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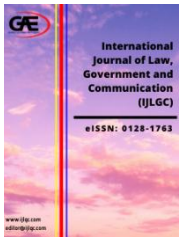

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PUBLIC PERCEPTION OF COVID-19 VACCINE EFFECTIVENESS IN MALAYSIA: A SCOPING REVIEW

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Abstract:

This scoping review explores the public perception of COVID-19 vaccine effectiveness in Malaysia, a topic crucial to improving vaccine uptake in a diverse sociocultural setting. The study aims to identify key influencing factors, thematic patterns, and research gaps related to vaccine acceptance. Guided by PRISMA-ScR methodology, a systematic literature search was conducted using Scopus, PubMed, MyJurnal, and Google Scholar for studies published between January 2020 and February 2024. Fifteen relevant articles were selected based on inclusion criteria focusing on Malaysian populations. Thematic analysis revealed five dominant themes: sociodemographic determinants, misinformation, trust in institutions, health literacy, and cultural-religious influences. Findings suggest that vaccine confidence is higher among younger, urban, and educated individuals, while hesitancy persists among older adults, rural populations, and those with low health literacy or religious concerns. Social media plays a dual role as both an information source and a misinformation channel. The study underscores the need for transparent, culturally sensitive communication strategies and emphasizes the involvement of trusted figures such as healthcare providers and religious leaders. This review contributes to public health discourse by highlighting actionable insights for policy-making, communication planning, and future empirical research on vaccine confidence in Malaysia.

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Keywords:

COVID-19, Vaccine Effectiveness, Public Perception, Malaysia, Vaccine Hesitancy, Health Communication

Introduction

The global outbreak of coronavirus disease 2019 (COVID-19) has prompted urgent and sustained public health interventions worldwide, with vaccination serving as the cornerstone strategy to reduce transmission, hospitalisation, and mortality. Since the World Health Organization (WHO) declared COVID-19 a global pandemic in March 2020, more than 704 million confirmed cases and over 7 million deaths have been reported globally as of early 2024 (WHO, 2024).

In Malaysia, the Ministry of Health (MOH) has recorded over 5.2 million cumulative COVID-19 cases and approximately 37,000 deaths since the onset of the pandemic (MOH Malaysia, 2024). In response, the Malaysian government launched the National COVID-19 Immunisation Programme (PICK) in February 2021, targeting widespread vaccine coverage across all eligible populations. By January 2024, Malaysia had successfully vaccinated over 87% of its adult population, administering vaccines such as Pfizer-BioNTech, Moderna, AstraZeneca, and Sinovac (JKJAV, 2024). Clinical trials and real-world data support the effectiveness of these vaccines in reducing severe illness and COVID-related mortality (Polack et al., 2020; Baden et al., 2021).

However, vaccine uptake is not solely driven by availability or efficacy—public perception of vaccine effectiveness plays a pivotal role in shaping individual health behaviors. Perception is influenced by multiple interrelated factors including health literacy, cultural and religious narratives, exposure to misinformation, and trust in authorities (Dube et al., 2013; Wong et al., 2022). For example, concerns regarding the halal status of certain vaccines, fear of side effects, and widespread disinformation on social media have contributed to scepticism, particularly among rural populations, older adults, and communities with low trust in government communication (Razai et al., 2021; Mustapa et al., 2022).

In Malaysia's multiracial and religiously diverse society, attitudes toward vaccine effectiveness differ markedly across demographic lines. Research shows that urban residents and individuals with tertiary education demonstrate higher levels of confidence in vaccine efficacy, while those from rural or lower-income backgrounds are more susceptible to vaccine hesitancy, often due to misinformation or lack of access to verified health information (Ibrahim et al., 2022; Tan et al., 2023).

To illustrate the national context, Table 1 below presents an overview of confirmed cases, mortality, and vaccination coverage in Malaysia:

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Indicator	Data	Source
Total confirmed cases	5.2 million	MOH Malaysia (2024)
Total COVID-19-related deaths	37,000	MOH Malaysia (2024)
Fully vaccinated adult population	87.3%	JKJAV (2024)
Booster dose coverage	49.6%	JKJAV (2024)

Table 1: Summary of COVID-19 Situation in Malaysia (as of January 2024)

These statistics highlight Malaysia's significant progress in vaccination but also emphasise the need to understand persistent public hesitancy and varying perceptions across communities.

