.2 The Rainbow Model by Dahlgren and Whitehead

One of the most enduring conceptual models within the SDH tradition is the Dahlgren and Whitehead (1991) Rainbow Model, which organises the determinants of health into concentric layers of influence. At the innermost layer are individual constitutional factors such as age, sex, and hereditary characteristics. Surrounding these are individual lifestyle factors, which are themselves embedded within social and community networks. These, in turn, are shaped by broader living and working conditions, including education, the healthcare system, agriculture and food production, and housing. At the outermost layer are general socioeconomic, cultural, and environmental conditions that frame the entire social ecology of health.

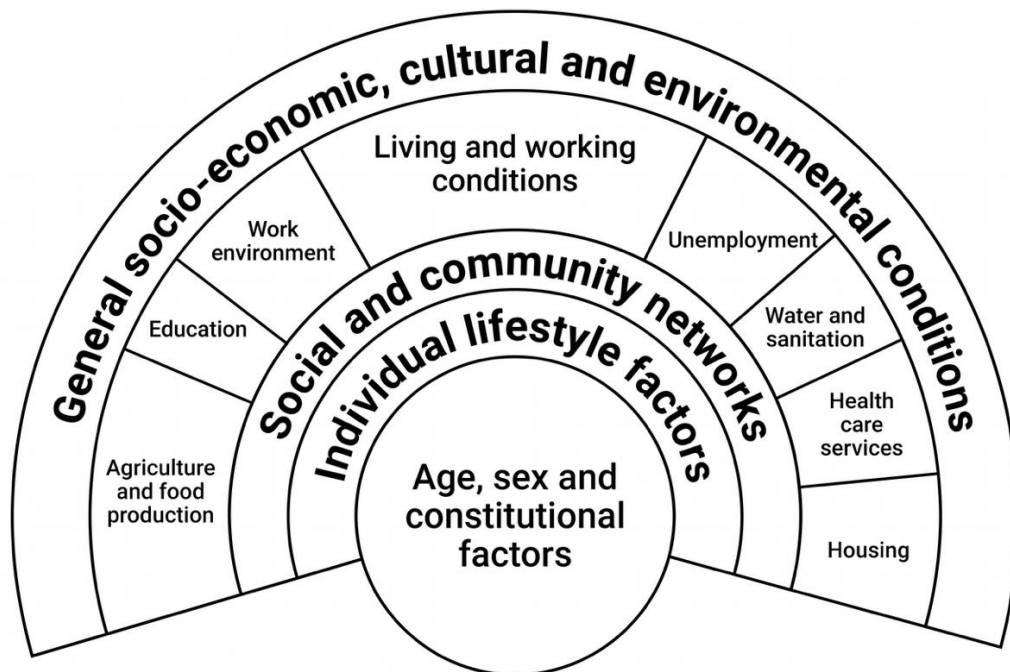


Fig. 1 Rainbow Model (Dahlgren & Whitehead, 1991) which organises the determinants of health into concentric layers of influence.

The Rainbow Model's layered architecture is particularly instructive for understanding Indigenous health because it draws attention to the ways in which individual health behaviours are conditioned by social environments that individuals do not create or fully control (Dahlgren & Whitehead, 2021). For Orang Asli communities, the outer layers of the Rainbow Model encompassing socioeconomic and political conditions are heavily marked by historical dispossession, institutional exclusion, and policy neglect, which in turn constrain the options available at every inner layer.

3.3 The WHO Commission on Social Determinants of Health (CSDH) Framework

The WHO Commission on Social Determinants of Health (CSDH) developed a more elaborate conceptual framework for action that distinguishes between the socioeconomic and political context (including governance, macroeconomic policies, social policies, and cultural and societal norms), the structural determinants of health inequities (including social position, which is mediated by education, occupation, income, gender, and ethnicity), and the intermediary determinants of health (WHO, 2008). This framework also incorporates the health system as both a social determinant and a domain of intervention.

