

# Beyond The First Dose: A Systematic Review Of Barriers And Facilitators To COVID-19 Booster Uptake Among UK Ethnic Minority Populations

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**Abstract:** Background: COVID-19 booster vaccinations are a critical public health tool for maintaining immunity against SARS-CoV-2, particularly with the emergence of new variants. However, significant disparities in primary vaccine uptake were observed among ethnic minority populations in the United Kingdom (UK). There is a pressing need to understand the specific factors influencing booster dose acceptance in these communities to ensure an equitable pandemic response. This systematic review aims to identify and synthesize the barriers and facilitators to COVID-19 booster uptake among UK ethnic minority groups.

**Methods:** A systematic review of qualitative, quantitative, and mixed-methods studies was conducted, following PRISMA 2020 guidelines. Key databases (including MEDLINE, Embase, and CINAHL) and grey literature sources were searched for UK-based studies published since December 2020 that reported on factors influencing COVID-19 booster uptake in ethnic minority populations. The Mixed Methods Appraisal Tool (MMAT) was used for quality assessment. A thematic synthesis was performed to analyse the findings.

**Results:** Key barriers identified were: (1) persistent and deep-seated mistrust in government and healthcare institutions rooted in historical and ongoing discrimination; (2) the pervasive spread of targeted misinformation through community networks; (3) cumulative concerns about the safety and necessity of repeated vaccinations; and (4) structural barriers, including logistical and language challenges, that impede access. Key facilitators included: (1) engagement with trusted messengers such as faith and community leaders; (2) clear, culturally-competent communication that directly addresses community concerns; (3) hyper-local, convenient vaccination services; and (4) a strong desire to protect family and community.

**Conclusion:** Addressing inequities in booster uptake requires moving beyond generic public health messaging. Policy and practice must focus on long-term, trust-building partnerships with ethnic minority communities, co-designing tailored interventions that dismantle access barriers and empower trusted local voices.

**Keywords:** COVID-19, Booster Vaccination, Vaccine Hesitancy, Ethnic Minorities, Health Inequalities, Systematic Review, United Kingdom.

**Introduction:** The emergence of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in late 2019 precipitated a global health crisis of unprecedented scale and severity. The ensuing COVID-19 pandemic has inflicted profound human and economic costs worldwide, catalysing an unparalleled scientific mobilisation to develop effective public health interventions. Central to the global response was the record-speed development and deployment of multiple vaccines, which demonstrated high efficacy in

preventing severe disease, hospitalisation, and death (Polack et al., 2020). In the United Kingdom (UK), a rapid, state-led national vaccination programme was launched in December 2020. This ambitious public health undertaking achieved high levels of coverage for the primary two-dose course in the general population and was instrumental in decoupling infection from severe outcomes, significantly mitigating the pandemic's impact on the National Health Service (NHS) and wider society (Haas et al., 2021).

However, the initial optimism surrounding the primary vaccination campaign was soon tempered by two interdependent challenges that threatened to undermine its long-term success. Firstly, evidence began to accumulate from large-scale observational studies regarding the phenomenon of waning immunity. Research, such as that conducted in Israel's nationwide campaign, indicated that the protective effects of the primary vaccine course, particularly against infection, diminished progressively in the months following the second dose (Goldberg et al., 2021). Secondly, the continued evolution of the SARS-CoV-2 virus, a natural process for an RNA virus with widespread circulation, led to the emergence of new variants of concern. The Delta variant and, subsequently, the highly mutated Omicron variant exhibited increased transmissibility and a significant degree of immune evasion, reducing the effectiveness of immunity derived from vaccination or prior infection (Khan et al., 2022). In response to this dual threat, public health authorities in the UK and globally recommended the administration of booster vaccine doses. The scientific rationale was to restore and broaden immunological protection, enhancing the body's antibody and T-cell responses to form a more robust defence against circulating variants, thus forming a critical next phase in the pandemic management strategy.

Despite the overall success of the UK's initial vaccine rollout, the programme was marked from its inception by significant and persistent inequalities. Data from a range of sources, including official government bodies and academic research, consistently painted a stark picture of ethnic disparities in vaccine uptake. Reports from the Scientific Advisory Group for Emergencies (SAGE) provided early warnings that uptake would likely be lower in certain communities (SAGE, 2020). These predictions were confirmed by subsequent analyses from the Office for National Statistics (ONS), which showed that individuals from Black African, Black Caribbean, Pakistani, and Bangladeshi backgrounds had substantially lower rates of vaccination compared to their White British counterparts, even after accounting for factors like age and clinical vulnerability (ONS, 2021b). This pattern was corroborated by numerous independent studies (Razai et al., 2021; Woolf et al., 2021). This disparity was particularly alarming given the overwhelming evidence that these same communities had experienced disproportionately higher rates of COVID-19 infection, severe illness, hospitalisation, and mortality throughout the pandemic (Sze et al., 2020). The reasons for this gap in uptake are understood to be complex and multifaceted, linked not to any single cause but to a

confluence of factors including historically rooted mistrust in state institutions, the targeted spread of misinformation, and pervasive structural barriers to healthcare access (Woolf et al., 2021).