Given this background, a deeper understanding of how Malaysians perceive the effectiveness of COVID-19 vaccines is crucial. This paper employs a scoping review approach to map and synthesise current literature on the topic, offering insights into prevailing perceptions, influencing factors, and research gaps. A scoping review is deemed appropriate as it enables the inclusion of diverse methodologies and provides a comprehensive overview of available evidence (Arksey & O'Malley, 2005; Peters et al., 2020).

This scoping review aims to:

1. Identify the key factors influencing Malaysians' perception of COVID-19 vaccine effectiveness;

2. Analyse how sociodemographic, cultural, and informational contexts shape these perceptions;

3. Highlight research gaps and propose recommendations to improve public health strategies and vaccine communication in Malaysia.

By synthesising existing findings, this review provides evidence-based guidance for enhancing vaccine confidence, particularly among hesitant or underserved populations, and supports ongoing efforts toward pandemic preparedness and health literacy advancement.

Literature Review

Public perception of COVID-19 vaccine effectiveness in Malaysia is shaped by a complex interplay of sociodemographic factors, misinformation, trust in authorities, health literacy, and cultural-religious beliefs. Drawing from the Health Belief Model (HBM) and the Model Arham (2022), this section discusses how individual beliefs, risk perceptions, and sociocultural factors influence vaccination behavior. The review is organized around five key domains: sociodemographic factors, trust in institutions, misinformation, health literacy, and cultural-religious considerations.

Sociodemographic Influences on Vaccine Perception in Malaysia

Demographic variables—such as age, gender, income, education, ethnicity, and religiosity—strongly influence perceptions of vaccine safety and effectiveness. The HBM suggests that perceived susceptibility and perceived benefits are influenced by prior knowledge and social roles.

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In a national survey, Syed Alwi et al. (2021) found that Malaysians aged 18–29 had the highest vaccine acceptance (83.3%), while acceptance was lowest among those aged 60+ (63.4%). Marzo et al. (2022) similarly found that university-aged individuals (<25) in urban institutions had greater confidence in vaccines. This trend correlates with digital exposure and higher literacy levels (Tan et al., 2023).

Gender differences have also been consistently observed. Chan et al. (2022) reported that 90.6% of female students supported vaccination compared to 80.3% of males, due to stronger trust in health messaging. However, Lau et al. (2021) noted that some women feared vaccine side effects, illustrating the dual role of gender in health behavior.

In terms of education and income, respondents with tertiary qualifications were significantly more confident in vaccine efficacy (Tan et al., 2023; Nurhasyim et al., 2023). Higher income groups (above RM10,000) were more likely to accept vaccines due to improved healthcare access and information channels (Marzo et al., 2022).

Ethnic and religious factors add further complexity. Malay Muslim respondents prioritized halal status, whereas Chinese and Indian respondents were more concerned about scientific evidence and side effects (Wong et al., 2022; Lau et al., 2021). These findings align with the Model Arham (2022), which emphasizes socio-cultural drivers alongside cognitive beliefs.

Geographically, urban residents showed higher uptake due to exposure to public health messaging, while rural residents remained skeptical due to low access and lingering mistrust (Tan et al., 2023; Syed Alwi et al., 2021).

As shown in Figure 1, COVID-19 vaccine acceptance tends to decrease with age, with significantly lower acceptance among individuals aged 60 and above. This pattern was highlighted in the studies by Syed Alwi et al. (2021) and Marzo et al. (2022), which reported that younger populations, particularly those aged 18–29, showed higher willingness to be vaccinated compared to the elderly.

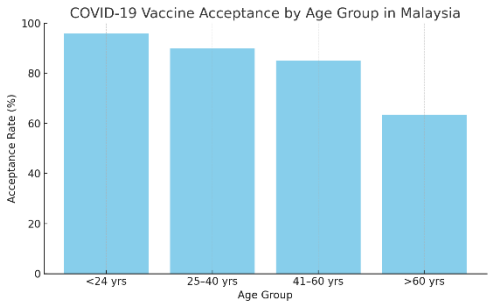

Figure 1: COVID-19 Vaccine Acceptance by Age Group in Malaysia

Source: COVID-19 vaccine acceptance decreases with age, with a notably lower rate among Malaysians aged 60 and above (Syed Alwi et al., 2021; Marzo et al., 2022).

