Global Business and Management Research: An International Journal
Vol. 17, No. 3 (2025)

Systematic Literature Review on the Determinants of Private Health Insurance Uptake in Malaysia

Nor Haziah Hashim*, Zurina Kefeli @ Zulkefli, Wan Nurhanan Wan Suhaimi
Islamic Finance Research Cluster,
Islamic Finance and Wealth Management Institute (IFWMI),
Faculty of Economics and Muamalat,
Universiti Sains Islam Malaysia
Email: haziah.h@usim.edu.my

* *Corresponding author*

Abstract
Purpose: This study aims to systematically review existing empirical literature to identify and synthesize the key determinants influencing the uptake of private health insurance (PHI) and health takaful in Malaysia, amid rising healthcare costs and pressure on the public health system.
Design/methodology/approach: A systematic literature review (SLR) was conducted using the PRISMA and ROSES frameworks. Articles published between 2018 and 2024 were retrieved from Scopus, Web of Science, and Google Scholar. After applying rigorous inclusion and exclusion criteria, nine empirical studies were selected for thematic analysis.
Findings: Three main categories of determinants were identified: (1) socioeconomic and demographic factors (e.g., age, income, education, urban/rural location), (2) employment, occupation and sectoral affiliation, and (3) insurance literacy, perceptual dynamics, and health awareness. Studies consistently show that uptake is associated with younger age, higher income, urban residency, and formal employment, while underinsurance remains more prevalent among rural, informal, and low-income groups.
Research limitations/implications: The review is limited by the small number of representative studies, with many relying on non-probability sampling and lacking behavioral or psychological dimensions.
Practical implications: Findings offer valuable guidance for policymakers and insurers to tailor strategies that improve PHI accessibility and affordability, particularly for underserved groups.
Originality/value: This review provides a structured and up-to-date synthesis of PHI determinants in Malaysia, highlighting research gaps and informing future health financing policies and interventions.

Keywords: Private Health Insurance (PHI), Systematic Literature Review (SLR), Health Takaful, Health Financing, Malaysia

Introduction

Private health insurance (PHI) has emerged as an essential element in Malaysia's evolving healthcare system, which is dual in nature. It is anchored by a universally accessible, heavily subsidized public healthcare sector and complemented by a robust, market-driven private sector. The historical trajectory of Malaysia's healthcare system traces its roots to colonial and post-colonial healthcare frameworks, wherein public healthcare provision was regarded as a fundamental right and largely funded through general tax revenues. For decades, the Ministry

of Health has sustained wide public coverage, including free and subsidized services, particularly for vulnerable populations. Nevertheless, throughout the 1990s and 2000s, two interrelated forces shaped a new dynamic: the expansion of a modern middle class with heightened expectations regarding healthcare quality and timeliness, and the government's explicit encouragement of private sector development to alleviate financial and service delivery burdens on public infrastructure (Abu Bakar et al., 2012).

Within this climate, PHI initially drew demand among urban, higher-income groups seeking expedited care, perceived technical superiority, and greater provider choice. Over time, the policy push for privatization fostered market liberalization, resulting in the rapid proliferation of insurance products—from strictly indemnity models to more comprehensive managed care arrangements (Abu Bakar et al., 2012; Abdul Rahman & Mohd Daud, 2010). These developments gave rise not only to a competitive industry featuring both conventional and Islamic (takaful) offerings but also to an increasingly complex policy and regulatory landscape seeking to balance innovation, consumer protection, and systemic efficiency (Abdul Rahman & Mohd Daud, 2010).

Despite these advances, the precise role of PHI in Malaysia remains contested. While some actors and policy analysts argue that PHI relieves burdens on the public system, diversifies funding, and enhances consumer sovereignty, others warn of the risk of deepening inequity, fragmenting risk pools, and adding complexity to the pursuit of universal health coverage (UHC). These debates extend beyond Malaysia's borders, echoing global discourses on private financing in mixed health systems. Locally, such concerns are underpinned by empirical findings indicating that the benefits of PHI—measured in terms of access, timeliness, and protection from catastrophic spending—may not accrue equally across socioeconomic strata (Balqis-Ali et al., 2021; Hasazli Hasan & Md Mizanur Rahman, 2022; Rui Jie Ng et al., 2024).

The demand for a critical synthesis of this evidence has only intensified, as policy makers, insurers, and consumers alike grapple with an environment characterized by demographic aging, rising expectations, increased prevalence of non-communicable diseases, and fiscal constraints. Despite the growing body of literature, systematic syntheses remain scarce, with limited integration of behavioral determinants and inconsistent methodological quality. This review aims to bridge this gap.

Methodology

The Review Protocol – ROSES

The PRISMA statement emerged as a solution, providing structured reporting guidelines for systematic reviews and meta-analyses (Moher et al., 2009). The last ten years have witnessed substantial progress in systematic review methodology and terminology (Page et al., 2021). These developments prompted the revision of the original PRISMA statement, leading to the creation of PRISMA 2020 (Page et al., 2021). Although PRISMA serves as an important resource, its scope is largely limited to reporting randomized controlled trial syntheses (Moher et al., 2009). The review protocol on Reporting Standards for Systematic Evidence Syntheses (ROSES) was created to fill this gap by offering a comprehensive reporting framework for diverse types of systematic evidence syntheses.

This protocol seeks to establish uniform and transparent reporting standards across systematic reviews, meta-analyses, meta-syntheses, and additional forms of evidence synthesis (Page et al., 2021; Chong et al., 2023).