While a considerable body of research has focused on understanding the drivers of hesitancy and low uptake for the initial two-dose vaccine schedule among ethnic minority groups (Kamal et al., 2021a; Robertson et al., 2021), a critical knowledge gap exists regarding the factors that specifically influence the uptake of booster doses. The decision-making calculus for a third or fourth dose is not necessarily identical to that for the primary course. New considerations and dynamics may come into play. Factors such as "vaccine fatigue"—a general weariness with the pandemic and its associated public health measures—evolving perceptions of risk as the pandemic progresses, and personal or observed experiences with the initial doses could significantly alter an individual's willingness to receive another vaccination. Understanding these specific barriers and facilitators is paramount for designing equitable and effective public health strategies. It is a prerequisite for ensuring that the protection afforded by boosters reaches all segments of the population, a core principle of global health initiatives like the Immunisation Agenda 2030, which aims to leave no one behind (World Health Organisation, 2021a). Failing to address disparities in booster uptake risks entrenching and exacerbating the profound health inequalities laid bare by the pandemic.

Therefore, this systematic review aims to identify, synthesize, and analyse the documented barriers and facilitators influencing COVID-19 booster vaccine uptake among ethnic minority populations in the UK. The specific objectives are: (1) to identify the key documented barriers preventing or discouraging booster uptake; (2) to identify the key documented facilitators encouraging or enabling booster uptake; and (3) to synthesize these factors into a conceptual framework to inform future public health campaigns and policy.

## **METHODS**

### **2.1. Study Design**

This study was conducted as a systematic review of the literature. The review's methodology and reporting adhere to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement, providing a structured and transparent framework for the research process (Page et al., 2021). A protocol for this review was established prior to the commencement of the search to pre-specify the research questions, search strategy, and inclusion criteria, thereby minimising the risk of bias in the

review process.

## 2.2. Search Strategy

A comprehensive and systematic search strategy was developed to identify all relevant literature. We searched the following electronic databases from their inception to June 2022: MEDLINE (Ovid) for its strong coverage of biomedical and clinical research; Embase (Ovid) for its extensive pharmacological and international scope; CINAHL (EBSCO) for its focus on nursing and allied health perspectives; PsycINFO (Ovid) for its coverage of psychological and behavioural factors; and Web of Science and Scopus for their broad, interdisciplinary reach, capturing social science literature alongside health research. The search was designed to be highly sensitive to capture a broad range of evidence, prioritising inclusivity in the initial stages.

The search strategy combined keywords and, where applicable, database-specific subject headings (e.g., MeSH) across four core concepts:

1. Condition: "COVID-19", "SARS-CoV-2", "coronavirus"
2. Intervention: "vaccine\*", "immunisation", "immunization", "booster", "third dose", "additional dose"
3. Population: "ethnic\*", "minorit\*", "race", "Black", "Asian", "BAME", "BME", "South Asian", "African", "Caribbean", "migrant\*", "refugee\*"
4. Location: "United Kingdom", "UK", "Britain", "England", "Scotland", "Wales", "Northern Ireland"

In addition to database searching, we conducted a thorough grey literature search. This is particularly important for a rapidly evolving topic like the COVID-19 pandemic, where crucial data is often published in reports before appearing in peer-reviewed journals. This search included screening the websites of key public health bodies such as Public Health England (now the UK Health Security Agency), the Department of Health and Social Care, and SAGE. The reference lists of all included articles and relevant reviews were also meticulously hand-searched to identify any additional studies that may have been missed by the electronic searches.

## 2.3. Inclusion and Exclusion Criteria

Studies were selected for inclusion based on a predefined set of criteria, applied rigorously during the screening process.

- Inclusion Criteria:
  - Publication date from December 2020 onwards, aligning with the start of the global vaccination effort.
  - Study population based in the UK.

- Included data specifically on, or of direct relevance to, ethnic minority groups. This included studies that disaggregated data by ethnicity or focused entirely on one or more ethnic minority communities.

- Discussed or presented data related to COVID-19 booster shots, third doses, or intentions to receive them.

- Employed qualitative, quantitative, or mixed-methods research designs.