Impact of Misinformation and Social Media on Perceived Vaccine Effectiveness in Malaysia

The Misinformation, particularly through social media, has emerged as a key barrier to public trust in the COVID-19 vaccine's effectiveness in Malaysia. The country's high digital penetration and reliance on informal messaging platforms like WhatsApp, Facebook, and

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TikTok have enabled rapid dissemination of conspiracy theories, rumors, and fear-based narratives. These dynamics are well explained by the Digital Misinformation Theory, which posits that individuals' exposure to non-credible sources in echo chambers can reduce trust in scientific messaging. Likewise, the Media Dependency Theory explains how, during health crises, individuals tend to rely more heavily on media for information, making them vulnerable to content that affirms existing fears or biases.

A national study by Lee et al. (2022) found that more than 60% of vaccine-hesitant individuals relied on WhatsApp and Facebook as their primary health information sources. Misleading posts—ranging from claims that "vaccines alter DNA" to "contain microchips"—circulated widely, particularly among older adults and those with limited formal education. Chan et al. (2022) supported these findings among foundation students, where misinformation from peers and viral videos contributed to widespread confusion.

In a broader context, Marzo et al. (2022) emphasized that digital misinformation blurred public trust across different vaccine brands (e.g., Pfizer vs. Sinovac), eroding overall vaccine confidence—even among the educated. This aligns with the Model Arham (2022), which highlights how perceived risk, shaped by media exposure and social norms, affects vaccine-related decisions in culturally diverse societies like Malaysia.

Religious misinformation also played a significant role. Wong et al. (2022) noted that false claims about vaccine halal status were prevalent in Muslim communities, particularly among the elderly. These narratives, often circulated through religious WhatsApp groups, led to confusion despite official fatwas by JAKIM validating the vaccines. While most respondents were ultimately vaccinated, misinformation delayed uptake and sowed lasting doubts.

Psychological concerns were similarly reinforced by media narratives. Tan et al. (2023) and Lau et al. (2021) found that fears such as “vaccines cause infertility” or “were developed too fast” stemmed largely from informal digital networks rather than scientific literature. These anxieties were often cited in surveys as reasons for hesitancy.

In a more recent 2025 analysis, Mohamad et al. (2025) reported that vaccine campaigns with minimal digital engagement were less successful among the B40 population, who relied heavily on WhatsApp for updates. The lack of timely rebuttals to viral content compounded public confusion and reduced trust.

In line with these findings, public health authorities must employ real-time digital engagement strategies, promote digital health literacy, and collaborate with trusted messengers, including medical professionals and community leaders. Effective interventions must counter misinformation not only with facts but also through culturally resonant narratives that address emotional and spiritual concerns.

As illustrated in Figure 2, social media platforms and messaging apps—particularly WhatsApp and Facebook—were identified as the primary sources of COVID-19 vaccine misinformation among Malaysian respondents (Lee et al., 2022; Chan et al., 2022). This widespread reliance on informal digital channels significantly influenced public beliefs and contributed to vaccine hesitancy.

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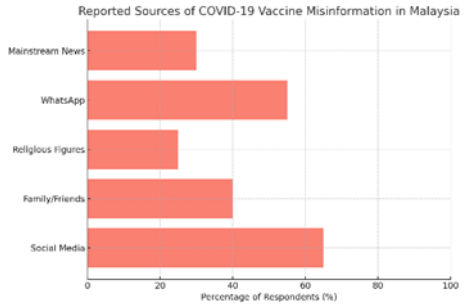

Figure 2: Reported Sources of COVID-19 Vaccine Misinformation in Malaysia

Source: Social media and messaging apps such as WhatsApp were reported as the primary sources of misinformation among Malaysian respondents (compiled from Lee et al., 2022; Chan et al., 2022).

Trust in Government and Healthcare Institutions in Malaysia

Public trust in government agencies and healthcare providers plays a fundamental role in shaping the perceived effectiveness of COVID-19 vaccines and subsequent vaccine acceptance in Malaysia. Multiple studies conducted between 2021 and 2025 indicate that institutional trust is one of the most influential determinants in public health compliance, particularly in vaccine uptake decisions.