ROSES delineates critical reporting elements throughout various components of systematic evidence synthesis, encompassing the title, abstract, introduction, methods, results, and discussion sections (Chong et al., 2023; Page et al., 2021). Through compliance with the ROSES protocol, researchers can enhance the clarity, transparency, and reproducibility of their systematic evidence syntheses, thereby increasing their utility for clinicians, policymakers, and other key stakeholders (Liberati et al., 2009; Moher et al., 2009).

Formulation of Research Questions

The research topic for this study was based on PICo. PICo is a tool that helps authors identify appropriate research questions for the review. PICo is built on three fundamental concepts: population or problem, interest, and context. Based on these concepts, and references to several previous studies, such as by Eriksen and Frandsen (2018), Frandsen et al. (2020), Shaffril et al. (2020), the authors included three major aspects in the review: insurance/takaful clients (population), factors influencing and demand (interest), and Malaysia (context), which guided the authors to formulate the main research question: What factors influence the demand for medical insurance or takaful in Malaysia?

Systematic Searching Strategies

The systematic searching strategies involve three steps: identification, screening, and eligibility. Figure 1 shows the flow diagram of these three steps.

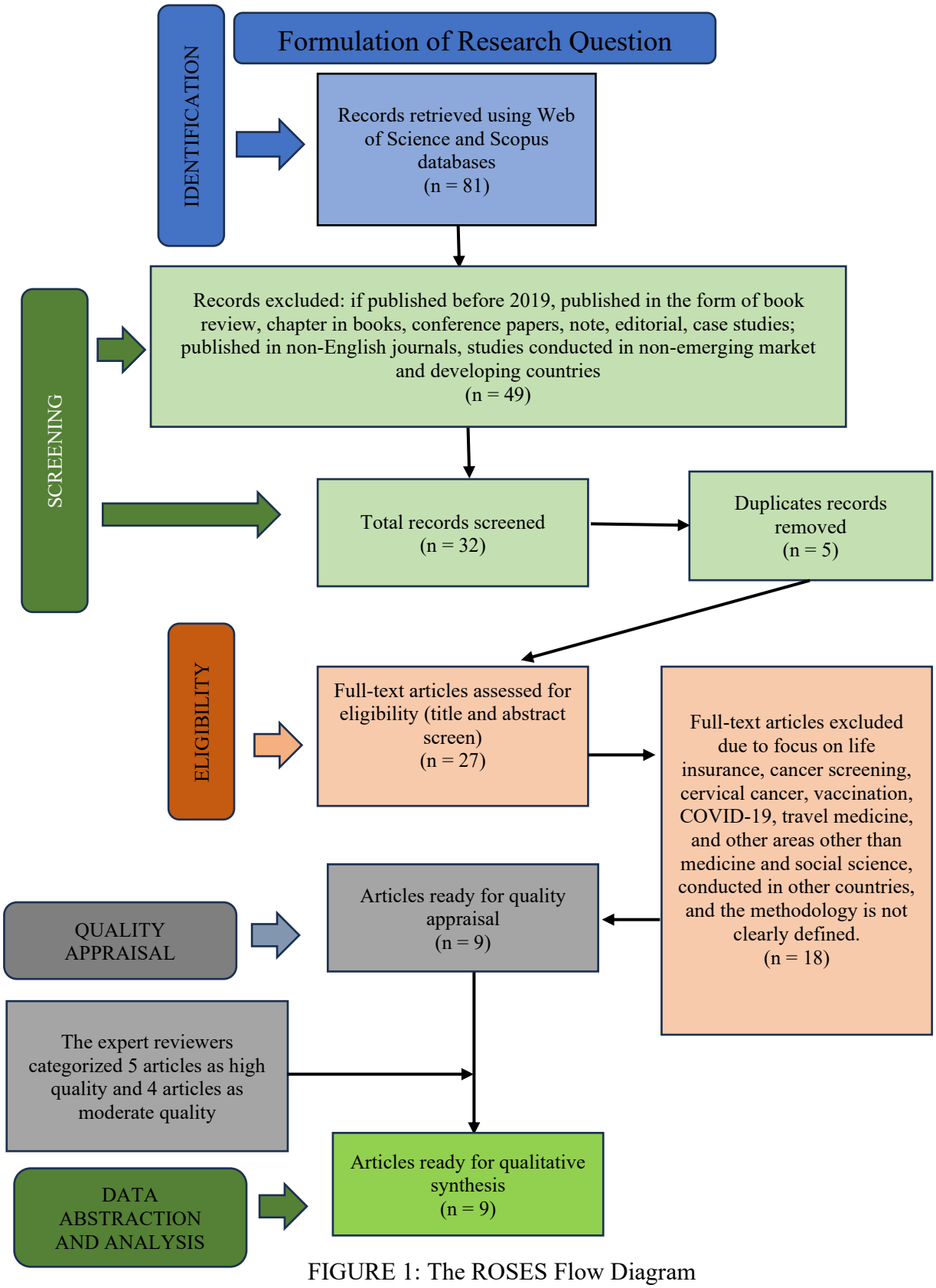

FIGURE 1: The ROSES Flow Diagram

Identification

The identification process searches for any synonyms or related terms related to the keywords i.e. health financing scheme, health insurance and health takaful. Its purpose is to find any related articles for the review. The identification procedure used an online thesaurus, keywords from previous studies, terms provided by Scopus, and keywords given by experts. The authors were able to enrich the current keywords and create a full search string (based on Boolean operator, phrase searching, truncation, wild card, and field code functions) on the three leading and major databases, Scopus, Web of Science and Google Scholar.