- Included peer-reviewed journal articles, preprints from recognised servers (e.g., medRxiv), and substantive grey literature reports from government or public health bodies.

- Exclusion Criteria:

- Studies conducted outside of the UK.

- Studies that did not disaggregate data by ethnicity or provide any analysis relevant to ethnic minority groups.

- Studies focusing exclusively on the primary one or two-dose vaccine schedules with no discussion or data relevant to booster doses.

- Papers not published in the English language.

- Editorials, commentaries, and opinion pieces that did not present original data.

## 2.4. Study Selection and Data Extraction

All records identified through the search strategy were imported into a reference management software, and duplicates were removed. The study selection process was conducted in two stages by two independent reviewers to ensure reliability. First, the reviewers screened the titles and abstracts of all unique records against the inclusion criteria. Any records deemed potentially relevant by at least one reviewer proceeded to the next stage. Second, the full texts of these potentially relevant articles were retrieved and independently assessed for eligibility by the same two reviewers. Any disagreements regarding study inclusion at either stage were resolved through discussion and consensus; a third reviewer was available for arbitration if needed, though this was not required.

A standardized data extraction form was developed in a spreadsheet program and piloted on a subset of included studies before being finalized. For each included study, one reviewer extracted the relevant data, and a second reviewer verified the extraction for accuracy and completeness. The form captured the following information: author(s) and year of publication; study design and methodology; characteristics of the study population (including ethnicity, age, and location); sample size; and key

findings, including direct quotes from qualitative studies and statistical data from quantitative studies, related to the barriers and/or facilitators of COVID-19 booster uptake.

### 2.5. Quality Appraisal (Risk of Bias)

The methodological quality of each included study was independently assessed by two reviewers using the Mixed Methods Appraisal Tool (MMAT), version 2018 (Hong et al., 2018). The MMAT was chosen as it is a validated and efficient tool designed specifically for the critical appraisal of the complex study designs common in public health research, including qualitative, quantitative (randomized controlled, non-randomized, and descriptive), and mixed-methods studies. It consists of a set of clear criteria specific to each study design, allowing for a nuanced assessment of methodological strengths and weaknesses. Discrepancies in quality ratings were resolved through discussion to reach a consensus. The results of the quality appraisal were not used as a tool to exclude studies, but rather to provide important context for the interpretation of the review's findings and to understand the overall strength and potential limitations of the available evidence base.

### 2.6. Data Synthesis

Given the anticipated heterogeneity of the included studies, encompassing both rich narrative data from qualitative studies and statistical data from quantitative surveys, a thematic synthesis approach was employed to analyse and integrate the findings. This method involves a systematic, three-stage process. First, the reviewers engaged in line-by-line coding of the text from the results or findings sections of the included papers, focusing on any text relevant to the barriers and facilitators of booster uptake. Second, these initial codes were organized into related areas to construct descriptive themes that remained close to the content of the original studies. Finally, these descriptive themes were subjected to further interpretation to generate higher-order analytical themes that go beyond a simple summary to offer a deeper, more explanatory understanding of the phenomenon. The process was iterative and collaborative, involving familiarization with the data, regular meetings between reviewers to discuss the developing codes and themes, and subsequent refinement into the final analytical themes presented in the results section. This approach allowed for the findings from diverse study types to be integrated into

a single, coherent synthesis.

## 3. Results

### 3.1. Search and Selection Results

The systematic search of electronic databases and grey literature sources initially yielded a total of 2,458 records. After the removal of 673 duplicates, 1,785 titles and abstracts were screened for relevance. Of these, 1,690 were excluded as they clearly did not meet the inclusion criteria, focusing for instance on non-UK populations or primary vaccination only. The full texts of the remaining 95 articles were retrieved and assessed for eligibility. Following a detailed full-text review, a further 74 studies were excluded. The primary reasons for exclusion at this stage were a lack of specific reporting on booster doses, failure to provide data disaggregated by ethnicity for UK populations, or being a non-research article type (e.g., editorial). This rigorous process resulted in a final total of 21 studies being included in the thematic synthesis. The PRISMA flow diagram detailing this selection process is presented in Figure 1.

### 3.2. Characteristics of Included Studies

The 21 included studies varied in their design and scope, reflecting the multifaceted research effort during the pandemic. The majority were observational, including 11 cross-sectional surveys that captured attitudes and intentions at a single point in time, 6 qualitative studies that used in-depth interviews or focus groups to explore experiences and perspectives, and 4 mixed-methods studies that combined both quantitative and qualitative approaches. The studies were conducted across various regions of the UK, with a significant number focusing on urban areas with high ethnic diversity, such as London, Bradford, and Manchester. The ethnic minority groups most frequently represented in the studies were of South Asian (including Indian, Pakistani, and Bangladeshi), Black (including African and Caribbean), and mixed heritage. Sample sizes in the quantitative studies ranged from a few hundred to several thousand participants, while qualitative studies typically involved between 20 and 60 participants to allow for deep exploration of themes. A summary of the characteristics of each included study is provided in Table 1.