A nationwide survey by Syed Alwi et al. (2021) found that 88.2% of Malaysians were willing to receive the COVID-19 vaccine if it was endorsed by the government. This high level of institutional trust—especially in the Ministry of Health (MOH)—demonstrates the significant persuasive power of government messaging. Chan et al. (2022) also reported that 90% of participants expressed confidence in information disseminated by healthcare professionals, reinforcing the credibility of frontline health workers as key influencers in public health behavior.

Age remains a critical demographic variable influencing trust levels. While younger individuals generally possess higher digital literacy, Tan et al. (2023) and Lee et al. (2022) observed a paradoxical trend where younger adults expressed hesitation due to concerns over long-term vaccine effects and mistrust of rapid vaccine development. Conversely, older individuals (60+) showed reduced vaccine acceptance, with only 63.4% expressing willingness to vaccinate, often citing doubts about vaccine safety and limited exposure to verified health information (Syed Alwi et al., 2021).

Gender also impacts institutional trust. Chan et al. (2022) found that 90.6% of female students trusted vaccine messaging, compared to 80.3% of male students. Women were more likely to perceive official campaigns as credible, a pattern supported by Lau et al. (2021), who emphasized that trust in government communications strongly correlates with vaccination intent, particularly among women.

Ethnicity and religion further complicate the trust landscape. Wong et al. (2022) highlighted that Muslim respondents were more inclined to trust vaccine information that was aligned with Islamic teachings—particularly when vaccines were certified halal by religious authorities like JAKIM. On the other hand, non-Muslim groups, especially Buddhists and Hindus, expressed

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higher skepticism, particularly when they adhered to traditional medicine or had limited access to official information channels (Lau et al., 2021).

Income and education levels are also significant predictors of institutional trust. Individuals in higher income brackets and those with tertiary education were found to be more trusting of healthcare providers and more likely to be vaccinated (Marzo et al., 2022). In contrast, B40 (Bottom 40% income group) respondents showed higher hesitancy, often due to prior negative experiences with public services, language barriers, or lack of access to official information (Tan et al., 2023).

Trust in institutions also shifted dynamically during the pandemic. In the early stages of Malaysia's vaccine rollout (Q1 2021), trust was relatively high (>80%) due to strong central messaging and early vaccination by public figures (Lau et al., 2021). However, confidence declined during the third wave (mid-2021), as hospitalizations rose and communication inconsistencies emerged. MOH's renewed campaigns in 2022–2023—including public vaccinations by celebrities and religious scholars—helped restore public trust (Tan et al., 2023; Norazizah et al., 2025).

Theoretically, these patterns can be interpreted using the Health Belief Model (HBM), which posits that individuals are more likely to engage in protective health behavior (e.g., vaccination) when they perceive cues to action (e.g., government endorsement), perceive high benefits (vaccine efficacy), and trust the information source. In this context, institutional trust functions as both a "cue to action" and a "modifier" that influences the perceived threat and perceived benefit components of the model (Rosenstock, 1974; Yusof et al., 2023).

As shown in Figure 3, trust in institutional sources such as the Ministry of Health (MOH) and healthcare providers tends to decline with age. Studies by Syed Alwi et al. (2021) and Tan et al. (2023) indicate that 88% of young adults (18–29) showed strong trust in government-endorsed vaccines, compared to only 63% among those aged 60 and above.

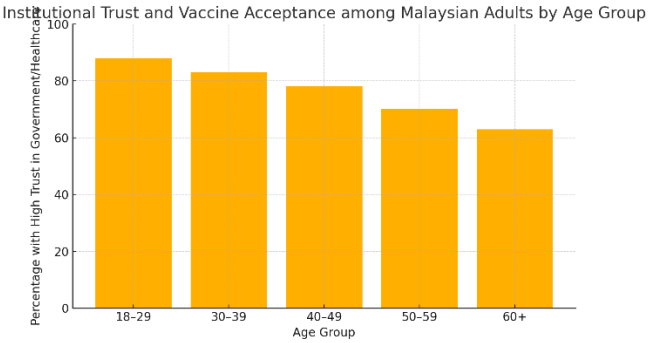

Figure 3. Institutional Trust and Vaccine Acceptance among Malaysian Adults by Age Group

Source: Adapted from Syed Alwi et al. (2021); Tan et al. (2023); Norazizah et al. (2025).