The databases Web of Science and Scopus were selected due to their extensive coverage of high-impact, peer-reviewed literature and their established role as authoritative sources for systematic reviews. Both databases index a broad range of disciplines and ensure the inclusion of high-quality, citation-tracked research. In addition, Google Scholar was employed to supplement the search by identifying potentially relevant publications not indexed in the aforementioned databases, including grey literature, conference proceedings, and institutional repositories. This combined approach enhances the comprehensiveness and minimizes the risk of publication bias in the review process. The searching process in Scopus, Web of Science and Google Scholar have resulted in a total of nine articles. Table 1 shows the search string in the three databases.

Table 1: The Search String

Database	Search string
Scopus	TITLE-ABS-KEY=(("medical insurance" OR "medical takaful" OR "health insurance" OR "health takaful" OR "medical card" OR "health card" OR "insurance policy" OR "takaful policy") AND ("factor* influenc*" OR "determinant" OR "demand" OR "purchas*" OR "willingness to pay") AND ("Malaysia")
Web of Science	TS=("medical insurance" OR "medical takaful" OR "health insurance" OR "health takaful" OR "medical card" OR "health card" OR "insurance policy" OR "takaful policy") AND ("factor* influenc*" OR "determinant" OR "demand" OR "purchas*" OR "willingness to pay") AND ("Malaysia")
Google Scholar	"medical insurance" OR "medical takaful" OR "health insurance" OR "health takaful" OR "medical card" OR "health card" OR "insurance policy" OR "takaful policy" AND "factor influence" OR "determinant" OR "demand" OR "purchase" OR "willingness to pay" AND "Malaysia"

Screening

This study screened 81 articles using predefined selection criteria, applied automatically through the filtering functions available in the databases. As proposed by Kraus et al. (2020) on research fields maturity, the review covers studies published between 2018 and 2024, as research on medical and health takaful in Malaysia is still at an early stage of development. This five-year period was selected to capture the most recent and relevant contributions in the field. Only empirically supported journal publications were included to ensure the quality of the review. To maintain consistency in interpretation, only articles published in English were considered, with the acknowledgment that this restriction may introduce language bias and limit the representation of studies published in other languages. The review specifically focuses on factors influencing the demand for health insurance or takaful in Malaysia. Table 2 shows the inclusion and exclusion criteria of the study.

Table 2: The Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Timeline	2018 – 2024	< 2018
Document type	Article journal (empirical data)	Book reviews, chapters in books, conference papers, notes and editorials, case studies
Language	English	Non-English
Regions	Malaysia	Other countries

In the screening process, 49 articles were excluded as they did not fit the inclusion criteria, and 5 duplicated articles were removed. The remaining 27 articles were used in the following process, i.e. eligibility.

Eligibility

Eligibility is the process where the authors manually examine the retrieved articles to ensure all remaining articles are in line with the inclusion criteria. The authors read all the titles and abstracts and excluded 18 articles due to focus on life insurance, cancer screening, cervical cancer, vaccination, COVID-19, travel medicine, and other areas other than medicine and social science, conducted in other countries, and the methodology is not clearly defined. In the end, only nine articles were selected.

Quality Appraisal

The nine articles were assessed independently by two reviewers to minimize bias and enhance reliability. The appraisal criteria covered methodological soundness, clarity of research objectives, appropriateness of study design, robustness of data collection and analysis, and transparency of reporting. The assessment requires the experts to rank the articles into three quality categories namely high, moderate and low. The study will only review articles in the category of moderate and high. Both experts must mutually agree that the quality should at least be at a moderate level. Discrepancies between reviewers were resolved through discussion and consensus, with a third reviewer consulted when necessary. After completing this process, 6 articles were ranked as high and 4 articles as moderate. Thus, all articles were eligible for review.

Data Abstraction and Analysis

The nine articles were read thoroughly from the sections of abstract, results and discussion. Thematic analysis was conducted to find similar patterns, issues and themes as well as relationships that existed within the abstracted data. Any similar or related data were pooled in a group or themes which were re-examined by experts in Islamic finance to ensure the relevancy of the themes.

Results and Discussion

This study reviews nine articles related to PHI uptake in Malaysia. Seven studies applied self-administered questionnaires as the study tool, while three studies were based on secondary data using the Malaysian National Health and Morbidity Survey (NHMS) dataset. Based on the thematic analysis, a total of three main themes were created i.e. (1) socioeconomic and demographic determinants, (2) employment, occupation and sectoral affiliation, and (3) insurance literacy, perceptual dynamics and health awareness. Table 3 shows the summary of the results. The detailed summary of each study is presented in Appendix 1.

Table 3: Evidence Map of Determinants of Private Health Insurance (PHI) and Health Takaful in Malaysia (2018–2024)

Determinant / Factor	Consistently Significant Across Studies	Mixed / Limited Evidence	Not Significant	Example Studies
Age	Younger adults more likely to take PHI	—	Older adults less likely	Nur Zahirah et al. (2021), Essam Al-Sanani et al. (2022)
Gender	Males higher uptake	Some variation	—	Nur Zahirah et al. (2021)
Ethnicity	Malays more likely insured	Indians less likely	—	Essam Al-Sanani et al. (2022)
Income	Strong positive effect	—	—	Mohd Adli et al. (2023), Hasazli Hasan & Md Mizanur Rahman (2022)
Education	Higher education = higher uptake	—	Low education = uninsured	Azhar et al. (2018)
Household Size	Large households = less uptake	—	—	Nur Zahirah et al. (2021)
Urban vs Rural	Urban residents = higher uptake	—	Rural = less uptake	Hasazli Hasan & Md Mizanur Rahman (2022)
Employment Sector	Formal/public/private = higher uptake	Gig workers uncertain	Informal = lowest	Mohd Adli et al. (2023)
Insurance Literacy / Awareness	Strong predictor	—	—	Abdullah Al Mamun et al. (2021), Wahab & Tajuddin (2020)
Health Takaful	Positive with awareness & knowledge	—	—	Wahab & Tajuddin (2020)

Socioeconomic and Demographic Determinants

Private health insurance (PHI) uptake in Malaysia is strongly influenced by a wide array of socioeconomic and demographic determinants. Multiple studies, using diverse samples and analytic methods, converge on the centrality of age, gender, ethnicity, income, education, marital status, household structure, employment sector, and urban/rural residence in shaping patterns of PHI ownership (Abd Khalim & Sukeri, 2023; Balqis-Ali et al., 2021; Balqis-Ali et al., 2023; Essam Ali Al-Sanani et al., 2022). This section provides a comprehensive examination of each determinant, emphasizing the empirical evidence from recent Malaysian literature.