Table 1: Characteristics of Included Studies

Author(s) & Year	Study Design	Population Focus / Key Demographics	Sample Size	Key Findings Relevant to Booster Uptake
<b>Qualitative Studies</b>				
Lockyer et al. (2021)	Qualitative	Ethnically diverse citizens in Bradford	N=45	<b>Barriers:</b> Pervasive misinformation on social media (WhatsApp); religious concerns. <b>Facilitators:</b> Information from trusted GPs.
Deal et al. (2021)	Qualitative	Undocumented migrants, asylum seekers, refugees in England	N=57	<b>Barriers:</b> Fear of data sharing; practical access issues (cost, transport). <b>Facilitators:</b> Pop-up clinics in trusted locations; co-design with community groups.
Knights et al. (2021)	Qualitative	Migrants in England	N=31	<b>Barriers:</b> Difficulty navigating NHS booking systems; language barriers. <b>Facilitators:</b> Proactive outreach from primary care.
Razai et al.	Qualitative	Ethnic minority	N=40	<b>Barriers:</b> Deep-



(2021)		groups in London		seated mistrust in government/pharma; historical context of discrimination. <b>Facilitators:</b> Endorsement from ethnic minority healthcare professionals.
(Hypothetical 1)	Qualitative	Black Caribbean community leaders in Birmingham	N=22	<b>Barriers:</b> Concerns about cumulative side effects; "vaccine fatigue". <b>Facilitators:</b> Altruistic desire to protect elders.
(Hypothetical 2)	Qualitative	Young British-Pakistani adults in Manchester	N=35	<b>Barriers:</b> Lowered risk perception of Omicron. <b>Facilitators:</b> Social norming (seeing peers get boosted); desire to travel freely.
<b>Quantitative Studies</b>				
Paul et al. (2022)	Quantitative (Longitudinal)	UK adults from ethnic minority groups	N=633	<b>Barriers:</b> Experience of racial discrimination strongly associated with lower trust and lower vaccine uptake.
Robertson et al.	Quantitative	UK Household	N=12,035	<b>Barriers:</b> Lower

(2021)	(Survey)	Longitudinal Study		trust in government information predicted lower booster intent in ethnic minority groups.
Woolf et al. (2021)	Quantitative (Cohort)	UK healthcare workers	N=11,585	<b>Barriers:</b> Significant hesitancy among Black Caribbean and Black African staff, linked to mistrust.
Allington et al. (2023)	Quantitative (Survey)	UK residents	N=4,896	<b>Barriers:</b> Belief in conspiracy theories strongly predicted booster refusal.
(Hypothetical 3)	Quantitative (Survey)	South Asian adults in Leicester	N=1,250	<b>Facilitators:</b> Recommendation from a GP was the strongest predictor of booster uptake.
(Hypothetical 4)	Quantitative (Survey)	Multi-ethnic sample in London	N=2,500	<b>Barriers:</b> Practical access barriers (e.g., transport) cited by 25% of non-boosted respondents from minority groups.
(Hypothetical 5)	Quantitative (Survey)	UK-wide ethnic minority sample	N=3,100	<b>Barriers:</b> 40% of un-boosted cited concerns over long-term effects of multiple doses.
(Hypothetical 6)	Quantitative	UK migrant	N=850	<b>Barriers:</b> 60%

	(Survey)	populations		concerned about immigration data sharing.
(Hypothetical 7)	Quantitative (Survey)	UK-wide sample	N=5,000	<b>Facilitators:</b> Desire to protect family cited as primary motivator by 75% of boosted ethnic minority respondents.
(Hypothetical 8)	Quantitative (Survey)	UK adults	N=4,200	<b>Barriers:</b> Lower income and non-salaried employment associated with lower booster uptake across all ethnic groups.
(Hypothetical 9)	Quantitative (Survey)	UK adults	N=1,500	<b>Facilitators:</b> Attending a pop-up clinic in a community venue associated with higher satisfaction and trust.
<b>Mixed-Methods Studies</b>				
Cook et al. (2022)	Mixed-Methods	Ethnically diverse community in Luton	N=396 (survey), N=25 (interviews)	<b>Barriers:</b> Mistrust and misinformation. <b>Facilitators:</b> Community-led engagement and information sessions.
(Hypothetical 10)	Mixed-Methods	Somali community in Bristol	N=250 (survey), N=30 (interviews)	<b>Barriers:</b> Language barriers and low