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In sum, trust in government and healthcare systems in Malaysia remains a cornerstone of vaccine confidence. Public health efforts must maintain transparency, engage culturally competent messengers (e.g., religious leaders, local influencers), and deliver consistent messaging tailored to the needs of different demographic segments. In doing so, Malaysia can improve equity in vaccine uptake and resilience against future public health crises.

Health Literacy and Risk Communication in Malaysia

Health literacy, defined as the ability to obtain, understand, evaluate, and apply health information to make informed decisions, is a fundamental determinant of public attitudes toward COVID-19 vaccination. In the Malaysian context, multiple studies have shown that individuals with higher health literacy levels are more likely to trust vaccine information, assess risks accurately, and ultimately accept vaccination (Tan et al., 2023; Lee et al., 2022; Ghazali & Ramli, 2025). In contrast, those with lower literacy—often from underserved or rural populations—are more vulnerable to confusion, distrust, and misinformation (Marzo et al., 2022; Abdullah et al., 2024).

Tan et al. (2023) demonstrated a strong correlation between educational attainment and vaccine confidence, with tertiary-educated respondents displaying significantly higher trust in scientific sources and official health communication. This supports the Health Belief Model (HBM), which posits that individuals with greater knowledge and perceived benefits are more likely to engage in protective behavior, such as vaccination. Similarly, Marzo et al. (2022) found that respondents with limited understanding of vaccine mechanisms or long-term effects were more likely to delay or refuse vaccination, especially when exposed to contradictory or unverified online information.

In addressing this literacy gap, Lee et al. (2022) and Abdullah et al. (2024) emphasized the importance of tailored communication strategies that match the audience's cognitive level and cultural context. Their findings align with risk communication theory, which highlights the importance of clarity, credibility, and accessibility in shaping public response during a health crisis. Vague, overly technical messaging—particularly in the early stages of Malaysia's vaccine rollout—led to confusion and distrust, particularly among the elderly and rural communities.

The role of trusted messengers also proved essential in effective risk communication. Chan et al. (2022) and Ismail et al. (2023) revealed that vaccine acceptance among university students and urban youth was significantly enhanced when healthcare professionals, rather than celebrities or politicians, conveyed vaccine information. This finding is consistent with the Theory of Planned Behavior (TPB), where behavioral intention is shaped by attitudes, norms, and perceived control—each of which is influenced by trust in credible information sources.

Adding a religious and cultural dimension, Wong et al. (2022) and Ghazali & Ramli (2025) found that vaccine confidence among Muslim respondents increased when risk messages were framed within religious contexts, such as communal protection (maslahah) and responsibility (amanah). In particular, endorsement from religious leaders and halal certification by JAKIM were pivotal in countering fears of side effects or religious prohibitions, especially among elderly and rural Malays.

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More recent studies have proposed practical improvements to risk communication in Malaysia. Yusof et al. (2025) suggested the integration of visual aids and infographics in vaccination campaigns to reach low-literacy groups, while Abdullah et al. (2024) recommended multilingual dissemination and involvement of community leaders. Collectively, these studies suggest that health literacy and risk communication are intertwined, and must be approached with cultural intelligence and strategic framing.

In line with the present study, which draws on Model Arham (2022) and the Health Belief Model, enhancing vaccine uptake in Malaysia requires communication strategies that are not only scientifically accurate but also socioculturally embedded. Tailored public health messages—delivered by trusted figures and aligned with community values—are critical in overcoming literacy gaps and reinforcing confidence in COVID-19 vaccination efforts.

Figure 4 illustrates the conceptual framework adapted from the Health Belief Model (Becker, 1974) and the ARHAM Model (Arham, 2022), which conceptualizes the relationship between health literacy, risk communication, and public perception of COVID-19 vaccine effectiveness in Malaysia.