1. *Age*

   Age is consistently identified as a predictor of PHI ownership in Malaysia. Younger adults (often operationalized as those between ages 18 and 49) demonstrate substantially higher levels of private health insurance coverage compared to older cohorts. Across multiple datasets, adults aged 50 and above show markedly lower rates of insurance ownership. For example, Balqis-Ali et al. (2021, 2023) found, using data from the National Health and Morbidity Survey (NHMS), that individuals over 50 years were significantly less likely to possess PHI compared to younger adults. Essam Ali Al-Sanani et al. (2022), in a study targeting type 2 diabetes patients, reinforced this finding, where insured patients tended to be younger, while the elderly predominantly remained uninsured.

2. *Gender*

The gender gap in PHI coverage is another salient outcome of quantitative analyses in Malaysia. Balqis-Ali et al. (2021, 2023) consistently observe that females are less likely to have PHI than their male counterparts due to lower labor participation rates among women, especially older women. This may lead to reduced employer-sponsored PHI uptake among females. In addition, socio-cultural dynamics and traditional gender roles may also affect risk perception and willingness to invest in private coverage.

3. *Ethnicity*

Evidence consistently indicates that ethnicity is a key determinant, with Indians and Malays display different propensities for PHI coverage. In the study by Essam Ali Al-Sanani et al. (2022), Indian ethnicity was associated with lower probability of being insured, while Malays were disproportionately represented among those with insurance. Possible explanations for this finding may include income distribution, cultural attitudes towards health risk and insurance, and varying degrees of information about insurance products within ethnic communities. Balqis-Ali et al. (2021, 2023) further identify Malay and other Bumiputra ethnicities as having particularly low PHI uptake. Ethnic differentials in PHI uptake may thus reflect both underlying socioeconomic inequalities and targeted marketing or product adaptation by insurance providers.

4. *Household Income*

Perhaps the most robust determinant of PHI ownership across all Malaysian studies is income. Higher household income is strongly and positively associated with PHI uptake. This association holds across multiple analytic methods and subgroups. For example, Abd Khalim & Sukeri (2023), analyzing a representative cohort from East Coast Malaysia, report adjusted odds ratios increasing substantially with rising income brackets, confirming that middle and upper-income individuals are far more likely to own PHI. This pattern is echoed in study by Hasazli Hasan and Md Mizanur Rahman (2022), who document both higher willingness and higher ability to pay for PHI among those with increased income.

The influence of income can be understood from several angles: affordability of premiums, perception of need for supplementary coverage (since wealthier individuals may desire more provider choice and upgraded facilities), and access to employer-sponsored group insurance schemes more prevalent among high-income, urban jobs. Conversely, lower-income groups are not only less likely to enroll in PHI but also more vulnerable to health shocks and catastrophic expenditure, exacerbating health inequalities.

5. *Education Level*

Educational attainment exerts significant effects on PHI uptake, through both directly (via improved health literacy, risk assessment, and understanding of product benefits) and indirectly (via correlation with income and employment sector). Multiple Malaysian studies verify this relationship. For instance, Abd Khalim & Sukeri (2023) find higher PHI ownership among individuals with tertiary education, paralleling broader results from the literature (Balqis-Ali et al., 2021, 2023). Likewise, Azhar et al. (2018), deploying a contingent valuation approach in Sarawak, demonstrate that

willingness to pay for health insurance rises with education level. This is attributed to greater awareness of health risks and the limitations of public sector services, as well as heightened understanding of policy terms and product features. Less-educated and illiterate populations, who often work in the informal economy, may also face information asymmetries and mistrust towards insurance institutions, resulting in their systematic exclusion from private sector coverage.

6. *Household Size and Structure*
   Household size, or the number of people living within a single home, emerges as a significant inverse predictor of PHI acquisition. Larger households face increased financial strain, limiting discretionary spending on insurance premiums. Balqis-Ali et al. (2021, 2023) found that as overall household size grew, the probability of being uninsured also increased. This effect may stem from premium affordability and pragmatic choices about healthcare expenditure when faced with competing needs. Hasazli Hasan and Md Mizanur Rahman (2022) provide further explanation that smaller family size was associated with higher willingness to pay for national health insurance in Sarawak, again indicating the impact of dependency ratios on insurance decisions. This is echoed in global literature, which documents the impact of family size on household resource allocation decisions—where budget constraints lead to foregone voluntary insurance in favor of immediate consumption needs (World Bank, 2022).

7. *Residential Area*
   Residential area, whether urban or rural living, has pronounced effects on PHI penetration. Urban residents, benefitting from higher and more stable income, closer proximity to private healthcare facilities, and greater insurance marketing exposure, are far more likely to own private health insurance. Multiple studies uphold this relationship. Abd Khalim & Sukeri (2023), for example, found adjusted odds of PHI purchase increased significantly among urban dwellers. Azhar et al. (2018) conclude that urban location is among the strongest predictors of willingness to pay for health insurance, reflecting both higher disposable incomes and greater appreciation of the differences between public and private provider options. On the other hand, rural populations in Sarawak and the East Coast states largely reported lower uptake rates, as underscored by Hasazli Hasan and Md Mizanur Rahman (2022), who found rural respondents less willing or able to afford national or supplementary coverage. The gap is compounded by the physical distance to private hospitals, perceptions that state services are sufficient, and lower health risk perceptions in rural settings.