A critical contribution of the CSDH framework is its explicit recognition of ethnicity and race as structural determinants of health inequity. In stratified societies, membership in a stigmatised or marginalised ethnic group generates systematic disadvantages across multiple life domains, including differential access to education, economic opportunities, political participation and healthcare (Krieger, 2021). For Orang Asli communities in Peninsular Malaysia, ethnicity, mediated through colonial history, land rights, and state policies functions as a powerful structural determinant that shapes health outcomes across generations.

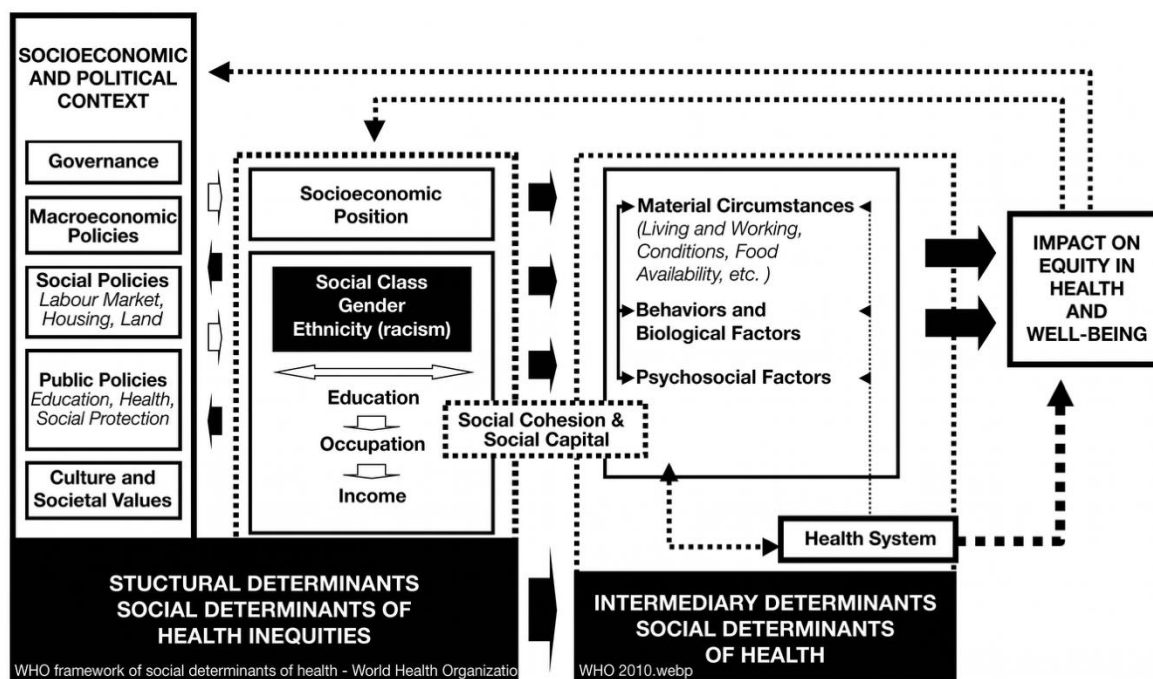


Fig. 2 The WHO Commission on Social Determinants of Health (CSDH) framework (2008)

4. Orang Asli Communities: Demographic and Health Profile

The Orang Asli are not a homogeneous group but a diverse collection of 18 ethno-linguistic subgroups, broadly categorised into three main groups: the Negrito (including the Batek, Jahai, and Kensiu), the Senoi (including the Temiar, Semai, and Jah Hut), and the Proto-Malay (including the Jakun, Orang Seletar, and Temuan). These groups vary considerably in their languages, cultures, traditional ecological knowledge systems, and modes of subsistence (Nicholas, 2010). Administratively, Orang Asli affairs are governed by the Department of Orang Asli Development (JAKOA), formerly known as the Department of Aboriginal Affairs (JHEOA), which falls under the Ministry of Rural Development.

In terms of health outcomes, Orang Asli communities exhibit substantially worse indicators compared to the national average. Studies conducted over the past decade have consistently shown higher rates of malnutrition and stunting among Orang Asli children. Some studies even report stunting prevalence exceeding 50% in certain communities (Shariff et al., 2024; Chin, 2024). Infant mortality rates among Orang Asli populations are markedly higher than national rates, and the communities continue to bear a significant burden of communicable diseases including malaria, tuberculosis, leptospirosis, and soil-transmitted helminthiasis (Mahmud et al., 2022; Abd Razak et al., 2026). At the same time, there is an increasing epidemiological shift toward non-communicable disorders like obesity, hypertension, and type 2 diabetes, especially in populations with higher levels of acculturation into the dominant food system (Mahmud et al., 2022; Wallace et al., 2022; Abd Razak et al., 2026).