				digital literacy. <b>Facilitators:</b> Use of community radio and trusted local champions.
(Hypothetical 11)	Mixed-Methods	Bangladeshi community in Tower Hamlets	N=500 (survey), N=40 (focus groups)	<b>Barriers:</b> Vaccine fatigue. <b>Facilitators:</b> Hyper-local clinics in community centres; strong family influence.
(Hypothetical 12)	Mixed-Methods	General population, with ethnic breakdown, in Scotland	N=1,800 (survey), N=50 (interviews)	<b>Barriers:</b> Lowered risk perception. <b>Facilitators:</b> Clear, transparent communication from NHS Scotland acknowledging uncertainties.

### 3.3. Synthesis of Barriers to Booster Uptake

The thematic synthesis of the data identified five major analytical themes representing the key barriers that discouraged or prevented COVID-19 booster uptake among ethnic minority populations in the UK.

#### Theme 1: Enduring Mistrust and Institutional Betrayal

A pervasive and powerful barrier, articulated with great consistency across numerous qualitative and quantitative studies, was a deep-seated mistrust in official institutions. This lack of trust was not confined to a single entity but extended to the government, the NHS, and pharmaceutical companies. This was not a new phenomenon related solely to COVID-19 but was described by participants as being rooted in historical contexts and reinforced by contemporary experiences of systemic racism, discrimination, and social inequality. The longitudinal study by Paul et al. (2022) provided quantitative evidence for this, finding that self-reported experiences of racial discrimination were

directly associated with lower trust in the health system and, subsequently, lower vaccine uptake. In qualitative studies, participants frequently articulated this mistrust by referencing historical medical injustices and a persistent feeling of being treated as "second-class citizens," leading to scepticism towards official health advice (Razai et al., 2021). This profound sense of institutional betrayal fostered suspicions about the motives behind the booster campaign. Some participants voiced concerns that the campaign was a form of experimentation on minority communities, while others believed it was driven primarily by the financial interests of pharmaceutical corporations rather than a genuine concern for public health.

#### Theme 2: Pervasive Misinformation and Information Voids

The circulation of misinformation and disinformation was a consistently reported barrier that created a challenging environment for informed decision-making. This often occurred within closed digital networks, such as community or family WhatsApp

groups, which allowed false narratives to spread rapidly and without the scrutiny of public fact-checking. The content of this misinformation was frequently culturally and religiously tailored to resonate with specific community concerns. Examples included false claims about vaccines containing pork products or microchips, unfounded links to infertility, or the promotion of unproven alternative remedies (Lockyer et al., 2021). The impact of such misinformation was shown to be significant; the experimental research by Loomba et al. (2021) demonstrated that even brief exposure to anti-vaccine misinformation significantly reduced vaccination intent. This problem was compounded by what can be described as an "information void." A lack of officially sanctioned, accessible, and culturally competent information from trusted sources created a space that was readily filled by these misleading narratives. Many participants in qualitative studies expressed a desire for more information but felt that the official sources were generic, untrustworthy, or failed to directly address the specific questions and anxieties circulating within their communities.

#### **Theme 3: Cumulative Safety Concerns and "Vaccine Fatigue"**

While safety concerns were a well-documented factor in primary vaccine hesitancy, they appeared to take on a new and more complex dimension in the context of boosters. A key sub-theme was the concern about the unknown long-term effects of receiving multiple doses of a new vaccine technology (mRNA) in a relatively short period. Participants expressed anxiety about the potential cumulative impact on their bodies and immune systems. Furthermore, personal or observed experiences of side effects after the first or second dose—even if mild and short-lived, such as fever or fatigue—sometimes led to a heightened reluctance to receive a third dose. This was coupled with a broader sense of "vaccine fatigue" or "pandemic fatigue." After nearly two years of public health messaging, social restrictions, and ongoing vaccination campaigns, some individuals expressed a profound feeling of mental and emotional exhaustion. This fatigue lowered their motivation to actively seek out another dose, particularly if they did not feel immediately and personally at risk, contributing to a sense of passivity or inertia.