Employment, Occupation, and Sectorial Affiliation

Employment status, occupational characteristics, and the sector of work have been consistently identified as central determinants in shaping individuals' decisions to take up private health insurance (PHI) in Malaysia. The analysis considers both direct and indirect employment factors, risk attitudes associated with sector and job status, and the diverse experiences of employee groups in relation to health coverage.

1. *Employment Sector in PHI Uptake*
   Multiple Malaysian studies demonstrate a robust association between formal sector employment and higher rates of PHI coverage. Abd Khalim & Sukeri (2023), in a cross-sectional analysis of East Coast Malaysia, highlighted that individuals employed in the

public sector, private sector, and those self-employed were markedly more likely to possess PHI compared to unemployed and unpaid groups. The authors suggest that the visibility of health benefits in formal sector employment, combined with higher and more stable incomes, underpins increased insurance uptake. These findings are echoed by Balqis-Ali et al. (2021), who found uninsured rates higher among unpaid workers, retirees, the unemployed, and those in informal sectors, indicating significant disparities based on employment attachment (Balqis-Ali et al., 2021).

2. *Occupational Type*
   Higher-level professionals and technical workers, regardless of sector, are likelier to have both the means and perceived need for PHI (Abd Khalim & Sukeri, 2023). This is partially attributed to the fact that higher-skilled occupations command greater income, access better work-related health promotion, and are more exposed to financial planning resources. In contrast, laborers, service industry employees, and agricultural workers often clustered in precarious, seasonal, or contract-based work are overrepresented among the uninsured (Abu Bakar et al., 2012; Balqis-Ali et al., 2021). Precarious and gig economy work, rapidly expanding in urban Malaysia, faces unique challenges. These jobs provide neither income stability nor employer-based social protection, resulting in low PHI uptake even as occupational risks may be high. Informal interviews and grey literature suggest that gig workers (e.g., ride-hailing drivers, temporary event staff) frequently underestimate long-term health risks, have lower insurance literacy, and prioritize immediate liquidity needs over health risk mitigation, mirroring findings in other emerging economies (external literature: OECD, 2021).

3. *Sectorial Affiliation*
   Public sector employees in Malaysia often benefit from some level of health security through government provisions and employer-sponsored programs. Despite this, studies indicate a rising inclination toward PHI among public sector workers. Abd Khalim & Sukeri (2023) posit that while government employees have nominal access to state health services, concerns regarding public sector wait times, service quality, and a desire for specialist care motivate supplementary PHI uptake. Conversely, in the private sector, PHI is more closely tied to occupational necessity due to limited or no state-backed provisions. Many private employers offer some form of group or supplementary PHI as an incentive, yet individual uptake is influenced by perceptions of adequacy, coverage gaps, and future job mobility.

   Analysis of NHMS datasets by Balqis-Ali et al. (2021, 2023) reinforces this dichotomy. Uninsured rates remain higher among government and semi-government workers (reflecting faith in public coverage), but also among those in self-employment and informal sectors who lack both governmental and employer health safety nets (Balqis-Ali et al., 2021, 2023). For these populations, irregular income, exposure to occupational hazards without institutional support, and limited financial literacy, undermine PHI uptake despite heightened need (Balqis-Ali et al., 2021).

Insurance Literacy, Perceptual Dynamics and Health Awareness

A growing body of research underscores the decisive, sometimes overriding, influence of insurance literacy, health awareness, and perceived utility in shaping both intentions toward,

and the actual uptake of, PHI (Abdullah Al Mamun et al., 2021; Wahab & Tajuddin, 2020). Insurance literacy transcends mere awareness, encompassing functional understanding of policy types, benefit structures, exclusions, and risks—elements often lacking in survey populations (Abdullah Al Mamun et al., 2021). Subjective norms, influenced by cultural and social expectations, mediate this relationship, suggesting scope for community- and institution-level interventions. Crucially, in some populations, health awareness exerts more influence than insurance knowledge alone (Wahab & Tajuddin, 2020), indicating that interventions which foster personal health consciousness may seed greater insurance demand than information-based approaches alone.

Research Gap

Despite the growing number of studies on private health insurance (PHI) in Malaysia, research remains limited in several important ways. First, most existing work concentrates on socioeconomic and demographic factors such as age, gender, income, education, and location, while neglecting behavioral and psychological dimensions such as attitudes, risk perception, and insurance literacy. This narrow focus restricts understanding of the deeper drivers of insurance decisions. Second, methodological limitations are common: many studies rely on cross-sectional designs, convenience or online sampling, and regionally restricted data, which undermine representativeness and reduce the generalizability of findings. (Balqis-Ali et al., 2021; Abdullah Al Mamun et al., 2021; Essam Ali Al-Sanani et al., 2022).

In addition, there is a notable lack of empirical research on health takaful, despite its growing relevance in Malaysia's dual insurance system. Theoretical integration is also weak, with few studies drawing on frameworks from behavioral economics or health belief models to explain uptake patterns. Compared with international evidence from countries such as South Korea, Indonesia, and OECD members—where both economic and behavioral aspects are studied more systematically—Malaysian research lags behind. Future studies should therefore employ more representative and longitudinal designs, incorporate attitudinal and literacy variables, and specifically investigate health takaful participation. Addressing these gaps will enable a more holistic understanding of insurance behavior and provide stronger evidence for policy and industry interventions.