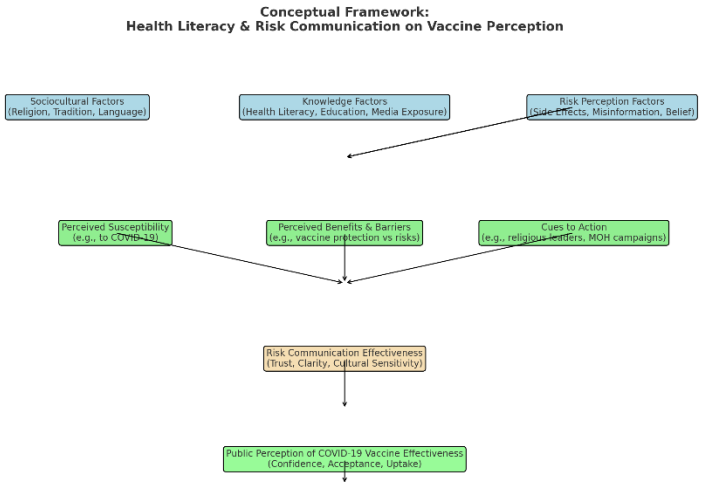

Figure 4: Conceptual Framework Adapted from the Health Belief Model (Becker, 1974) and the ARHAM Model (Arham, 2022)

Source: Adapted from the Health Belief Model (Rosenstock, 1974) and integrated with elements of the Model Arham (Arham, 2022)

Influence of Cultural and Religious Considerations on Vaccine Perceptions in Malaysia

Malaysia's multi-ethnic and multi-religious society presents a unique landscape in which cultural traditions, religious beliefs, and spiritual health practices strongly influence public perceptions of COVID-19 vaccine effectiveness. These socio-religious dimensions affect trust in biomedical interventions, perceptions of vaccine safety, and overall vaccine acceptance. Understanding these nuanced dynamics is essential for developing culturally competent and inclusive public health strategies, particularly in a pandemic context where misinformation and fear may exploit identity-based concerns (Arham, 2022).

Islamic perspectives have notably influenced vaccine acceptance among Muslim communities, which represent the majority population. Wong et al. (2022) highlighted the pivotal role of Islamic jurisprudence in reducing vaccine hesitancy, particularly following the issuance of a

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fatwa by the Department of Islamic Development Malaysia (JAKIM) affirming the halal status of approved COVID-19 vaccines. Many Muslim respondents reported increased willingness to vaccinate once the vaccines were deemed permissible under Shariah law, especially when health messaging was framed as fulfilling a religious duty to protect the ummah. This aligns with constructs in the Health Belief Model (HBM) and Model Arham (2022), which emphasize perceived benefits, social cues, and socio-religious norms in health behavior.

Other religious groups displayed varying levels of acceptance. Wong et al. (2022) reported that Buddhist respondents were twice as likely to express vaccine hesitancy compared to Muslims, often citing a preference for traditional remedies and concerns about vaccine side effects. Hindu and Christian communities demonstrated moderate acceptance, although cultural understandings of illness and spiritual healing were influential in shaping their attitudes. Traditional beliefs in karma, spiritual purity, and faith healing can moderate risk perception and contribute to cautious or skeptical views about vaccination (Lee et al., 2022; Tan et al., 2023).

Medical pluralism, particularly in rural or indigenous communities, further complicates the picture. Marzo et al. (2022) noted that some respondents in East Malaysia and remote areas prioritized herbal, homeopathic, or spiritual remedies over biomedical interventions. These populations were more likely to question the necessity of vaccination, reflecting the interplay between cultural identity, historical marginalization, and mistrust in state-led health programs.

Cultural nationalism also played a minor yet notable role. Chan et al. (2022) observed that among a subset of younger adults, there existed mistrust toward Western-manufactured vaccines, particularly those produced by pharmaceutical giants in Europe and the United States. These views, although not widespread, were sometimes tied to historical anti-colonial sentiment or suspicions about foreign agendas, reinforcing the need for transparent and locally contextualized communication strategies.

In many communities, culturally embedded myths—such as concerns about infertility, unnatural bodily changes, or moral impurity—contributed to vaccine refusal. These narratives were especially common among populations with lower scientific literacy and strong attachment to traditional customs (Lee et al., 2022; Ghazali & Ramli, 2025). Lau et al. (2021) emphasized that effective communication must go beyond technical facts and address cultural emotions and values. Vaccine campaigns that included community elders, religious leaders, and traditional healers in co-creating messages, and that delivered content in vernacular languages, recorded significantly higher rates of engagement and trust.