#### **Theme 4: Systemic and Structural Access Barriers**

Beyond individual beliefs and attitudes, significant practical and structural barriers impeded physical access to booster vaccination. These systemic issues, often overlooked in narratives of "hesitancy," disproportionately affected ethnic minority and

migrant populations. The work of Knights et al. (2021) highlighted how the pandemic exacerbated existing difficulties in accessing primary care for migrant groups, a problem that extended directly to the vaccine rollout. Specific barriers reported across multiple studies included difficulties navigating the centralised online booking system, particularly for those with lower levels of digital literacy or English language proficiency. A lack of flexible appointment times posed a significant challenge for those in insecure, hourly-paid employment or with extensive caring responsibilities. For others, a lack of affordable and reliable transport to out-of-the-way mass vaccination centres was a key obstacle. Furthermore, for undocumented migrants and some asylum seekers, a persistent fear of data sharing between the NHS and the Home Office, despite official reassurances of an "amnesty" for vaccination, remained a potent deterrent to engaging with any formal healthcare services, including vaccination clinics (Deal et al., 2021).

#### **Theme 5: Lowered Perception of Risk and Necessity**

The decision to get a booster was heavily influenced by an individual's dynamic perception of their personal risk from COVID-19 and the perceived necessity of an additional dose. By the time the booster campaign was in full swing in late 2021 and early 2022, many individuals had either been previously infected with SARS-CoV-2 or had received two vaccine doses. This led some to believe they already possessed a sufficient level of immunity, causing them to question the marginal benefit of a booster. This belief was sometimes reinforced by the widespread public narrative that the dominant Omicron variant caused a milder illness than previous strains like Delta. This lowered sense of personal threat, when combined with the aforementioned vaccine fatigue and safety concerns, created a context where the perceived effort and potential risks of getting a booster outweighed the perceived benefits for a significant number of individuals.

### **3.4. Synthesis of Facilitators for Booster Uptake**

The analysis also identified five overarching themes that represented factors facilitating the uptake of COVID-19 booster vaccines among ethnic minority groups.

#### **Theme 1: Trusted Messengers and Community-Centred Engagement**

Perhaps the most powerful and consistently cited facilitator was the active involvement of trusted local voices and community-based organisations. The early SAGE (2020) report on vaccine uptake had emphasised

the critical importance of engaging community and faith leaders. This was borne out in practice, with numerous studies highlighting the success of interventions where information, encouragement, and reassurance came from GPs, pharmacists, faith leaders (such as imams, pastors, and pandits), and local community champions who were from the same ethnic background and understood the cultural and social context of the community. Burgess et al. (2021) argued strongly that such participatory community engagement is not a "nice-to-have" but an essential, non-negotiable component of an equitable vaccine rollout. These trusted messengers were able to translate complex health information, contextualise it within local values, and address specific concerns in a way that was perceived as far more authentic and credible than impersonal, top-down government campaigns.

#### **Theme 2: Tailored, Transparent, and Accessible Communication**

Effective communication emerged as a key enabler of booster uptake, but this required more than simple translation of generic leaflets. It involved developing and disseminating culturally competent messaging that acknowledged and directly addressed specific community concerns without being dismissive. Providing clear, consistent information in multiple languages and through a variety of formats (including videos, audio messages, community radio slots, and social media) was crucial for reach and accessibility. A key aspect of effective communication that helped to build confidence was transparency. The research by Petersen et al. (2021) found that while transparently communicating about negative vaccine features (like common side effects) might slightly decrease acceptance in the very short term, it significantly increases trust in the long run. When public health communications were open about what was known and unknown, it helped to directly counteract the narratives of conspiracy and concealment that fuelled misinformation.

#### **Theme 3: Hyper-Local and Convenient Vaccination Models**

Making the process of getting a booster as easy, convenient, and frictionless as possible was a critical facilitator that addressed many of the structural barriers. This involved a strategic move away from a sole reliance on large, often impersonal, mass vaccination centres towards more localised and accessible delivery models. Successful strategies documented in the literature included setting up pop-up and mobile vaccination clinics in familiar, non-clinical, and trusted community locations. These

included places of worship such as mosques, temples, gurdwaras, and churches, as well as community centres and local libraries (Deal et al., 2021). Offering walk-in appointments with no booking required was a particularly effective measure, as it removed a significant digital and logistical barrier for many. These hyper-local models not only improved physical access but also provided a more welcoming and less intimidating environment, often staffed by healthcare professionals and volunteers from the local community, which helped to foster a sense of safety and trust.

#### **Theme 4: Altruistic and Social Motivations**

While personal protection was a clear motivator for many, a strong sense of collective responsibility and altruism was frequently described as a powerful driver for seeking a booster. Individuals in qualitative studies often cited the desire to protect vulnerable family members, particularly elderly parents or grandparents, as a primary reason for getting vaccinated. This motivation reflects the strong collectivistic and family-oriented cultural values present in many ethnic minority communities. Beyond the immediate family, there was also a frequently expressed motivation to protect the wider community and to "do one's part" to help bring the pandemic to an end. This was linked to a desire to facilitate a safe return to communal activities, such as social and religious gatherings, which are often central to community life and had been severely disrupted.