1. Insufficient Coverage of Psychological and Behavioral Determinants

Most research on PHI determinants in Malaysia remains anchored in basic sociodemographic and economic characteristics, with far less attention devoted to psychological, behavioral, and perceptual influences. While several studies enumerate traditional factors, such as age, gender, education, income, residency (urban/rural), employment, there is limited integration of variables such as attitudes, perceived usefulness of insurance, psychological risk aversion, insurance literacy, and subjective norms.

Recent contributions highlight that psychological constructs, including insurance literacy and perceived behavioral control, significantly predict both intention and realization of health insurance purchase (Abdullah Al Mamun et al., 2021). Attitudinal factors and perceived usefulness were also found to directly influence not just intentions, but actual purchase behavior, reflecting the relevance of behavioral economic theories to health insurance uptake decisions. However, despite these findings, few population-based studies have systematically incorporated these constructs, and their operationalization often remains superficial (Abdullah Al Mamun et al., 2021).

The rare studies delving into literacy or awareness, such as Wahab and Tajuddin (2020), are limited by their focus on public-sector samples or geographic restriction, underscoring a lack of representative data that could elucidate the broader impact of health awareness and knowledge on PHI participation.

2. Methodological Limitations: Sampling, Representativeness, and Comparability

A persistent limitation across much of the Malaysian PHI literature is the reliance on cross-sectional, convenience, or nonprobability sampling techniques (Abd Khalim & Sukeri, 2023; Essam Ali Al-Sanani et al., 2022). While studies such as the one by Abd Khalim & Sukeri (2023) attempt proportionate stratified sampling within specific regions (East Coast Malaysia), the generalizability of findings is still hampered by heavy dependence on convenience or voluntary online surveys. This restricts the explanatory power of their results and impedes comparisons across the Malaysian population.

Further, convenience samples often yield cohorts that are younger, more digitally literate, and disproportionately urban—omitting the perspectives and behaviors of rural, digitally excluded, or otherwise marginalized populations. The problem is compounded in studies focusing on specific patient groups (e.g., those attending tertiary care facilities), such as in Essam Ali Al-Sanani et al. (2022), or in limited geographic locales (e.g., Sarawak; Azhar A et al., 2018; Hasazli Hasan & Md Mizanur Rahman, 2022), which prevents calibration of findings to the national context.

Population-representative studies using NHMS data (e.g., Balqis-Ali et al., 2023) strengthen the evidence base, but even these are constrained by the lack of behavioral, psychological, or attitudinal variables and by challenges in consistently measuring employment sector, wealth indices, and urban–rural differences in ways that facilitate meaningful subgroup analyses. As such, the extent to which observed determinants are causal, correlative, context-dependent, or generalizable remains ambiguous.

Conclusion

This systematic review demonstrates that private health insurance (PHI) and health takaful uptake in Malaysia is shaped primarily by socioeconomic-demographic characteristics, employment and occupational structures, and levels of insurance literacy and health awareness. Uptake remains concentrated among higher-income, urban, and formally employed groups, while rural, informal, and low-income populations are systematically underinsured. These disparities highlight persistent inequalities in access to health protection within Malaysia's mixed health financing system.

At the same time, the review identifies significant gaps in existing research. Behavioral and psychological factors—such as attitudes, perceptions of usefulness, and literacy—are underexplored, and health takaful remains largely absent from empirical inquiry despite its importance in Malaysia's dual insurance market. Addressing these gaps requires more representative sampling, longitudinal designs, and the integration of behavioral and theoretical frameworks such as health belief models and financial literacy theories.

For policymakers and industry practitioners, the findings suggest several priorities: designing inclusive insurance products for informal workers, expanding literacy initiatives for vulnerable groups, and ensuring affordability through targeted subsidies or incentives. By bridging empirical gaps and addressing these policy challenges, Malaysia can move closer to equitable

health financing, while also contributing to broader global debates on the role of private health insurance and takaful in achieving universal health coverage.

Acknowledgement
The authors would like to express their sincere gratitude to the Islamic Finance and Wealth Management Institute, through the Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM), for the generous funding allocation that supported the publication of this work.

References

Abdullah Al Mamun, Rahman, M. K., Munikrishnan, U. T., & Permarupan, P. Y. (2021). Predicting the intention and purchase of health insurance among Malaysian working adults. *SAGE Open,* 1–18. https://doi.org/10.1177/21582440211061373

Abdul Rahman, Z., & Mohd Daud, N. (2010). Adverse selection and its consequences on medical and health insurance and takaful in Malaysia. *Humanomics, 26*(4), 264–283. https://doi.org/10.1108/08288661011090875

Abd Khalim, M. A., & Sukeri, S. (2023). Uptake and determinants of private health insurance enrollment in a country with heavily subsidised public healthcare: A cross-sectional survey in East Coast Malaysia. *PLoS One, 18*(1), 3–11. https://doi.org/10.1371/journal.pone.0278404

Abu Bakar, A., Regupathi, A., Aljunid, S. M., & Omar, M. A. (2012). Factors affecting demand for individual health insurance in Malaysia. *BMC Public Health, 12,* A10. https://doi.org/10.1186/1471-2458-12-S2-A10

Azhar, A., Rahman, M. M., & Arif, M. T. (2018). Willingness to pay for health insurance in Sarawak, Malaysia: A contingent valuation method. *Bangladesh Journal of Medical Science, 17*(2), 230–237. https://doi.org/10.3329/bjms.v17i2.35876