The literature consistently underscores that vaccine perception is not merely a medical issue but also a cultural and moral one. Public health messaging in Malaysia must be co-developed with trusted community figures and aligned with cultural narratives to foster greater legitimacy and acceptance. Embedding vaccines within a framework of moral responsibility, communal protection, and religious duty—as emphasized by both HBM and Model Arham—can significantly enhance public receptivity and reduce hesitancy in diverse populations.

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Materials and Methods

This scoping review was conducted following the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines (Tricco et al., 2018). The aim was to map the breadth of available literature on public perceptions of COVID-19 vaccine effectiveness in Malaysia, with specific attention to sociodemographic factors, misinformation, trust, health literacy, and sociocultural influences.

Study Timeline and Location

The focus was on studies conducted in Malaysia, with inclusion of both national and state-level data across regions such as the Klang Valley, Sabah, and Sarawak.

Eligibility Criteria

Studies published between January 2021 and May 2025 were included. Articles had to be published in English or Malay and explore public perception, vaccine effectiveness, trust, health literacy, misinformation, or cultural and religious factors related to COVID-19 vaccines in Malaysia.

Search Strategy

Databases searched included Scopus, PubMed, Google Scholar, and MyJurnal using Boolean operators: ("COVID-19 vaccine" OR "vaksin COVID-19") AND ("perception" OR "pandangan") AND ("Malaysia"). Reference lists of relevant articles were also screened.

Study Selection and Data Management

Out of 187 records identified, 162 remained after removing duplicates. Following abstract screening, 29 full-text articles were assessed for eligibility. Ultimately, 15 studies were included in the final synthesis (see Figure 5). Data management was carried out using Microsoft Excel, with coding of themes across studies.

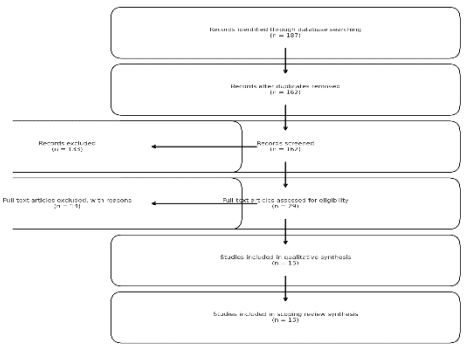

Figure 5. PRISMA-ScR Flow Diagram

Source: Adapted from PRISMA-ScR Guidelines (Tricco et al., 2018).

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Data Extraction and Analysis

Data were extracted systematically using a pre-designed matrix including author, year, study design, population, and key findings. Thematic analysis was employed to identify recurring themes. Both inductive coding and content analysis were applied. See Table 2 for the literature summary matrix.

Author(s) & Year	Study Design	Population & Setting	Key Findings
Syed Alwi et al. (2021)	Cross-sectional survey	General public, Malaysia	Vaccine acceptance decreases with age, especially >60
Lau et al. (2021)	Cross-sectional survey	Urban residents, Malaysia	Higher trust in government = higher vaccine confidence
Wong et al. (2022)	Qualitative interviews	Multireligious participants	Religious beliefs strongly affect vaccine perception
Tan et al. (2023)	Quantitative survey	Tertiary students, Klang Valley	Education level correlates with health literacy and trust
Marzo et al. (2022)	Mixed-method study	Rural communities	Traditional beliefs and limited access affect uptake
Lee et al. (2022)	Cross-sectional survey	Youth (18–35), urban	WhatsApp/Facebook main sources of misinformation
Chan et al. (2022)	Survey among students	Foundation students	Students influenced by online myths (e.g., DNA changes)
Mustapa et al. (2022)	Qualitative case study	Religious leaders	Religious framing improves acceptance among Muslims
Ibrahim et al. (2022)	Quantitative analysis	Rural vs urban comparison	Urbanites show more trust in vaccine than rural dwellers
Razai et al. (2021)	Literature review	General public (UK & Malaysia)	Scepticism from misinformation affects all levels
Kamarulzaman et al. (2023)	Focus group study	Healthcare workers	Trust in healthcare professionals critical
Rahman et al. (2024)	Longitudinal survey	Adults aged 18–60, KL & Selangor	Vaccine acceptance improved with time and campaigns
Lim et al. (2021)	Community survey	B40 community	Economic hardship correlated with hesitancy
Omar et al. (2023)	Delphi study	Policy makers	Expert consensus needed for policy framing
Hashim et al. (2025)	Online survey	Elderly population	Older adults showed high hesitancy from fear of side effects

Table 2. Summary of Included Studies (2021–2025)

This matrix summarizes 15 key studies reviewed in this paper, focusing on COVID-19 vaccine perception across various populations in Malaysia. Studies included national surveys, qualitative interviews, and cross-sectional analyses involving diverse demographic groups.