Although mental health issues, such as anxiety, depression, and trauma-related disorders, are becoming more widely acknowledged as serious health problems in Orang Asli communities, they are still largely understudied and undertreated in the current frameworks for mental health services (Thong et al., 2025; Ting et al., 2026). The intersecting vulnerabilities produced by land dispossession, cultural erosion, poverty and marginalisation create a complex psychosocial landscape that demands attention within an SDH-informed health framework.

5. Applying SDH Theory to Orang Asli Health

5.1 Structural Determinants: Historical Dispossession and Political Marginalisation

The most fundamental structural determinant of Orang Asli health is the history of colonial and post-colonial land dispossession. Orang Asli communities have been progressively displaced from their ancestral territories as a result of colonial-era development policies, post-independence modernisation agendas and the expansion of commercial agriculture, logging, and infrastructure development (Endicott & Dentan, 2004). This dispossession has disrupted traditional livelihoods, eroded food sovereignty, and severed the profound ecological relationships through which Orang Asli communities have historically maintained their physical and spiritual wellbeing.

The Aborigines People's Act 1954 (revised 1974) remains the primary legislative instrument governing Orang Asli affairs in Malaysia. Critics have argued that this legislation is fundamentally assimilationist in

orientation, reflecting a colonial-era logic that positions Orang Asli culture and identity as impediments to national development rather than assets to be protected and celebrated (Wook, 2016). The absence of formal recognition of Native Customary Rights (NCR) for Orang Asli communities, unlike for Indigenous Dayak communities in Sabah and Sarawak under distinct state laws leaves their land rights particularly precarious and subject to administrative discretion.

From an SDH perspective, these governance and legal structures constitute quintessential structural determinants that position Orang Asli communities at the lowest rungs of the Malaysian social hierarchy, generating systematic disadvantages in education, income, occupation, and social capital that cascade into poor health outcomes across generations (Solar & Irwin, 2010). The political disempowerment of Orang Asli communities reflected in their limited representation in Malaysian political institutions and their historical exclusion from decision-making processes affecting their lands and lives further entrenches these structural disadvantages.

5.2 Socioeconomic Position and Health Equity

Socioeconomic position, as conceptualised within the CSDH framework, encompasses education, occupation, and income as mediating mechanisms between structural contexts and health outcomes. Orang Asli communities score significantly lower than national averages on all three dimensions. Educational attainment among Orang Asli children, while improving, remains substantially below the national mean, with high dropout rates attributed to a combination of geographical barriers, language differences, cultural discontinuities in formal schooling, and economic pressures that necessitate children's participation in household subsistence activities (Selvaratnam et al., 2023; Shariff et al., 2024).

Low educational attainment constrains Orang Asli individuals' access to formal employment opportunities, perpetuating cycles of poverty that are deeply implicated in health disparities. A large proportion of Orang Asli households continue to rely on forest-based subsistence activities, casual wage labour, and small-scale agriculture, all of which provide precarious and often inadequate income streams (Selvaratnam et al., 2023). The combination of low income and geographical remoteness severely limits the ability of Orang Asli families to afford healthcare costs including transportation, medication, and opportunity costs of accessing services even when these are nominally provided free of charge by the government.

5.3 Intermediary Determinants: Living Conditions and Food Security

At the level of intermediary determinants, Orang Asli communities face a constellation of material deprivations that translate structural disadvantages into concrete health vulnerabilities. Housing conditions in many Orang Asli settlements remain substandard, with inadequate access to safe piped water and proper sanitation facilities constituting major drivers of waterborne disease and intestinal parasitic infections (Selvaratnam et al., 2023). The transition from traditional longhouses to government-built low-cost housing, while improving structural shelter in some cases, has not always been accompanied by improvements in water and sanitation infrastructure.