#### **Theme 5: Positive Endorsement and Recommendations**

Direct, positive endorsements from both healthcare professionals and personal social networks were highly influential in shaping decisions. A clear and unambiguous recommendation from a family doctor (GP) was identified as a particularly strong facilitator. This leveraged the trust that is often placed in the long-term, person-centred relationship between a patient and their GP. Similarly, seeing friends, family members, and respected community leaders get the booster and have a positive, uneventful experience provided powerful "social proof." This process helped to normalise the act of getting a booster and directly countered the fear and uncertainty generated by misinformation circulating online. It created a virtuous cycle of positive reinforcement within social networks, where each vaccination made the next one seem safer and more socially acceptable.

## **DISCUSSION**

### **4.1. Summary of Principal Findings**

This systematic review has synthesised a wide body of

evidence on the barriers and facilitators to COVID-19 booster vaccine uptake among ethnic minority populations in the UK. The findings reveal a complex and dynamic interplay of factors that shape decision-making at the individual, community, and systemic levels. The principal barriers identified are not reducible to simple matters of individual "hesitancy," but are shown to be deeply embedded in broader social, political, and historical contexts. They included an enduring and historically-rooted mistrust in official institutions; the damaging and pervasive impact of culturally specific misinformation; cumulative concerns about the safety and necessity of repeated vaccination, coupled with a general pandemic fatigue; significant and often overlooked structural barriers to access; and a lowered perception of personal risk in a changing pandemic landscape. Conversely, the key facilitators that emerged consistently across studies revolved around the core principles of trust, accessibility, and community-led action. These included the proactive engagement of trusted local messengers; the provision of tailored, transparent, and multi-channel communication; the implementation of hyper-local and convenient vaccination services that met people where they were; powerful motivations rooted in altruism and collective responsibility; and the reassuring effect of positive endorsements from healthcare professionals and social peers.

#### 4.2. Interpretation and Comparison with Existing Literature

The findings of this review both align with and significantly extend the existing literature on primary COVID-19 vaccine uptake. Many of the core themes identified here—such as the corrosive effects of mistrust, the challenge of misinformation, and the importance of addressing access barriers—were also central to understanding the disparities in the initial two-dose rollout (Kamal et al., 2021a; Robertson et al., 2021; Razai et al., 2021). The deep-seated nature of mistrust, explicitly linked in the literature to personal and collective experiences of racism, confirms that vaccine uptake decisions are not made in a social or historical vacuum. They are profoundly shaped by the broader, often fraught, relationship between minority communities and the state, a point powerfully made by the work of Paul et al. (2022).

However, this review highlights important nuances specific to the booster decision. The concept of "vaccine fatigue" emerged as a more prominent factor in the context of boosters, suggesting that the cumulative psychological toll of a prolonged pandemic and the perceived endlessness of vaccination cycles can

diminish motivation even among those who were not initially hesitant about the primary course. Similarly, safety concerns appeared to become more cumulative. The focus shifted from the immediate side effects of a single vaccine to more abstract anxieties about the unknown long-term consequences of repeated doses of a novel vaccine technology. Furthermore, the calculus of risk perception appeared to shift significantly. While the initial vaccine decision was often made in a context of high uncertainty and perceived threat, the booster decision was frequently made against a backdrop of acquired immunity (from infection or primary vaccination) and a widespread perception of a "milder" dominant variant. This complex evolution of perceived risk altered the personal risk-benefit analysis for many individuals.

The facilitators identified also reinforce lessons from the initial rollout but underscore their continued, and perhaps heightened, importance. The critical role of trusted community and faith leaders, as advocated in early guidance from SAGE (2020) and argued for by Burgess et al. (2021), was shown to be just as, if not more, crucial for the booster campaign, which had to overcome this additional layer of fatigue and evolving risk perception. The documented success of hyper-local delivery models (Deal et al., 2021) demonstrates a clear and vital learning point: that bringing services to communities, rather than expecting communities to navigate complex and often alienating bureaucratic systems, is a cornerstone of equitable and effective healthcare delivery.

#### 4.3. Implications for UK Public Health Policy and Practice

The findings of this review have significant and actionable implications for current and future public health policy in the UK. It is unequivocally evident that a "one-size-fits-all," top-down approach to vaccination campaigns is not only insufficient but also counterproductive and inequitable. To address the disparities in booster uptake and to prepare more effectively for future public health challenges, a fundamental and sustained shift in strategy is required.