Balqis-Ali, N. Z., Jalani A-S, Fun, W. H., Jawahir, S., Sararaks, S. & Grace H.Y. Lee (2023). Effect of supplementary private health insurance on inpatient utilization: Evidence from Malaysia. *Heliyon, 9*, e14025. https://doi.org/10.1016/j.heliyon.2023.e14025

Balqis-Ali, N. Z., Jailani A-S, Fun, W. H., & Sararaks, S. (2021). Private health insurance in Malaysia: Who is left behind? *Asia Pacific Journal of Public Health, 33*(8), 861–869. https://doi.org/10.1177/10105395211000913

Chong, S C., Teo, W Z., & Shorey, S. (2023). Exploring the perception of parents on children's screentime: A systematic review and meta-synthesis of qualitative studies. *Pediatric Research*, *94,* 915-925. https://doi.org/10.1038/s41390-023-02555-9

Eriksen, M. B., & Frandsen, T. F. (2018). The impact of patient, intervention, comparison, outcome (PICO) as a search strategy tool on literature search quality: A systematic review. *Journal of the Medical Library Association, 106*(4), 420-431. https://doi.org/10.5195/jmla.2018.345

Essam Ali Al-Sanani, Ismail, A., Abdul Manaf, M. R., Suddin, L. S., Mustafa, N., Sukor, N., Alabed, A. A. A., Alkhohary, A. A., & Aljunid, S. M. (2022). Health insurance status and its determinants among patients with type 2 diabetes mellitus in a tertiary teaching hospital in Malaysia. *PLoS One, 17*(5), e0267897. https://doi.org/10.1371/journal.pone.0267897

Frandsen, T. F., Nielsen, M. F. B., Lindhardt, C. L. & Eriksen, M. B. (2020). Using the full PICO model as a search tool for systematic reviews resulted in lower recall for some PICO elements. *Journal of Clinical Epidemiology, 127*, 69-75. https://doi.org/10.1016/j.jclinepi.2020.07.005

Hasazli Hasan, & Md Mizanur Rahman. (2022). Willingness to pay for the national health insurance scheme: A cross-sectional study in Sarawak, Malaysia. *Bangladesh Journal of Medical Science, 21*(3), 577–589. https://doi.org/10.3329/bjms.v21i3.59571

Kraus, S., Breier, M., & Dasí-Rodríguez, S. (2020). The art of crafting a systematic literature review in entrepreneurship research. *International Entrepreneurship and Management Journal, 16*(3), 1023–1042. https://doi.org/10.1007/s11365-020-00635-4

Liberati, A., Altman, D G., Tetzlaff, J., Mulrow, C D., Gøtzsche, P C., Ioannidis, J P A., Clarke, M., Devereaux, P., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *PLOS Medicine*, *6*(7): e1000100-e1000100. https://doi.org/10.1371/journal.pmed.1000100

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLOS Medicine, 6*(7): e1000097-e1000097. https://doi.org/10.1371/journal.pmed.1000097

OECD. (2021). Health at a glance: Asia/Pacific. Paris: OECD Publishing.

Page, M J., McKenzie, J E., Bossuyt, P M., Boutron, I., Hoffmann, T., Mulrow, C D., Shamseer, L., Tetzlaff, J., Akl, E A., Brennan, S., Chou, R., Glanville, J., Grimshaw, J., Hróbjartsson, A., Lalu, M M., Li, T., Loder, E., Mayo-Wilson, E., McDonald, S., McGuinness, L., Stewart, L., Thomas, J., Tricco, A>, Welch, V., Whiting, P., Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372:n71. https://doi.org/10.1136/bmj.n71

Rui Jie Ng, Cheoo, W. Y., Ng, C.-W., & Hairi, N. N. (2024). Effect of supplementary private health insurance on out-of-pocket inpatient medical expenditure: Evidence from Malaysia. *Health Policy and Planning, 39*(3), 268–280. https://doi.org/10.1093/heapol/czae004

Shaffril, H. A. M., Ahmad, N., Samsuddin, S. F., Abu Samah, A., & Hamdan, M. E. (2020). Systematic literature review on adaptation towards climate change impacts among indigenous people in the Asia Pacific regions. *Journal of Cleaner Production*, 258. https://doi.org/10.1016/j.jclepro.2020.120595

Wahab, M. Z. H., & Tajuddin, A. M. (2020). The roles of health awareness and knowledge in medical takaful purchase intention. *The International Journal of Banking and Finance, 14,* 95–116.

World Bank. (2022). Living and leaving: Housing, mobility and family life in Southeast Asia. World Bank Publications.

Appendix 1: Summary of the studies selected for analysis

No	Author	Objective	Study Design	Factors	Result
1	Azhar A, Rahman MM, Arif MT. (2018).	1. To assess the willingness to pay for PHI among the adult population in Sarawak, Malaysia. 2. To determine the factors associated with it.	Contingent Valuation Method (CVM) with the dichotomous bidding technique.	-Education -Urban residence -Income -Preference for private healthcare	Less than half of the people in Sarawak were willing to pay for health insurance, and the paid amount was quite low, mainly RM20 or below. The study highlights that the key policy priority should be to increase public awareness about the benefits of health insurance, enhance willingness to pay, and correct misconceptions.
2	Wahab, M. Z. H., Tajuddin, A. M. (2020).	1. To examine the relationship between health awareness and customers' intention to use medical takaful coverage. 2. To investigate the relationship between knowledge and customers' intention to use medical takaful.	Self-administered questionnaire. 313 respondents among the public sectors in Northern Malaysia.	- Health awareness - Knowledge	A significant positive relationship between health awareness, knowledge, and customers' intention to purchase medical takaful coverage, with health awareness having the strongest impact.
3	Zahirah -Ali, Jalani Anis-Syakira, Weng Hong Fun, Sondi Sararaks. (2021).	To find the factors associated with not having a private health insurance in Malaysia.	Cross sectional study by using secondary data from the National Health & Morbidity Survey (NHMS) 2015.	- Age - Gender - Ethnicity - Residence area - Employment - Education - Marital status - Home ownership - Income	A substantial proportion of Malaysians lacked private health insurance, limiting their access to preferred providers, facilities, and care options. Factors associated with a higher likelihood of being uninsured included age 50 years and above, females, Malay/other Bumiputra ethnicities, living in rural areas, being in government/semi government employment, self-employed, unpaid workers, retirees, unemployed, having lower education levels, without home ownership, and being single/widowed/divorced. The likelihood of being uninsured increased with household size and decreased with household income.
4	Abdullah Al Mamun, Muhammad Khalilur Rahman,	To explore the effects of insurance literacy, perceived usefulness, attitude toward health	Cross sectional study with data gathered from 1,308 working adults.	- insurance literacy - perceived usefulness - attitude toward health insurance	Insurance literacy, perceived usefulness, attitude, and subjective norm had highly significant and positive effects on the intention to purchase health insurance, while perceived behavioural control also showed a