Food insecurity represents a particularly acute intermediary determinant of health for Orang Asli communities. Dispossession from ancestral lands has disrupted traditional food systems that were characterised by high dietary diversity, including forest foods, wild game, fish, and cultivated crops. Forced or economic sedentarisation into permanent settlements has made many communities increasingly dependent on market foods, which are often nutritionally inferior, processed, and unaffordable (Thong et al., 2025; Ting et al., 2026; Abd Razak et al., 2026). The resulting dietary transition from nutrient-dense traditional foods to energy-dense processed alternatives contributes simultaneously to persistent undernutrition among children and to the growing burden of diet-related non-communicable diseases among adults.

5.4 The Health System as a Social Determinant

The CSDH framework explicitly positions the health system as both a social determinant of health and an arena for action on health equity. For Orang Asli communities, geographical remoteness presents the most immediate barrier to healthcare access, as many settlements are located in forested interior areas accessible only by unpaved roads or riverine transport (Marmot & Bell, 2016). Primary health clinics serving these communities are often understaffed, inadequately resourced, and insufficiently equipped to address the full spectrum of health needs.

Beyond geographical access, cultural and linguistic barriers constitute significant structural obstacles to healthcare utilisation. Orang Asli communities often perceive mainstream healthcare facilities as culturally alien environments, and there are documented cases of discrimination and insensitivity by healthcare providers towards Orang Asli patients (Mahmud et al., 2022; Selvaratnam et al., 2023; Chin, 2024). The absence of Orang Asli languages from healthcare communications, the neglect of traditional healing knowledge systems, and the failure to incorporate community health workers from within Orang Asli communities all contribute to a healthcare system that is structurally misaligned with the needs and values of its Indigenous users.

6. Discussion: Towards a Culturally Sensitive SDH Framework for Orang Asli Health

The conceptual analysis presented in the preceding sections demonstrates that the health disparities experienced by Orang Asli communities in Peninsular Malaysia cannot be understood without reference to the complex interplay of structural and intermediary social determinants that have shaped and continue to shape their social and material conditions. The SDH framework, in its most comprehensive formulations, provides an analytically powerful lens for making these connections visible and for identifying the levels and mechanisms at which intervention is most likely to be effective and equitable.

However, the application of SDH theory to Indigenous health contexts requires critical adaptations that acknowledge the specificity of Indigenous experiences of colonialism, land dispossession, and cultural marginalisation. Scholars working at the intersection of Indigenous studies and health equity have argued that mainstream SDH frameworks, developed primarily within Western liberal welfare-state contexts, may inadequately capture the distinctive structural determinants including land rights, cultural sovereignty, and the health consequences of forced cultural assimilation that are central to understanding Indigenous health disparities worldwide (Krieger, 2021; Reading & Wien, 2013).

In the Malaysian context, a culturally sensitive SDH framework for Orang Asli health must foreground several key principles. First, land rights and environmental health must be recognised as foundational health determinants. The empirical and theoretical literature consistently demonstrates that secure Indigenous land tenure is associated with better health outcomes across multiple domains, including nutrition, mental health, and cultural wellbeing (Marmot & Bell, 2016). Policy frameworks that treat land rights as a peripheral development issue rather than a central health equity concern are fundamentally inadequate.

Second, the principle of self-determination, namely the right of Indigenous peoples to govern their own affairs, make decisions about their own health systems, and define their own health priorities, must be embedded in any genuine SDH-informed health framework for Orang Asli communities. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which Malaysia has endorsed, explicitly affirms Indigenous peoples' rights to maintain, control, protect, and develop their cultural heritage, traditional knowledge, and traditional cultural expressions, and to determine and develop priorities and strategies for exercising their right to development (United Nations, 2007). These rights have direct and immediate health implications that remain under-implemented in Malaysian health policy.

Third, the decolonisation of health research methodologies is an urgent priority. The majority of existing health research on Orang Asli communities has been conducted by non-Indigenous researchers using methodologies designed and implemented without meaningful community participation (Nicholas, 2010). Such research frequently produces knowledge that serves academic and policy interests without benefiting or actively harming the communities studied. SDH-informed health research on Orang Asli communities should prioritise community-based participatory research approaches, the co-production of knowledge with community members, and the integration of Indigenous knowledge systems into research design and interpretation (Thong et al., 2025; Ting et al., 2026; Abd Razak et al., 2026).