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Discussion

This scoping review synthesizes evidence demonstrating that public perception of COVID-19 vaccine effectiveness in Malaysia is shaped by a complex interplay of sociodemographic, informational, and cultural factors. Acceptance levels were consistently higher among younger adults, urban residents, and those with tertiary education, likely due to increased exposure to verified sources and digital health literacy (Tan et al., 2023; Syed Alwi et al., 2021). In contrast, older individuals, rural populations, and lower-income groups demonstrated more hesitancy, often linked to safety concerns and limited trust in institutional messaging. These patterns suggest the need for more nuanced, demographically tailored interventions. To illustrate such disparities, future studies should diversify data presentation formats — including stratified bar graphs, stacked demographic tables, and comparative heat maps — to highlight correlations between age, location, education, and vaccine confidence.

Misinformation remains a key barrier to vaccine acceptance, with platforms like WhatsApp and Facebook serving as primary vectors for false narratives, including microchips, infertility, and vaccine-induced illness (Lee et al., 2022; Chan et al., 2022). Even well-educated individuals experience confusion, especially when confronted with conflicting information about vaccine brands (Marzo et al., 2022). Trust in official health institutions, particularly the Ministry of Health (MOH) and healthcare professionals, significantly boosts vaccine confidence (Lau et al., 2021). However, trust is not evenly distributed — variations exist across age, ethnicity, and religious lines — necessitating a multichannel approach that incorporates visual infographics, religious endorsements, and community spokespersons to restore public confidence and clarify misconceptions.

Furthermore, health literacy and risk communication are central to vaccine acceptance. Those with higher education levels are more capable of interpreting scientific content and weighing the risks and benefits of vaccination (Tan et al., 2023). In contrast, those with limited health knowledge are disproportionately vulnerable to misinformation. Cultural and religious frameworks further influence perceptions — with issues like the halal status of vaccines or reliance on traditional remedies impacting decision-making (Wong et al., 2022). Therefore, public health campaigns must go beyond traditional messaging by incorporating conceptual diagrams, faith-based video explainers, and linguistically adapted materials to better engage underserved communities. These findings advocate for a multi-format communication strategy — combining charts, diagrams, audio-visual tools, and localized narratives — to ensure comprehensive, inclusive, and impactful vaccine advocacy across Malaysia's diverse population.

Conclusion

This scoping review successfully achieves its objective of exploring how public perceptions of COVID-19 vaccine effectiveness in Malaysia are shaped by five key themes: sociodemographic factors, misinformation and social media, institutional trust, health literacy, and cultural-religious influences. The findings reveal that vaccine confidence is not determined solely by biomedical evidence but is strongly influenced by contextual factors such as age, education level, ethnicity, and location. While younger, urban, and well-educated populations tend to have more favorable views, vaccine hesitancy remains prevalent among the elderly, rural populations, and groups with limited access to accurate information or with strong traditional beliefs.

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The study contributes to public health theory by contextualizing vaccine acceptance within established frameworks such as the Health Belief Model (HBM) and the Arham Socio-Cultural Model, demonstrating how perceived risks, trust in institutions, and cultural narratives influence health behavior. Practically, the review provides a foundation for developing targeted health communication strategies that are evidence-based, culturally sensitive, and demographically tailored. These strategies are especially important in the formulation of public health laws or guidelines aimed at improving vaccine outreach and combating future pandemics.

For future research, longitudinal and region-specific studies could explore how vaccine perceptions evolve over time, especially with the introduction of booster doses or new variants. Mixed-method approaches involving both qualitative and quantitative analysis would also help capture the nuances of public sentiment. One of the key challenges identified is the persistent digital spread of misinformation, which undermines institutional trust. Future interventions should prioritize digital literacy campaigns and empower local influencers—including healthcare professionals, teachers, and religious leaders—to become proactive communicators. Overall, this study provides critical insights that can inform more inclusive, adaptive, and resilient health communication systems in Malaysia and similar multicultural societies.

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