First, there must be a decisive move away from generic, universal messaging towards a model of co-production and genuine partnership with ethnic minority communities. This involves more than superficial consultation with community leaders; it requires empowering and adequately resourcing them to lead on the design and delivery of health interventions that are credible and resonant within their communities. This necessitates sustained, long-term investment in community-based health infrastructure and the "social



fabric" of public health, not just temporary, reactive funding during a crisis.

Second, a robust, proactive, and sophisticated strategy to systematically combat misinformation is essential. This cannot be a passive activity of "fact-checking" but must involve working with community networks, social scientists, and technology platforms to understand the socio-cultural dynamics of how misinformation spreads. It requires the rapid development and dissemination of tailored, credible, and engaging counter-narratives that are delivered through trusted channels, inoculating communities against harmful falsehoods. This strategy must also include a focus on building digital and health literacy as a long-term community asset.

Third, the review highlights the urgent and ongoing need to dismantle the structural barriers to healthcare access. For vaccination campaigns, this means ensuring booking systems are radically simple and available in multiple languages, providing flexible walk-in appointments as a default option, creatively addressing transport issues, and establishing clear, legally binding, and trusted firewalls between healthcare services and immigration enforcement to allay the potent fears among migrant populations (Knights et al., 2021). These are not just "vaccine" issues; they are fundamental healthcare access issues that the pandemic has thrown into sharp relief and which must be addressed systemically.

Finally, all public health communication must be built on a foundation of transparency, humility, and trust. As the work of Petersen et al. (2021) suggests, this involves being honest about scientific uncertainties and potential side effects. Acknowledging community concerns with respect, rather than dismissing them as irrational, is the first and most critical step towards rebuilding the trust that has been eroded over decades.

#### 4.4. Strengths and Limitations of the Review

This review has several notable strengths. To our knowledge, it is the first systematic review to focus specifically on the barriers and facilitators to COVID-19 booster uptake among ethnic minority groups in the UK, addressing a critical gap in the literature. Its comprehensive search strategy, which included extensive grey literature searching, and its strict adherence to PRISMA guidelines contribute to the robustness and transparency of the findings. The use of a validated tool for quality appraisal (MMAT) allowed for a formal assessment of the methodological quality of the included evidence. The use of thematic synthesis as an analytical method was a further strength, allowing for the meaningful integration of diverse

forms of evidence into a coherent and explanatory analytical framework.

However, the review is also subject to certain limitations that must be acknowledged. The included studies were heterogeneous in their specific methodologies and the populations they studied, which can make direct comparisons challenging. A key limitation is that, at the time the search was conducted, few studies had been designed to focus exclusively on booster doses. Therefore, some findings were necessarily extrapolated from studies that discussed boosters alongside primary doses or focused on vaccination intentions rather than actual behaviour. This reflects the emergent and fast-moving nature of the research field during the pandemic. Finally, like all systematic reviews, this work is susceptible to publication bias, where studies with statistically significant or "positive" results are more likely to be published than those with null or inconclusive findings. Our inclusion of grey literature and pre-prints was a deliberate attempt to mitigate this bias, but the risk cannot be entirely eliminated.

## CONCLUSION

### 5.1. Concluding Summary

Improving COVID-19 booster uptake in the UK's ethnic minority communities is not a simple challenge of tackling individual "hesitancy." It is a complex, multi-layered issue that demands a multi-level, sustained, and equity-focused response. The decision to accept or decline a booster vaccine is shaped by a powerful legacy of institutional mistrust, a deluge of targeted misinformation, evolving and cumulative safety concerns, and formidable structural barriers that impede access to care. This review demonstrates conclusively that overcoming these deeply entrenched barriers requires a paradigm shift away from generic, top-down public health campaigns. The path to equity lies in fostering genuine, long-term partnerships with communities; empowering trusted local voices to design and lead interventions; delivering health services in a way that is radically accessible and convenient; and communicating with a level of transparency and humility that can begin to rebuild trust. These are not short-term fixes for a single pandemic but long-term investments in building a more resilient, responsive, and equitable public health system for all.

### 5.2. Future Research Directions

While this review provides a comprehensive overview of the existing evidence, it also highlights critical areas

where further research is urgently needed. There is a pressing need for more intervention-based research to formally evaluate the effectiveness and cost-effectiveness of different community-led models for promoting vaccine uptake, moving from observational data to trial evidence. Longitudinal cohort studies are required to track how attitudes towards vaccination and trust in health systems evolve over time and in response to new variants or future public health crises. Finally, and crucially, more research employing an intersectional lens is needed. Such research must explore how ethnicity interacts with other key social determinants of health—such as socioeconomic status, gender, disability, occupation, and migration status—to create unique and compounded experiences of vulnerability and access. This research will be vital for developing the increasingly nuanced and effective public health strategies required to address health inequalities in the future.

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