Fourth, intersectionality must be incorporated into analyses of Orang Asli health. Gender, age, disability, and community membership intersect with ethnicity to produce differentiated experiences of health and illness within Orang Asli communities. Orang Asli women, for example, face compounded vulnerabilities arising from both their Indigenous status and gender-based inequalities, with implications for reproductive health, domestic violence, and economic empowerment (Mahmud et al., 2022; Selvaratnam et al., 2023; Abd Razak et al., 2026). A genuinely comprehensive SDH framework must attend to these internal diversities rather than treating Orang Asli communities as undifferentiated wholes.

7. Implications for Health Policy and Research

The conceptual analysis developed in this paper yields several concrete implications for health policy and research in Malaysia. At the policy level, addressing the structural determinants of Orang Asli health requires coordinated intersectoral action across multiple government portfolios, including health, education, rural development, natural resources, and land administration. The fragmented and department-siloed approach that has historically characterised Orang Asli affairs in Malaysia has proven inadequate to the complexity of the challenge.

Health policymakers should advocate for legal reforms that provide stronger and more effective protections for Orang Asli land rights, as land security is a prerequisite for food sovereignty, environmental health, and cultural wellbeing. Within the health system, targeted investments in culturally competent healthcare provision including the training of Orang Asli community health workers, the integration of traditional healing practices within primary healthcare frameworks, and the translation of health communications into Orang Asli languages would substantially reduce the cultural and linguistic barriers that currently impede healthcare access and utilisation (Mahmud et al., 2022; Abd Razak et al., 2026).

At the research level, there is a compelling need for longitudinal, community-engaged studies that examine the pathways through which structural determinants translate into health outcomes among different Orang Asli

subgroups. The current evidence base is dominated by cross-sectional studies that capture health status at a single point in time without elucidating the social processes and mechanisms that generate health disparities over time. Mixed-methods approaches that combine epidemiological data with qualitative insights from community members would provide a richer and more actionable evidence base for policy and practice.

8. Conclusion

This conceptual paper has argued that the persistent health disparities experienced by Orang Asli communities in Peninsular Malaysia are fundamentally social in their origins and require social, political, and structural solutions. The Social Determinants of Health theory, as articulated through the Dahlgren and Whitehead Rainbow Model and the WHO Commission's Conceptual Framework for Action, provides a theoretically robust and empirically grounded basis for understanding and addressing these inequalities.

By mapping the structural determinants, including historical dispossession, political marginalisation, legal inadequacy, and socioeconomic exclusion, and the intermediary determinants, including substandard housing, food insecurity, cultural barriers to healthcare, and environmental degradation, onto the lived realities of Orang Asli communities, this paper has demonstrated the analytical power of the SDH framework for Indigenous health contexts. At the same time, it has argued that effective application of SDH theory to Orang Asli health requires critical adaptations that foreground Indigenous rights, self-determination, cultural sovereignty, and the decolonisation of research and policy.

The ultimate aim of SDH-informed health equity work is not merely the reduction of health disparities but the transformation of the social arrangements that produce them. For Orang Asli communities in Peninsular Malaysia, this transformation requires political will, institutional reform, and a genuine commitment to the principle that health is a right and not a privilege; a principle that must be made real for every community, regardless of ethnicity, culture or geographical location.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

*The authors confirm contribution to the paper as follows: **study conception and design:** Saiful Farisin Md Ramlan and Noranifitri Md Nor; **literature search and article screening:** Saiful Farisin Md Ramlan and Rubiah Anak Ajan; **analysis and synthesis of reviewed literature:** Saiful Farisin Md Ramlan, Noranifitri Md Nor, Yew Wong Chin, and Rubiah Anak Ajan; **draft manuscript preparation:** Saiful Farisin Md Ramlan; **manuscript revision and critical review:** Noranifitri Md Nor, Yew Wong Chin, and Rubiah Anak Ajan. All authors reviewed the results and approved the final version of the manuscript.*

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