	Uma Thevi Munikrishnan, P. Yukthamarani Permarupan. (2021).	insurance, subjective norm, and perceived behavioral control on the intention to purchase and the actual purchase of health insurance.		- subjective norm - perceived behavioural control	significant but smaller effect. The study reinforced the importance of psychological factors in health insurance decisions and highlighted insurance literacy as a crucial predictor
5	Hasazli Hasan, Md Mizanur Rahman. (2022).	To identify factors associated with the willingness to pay for the national health insurance scheme among rural communities in Sarawak, Malaysia.	Face-to-face interview using questionnaire.	- family size - presence of underlying disease - empowerment and political action scores - perception of violence -group and network scores -social cohesion and inclusion.	The study found that the average willingness to pay for the National Health Insurance Scheme (NHIS) was MYR 40.84 per month. The minimum and maximum amounts willing to pay were MYR 1.00 and MYR 250.00 respectively. The proportion willing to pay was 33.2%, which is lower compared to some other studies in Malaysia, but the proportion was higher (91%) than other studies in Asia.
6	Essam Ali Al-Sanani, Aniza Ismail, Mohd Rizal Abdul Manaf, Leny Suzana Suddin, Norlaila Mustafa, Norlela Sukor, AlAbed Ali A. Alabed, Ahmed Abdelmajed Alkhohary, Syed Mohamed Aljunid. (2022).	To determine the health insurance status and its association with sociodemographic and economic factors of T2DM patients in Malaysia.	Cross sectional study among 400 T2DM patients seeking treatment in public or private hospitals. Self-administered questionnaires were used.	- Age group - Ethnicity - healthcare provider - Employment - Education - Healthcare expenses - Occupation	Most T2DM patients in Malaysia were uninsured, especially those attending public facilities, of Indian ethnicity, aged 50 years and above, with lower education, unemployed, with low household incomes, and spending less on medicines. Patients with insurance were more likely to be treated in private facilities, of Malay ethnicity, aged 18–49, with higher education, higher income, and higher monthly expenditure on medicines. The study also found a significant association between health insurance status and factors such as age, ethnicity, education level, occupation, and expenditure on medicines. It showed that insured patients were more likely to access private healthcare, indicating potential inequity in healthcare access based on insurance status.
7	Abd Khalim & Sukeri (2023).	To determine the uptake of private health insurance (PHI) and its associated factors among the East Coast Malaysian populations.	A cross-sectional online survey for data collection.	- Age - Employment - Marital status - Education - Household income - Residential location	54.3% of the study samples purchased private health insurance (PHI). The study found that PHI enrolment was significantly associated with working in the public sector (aOR: 6.06), private sector (aOR: 6.27), being self-employed (aOR: 9.23), household income (middle 40% aOR: 2.74, top 20% aOR: 4.42), and living in urban areas (aOR: 1.31). The study indicates that

					despite heavily subsidized public healthcare, there is a high demand for PHI among the population, especially among employed, self-employed, middle- and high-income, and urban residents.
8	Nur Zahirah Balqis-Ali, Jalani Anis-Syakira, Weng Hong Fun, Suhana Jawahir, Sondi Sararaks & Grace H.Y. Lee. (2023).	To investigate the effect of PHI ownership on private inpatient care utilization.	Cross sectional study by using secondary data from the National Health & Morbidity Survey (NHMS) 2015.	- PHI ownership - Private inpatient care utilization - Frequency of admission - Length of stay	- A significant increase in private inpatient utilisation among those who owned PHI. - The ownership of PHI may exacerbate the moral hazard behaviour among PHI owners.
9	Rui Jie Ng, Wan Yean Cheoo, Chiu-Wan Ng, Noran Naqiah Hairi. (2024).	To assess the adequacy of financial risk protection provided by supplementary private health insurance (PHI) in Malaysia by examining its effect on out-of-pocket (OOP) inpatient medical expenditure.	Cross sectional study by using secondary data from the National Health & Morbidity Survey (NHMS) 2019.	- Age - Residential location - Ethnicity - Covered by government GL - government /employer sponsored health insurance	Supplementary private health insurance (PHI) significantly increased out-of-pocket (OOP) inpatient medical expenditure in Malaysia. This finding stands in contrast to other studies in Malaysia and abroad that have shown that PHI can reduce OOP spending and provide financial risk protection, especially in cases like cancer treatment. The authors postulate that the increase may be due to private hospital admissions facilitated by PHI, leading to expenses not covered by the insurance, such as upgrades and non-medical costs, or due to exclusions in coverage and poor insurance literacy.