

Barriers to immunization among newcomers: A systematic review

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ABSTRACT

Introduction: Currently, there is a lack of comprehensive evidence exploring vaccine decision-making among newcomers. We conducted a systematic review of qualitative studies aimed at identifying factors that influence newcomers' decision-making with regards to vaccination.

Methods: We conducted a search of MEDLINE, EMBASE, CINAHL and Cochrane Central. To be included, studies needed to employ a qualitative methodology and address newcomer attitudes, beliefs, and/or perceptions regarding vaccination. Two independent reviewers screened the articles for relevant information and applied a content analysis methodology to code the identified barriers.

Results: Twenty-one studies were included in this review, and four types of barriers were identified: cultural factors, knowledge barriers, insufficient access to healthcare, and vaccine hesitancy. Insufficient knowledge about vaccination and the virus being prevented and concerns about safety were the most commonly reported barriers. A sub-analysis of barriers specific to HPV indicated that cultural beliefs about sexuality and incomplete knowledge about the role of HPV in the development of cervical cancer are major barriers to vaccine uptake.

Conclusion: Strategies to improve vaccination uptake in newcomers should consider focusing on the barriers identified in this review while taking into account the unique opportunities for promoting uptake within newcomer populations.

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1. Introduction

Rates of international migration have been on the rise around the world for the last several years, with the number of international migrants nearly doubling between 2000 and 2015 [1]. These newcomers primarily comprise either immigrants – individuals choosing to settle in a country other than the one in which they were born – or refugees, defined by the United Nations Refugee Agency as “someone who has been forced to flee his or her country because of persecution, war, or violence” [2]. However, newcomers also include migrant workers and students, as well as trafficked and undocumented migrants who would not be captured in official

statistics. On their arrival in a new country, newcomers often experience difficulty accessing primary and specialized healthcare [3]. These issues can stem from a lack of familiarity with the healthcare system, language barriers, and an absence of culturally-appropriate care [3,4]. One particular area in which preventive healthcare is frequently lacking is with regards to immunization.

While many studies have documented the disparities in immunization coverage among newcomers compared to the general population [5], few qualitative studies have been conducted to explore the reasons behind these disparities. Previous research among various ethnic groups in Canada has indicated that newcomers may be more likely to accept vaccination than non-newcomers [6], suggesting that more effective engagement may help to increase vaccine uptake within newcomer populations. We conducted a systematic review of qualitative studies aimed at identifying factors that influence newcomers' decision-making with regards to vaccination.

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2. Methods

The primary objective of this review was to identify and synthesize qualitative studies examining newcomers' beliefs, attitudes and perceptions with regards to immunization.

Our systematic review was guided by the PRISMA statement checklist [7] and the results of the review were synthesized according to the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) statement [8]. The ENTREQ statement facilitates the reporting and synthesis of qualitative research through a 21-item checklist. We employed inductive content analysis techniques [9], developing a coding framework iteratively so that the codes would be guided by the data rather than developed *ad hoc*.

2.1. Inclusion/Exclusion criteria

In consultation with a medical librarian, we conducted a comprehensive search of peer-reviewed literature. Studies were included if they employed a qualitative methodology and addressed newcomer attitudes, beliefs, and/or perceptions regarding vaccination. Studies were excluded if they addressed differences in coverage without assessing potential reasons for these discrepancies with newcomers directly. Studies that included the perspectives of both newcomers and people born in the country in which the study was conducted were excluded if the reviewers could not distinguish newcomers' narratives from those of non-newcomers. Case reports with a sample size of <2, presentations, and conference abstracts were also excluded. No language, publication date, or study design restrictions were applied.

2.2. Data sources

We searched four databases: MEDLINE, EMBASE, CINAHL and Cochrane Central. The last search was conducted in May 2017.

2.3. Search strategy

The search strategy was designed by a medical librarian using a combination of MeSH terms and keywords. The search strategy is presented in Table 1.

2.4. Screening process

We obtained the titles and abstracts of all studies resulting from the search conducted by the medical librarian. Titles, abstracts, and full text-articles were independently screened by two independent reviewers (LW and TRA) using DistillerSR (Evidence Partners, Ottawa, Canada). Titles were screened for perceived relevance. Abstracts were included for full-text review if they appeared to meet all inclusion criteria and none of the exclusion criteria. Study titles and abstracts needed only to be deemed potentially relevant by one reviewer in order to move on to the full-text screening stage. No disagreements arose at the final inclusion stage that necessitated a third reviewer.

2.5. Data abstraction

Using DistillerSR, study characteristics were entered into a data abstraction form. Data entries were reviewed for major disagreements and disputes were resolved by consensus.

2.6. Analytical approach

We used a content analysis approach in this review [9]. Codes were developed inductively and added as new themes emerged.

Table 1
Database search strategy.

No.	Keyword/MeSH term
1	Immunization/or immunization schedule/or immunization, secondary/
2	(immunization* or immunization*).tw,kw.
3	Vaccination/or mass vaccination/
4	(vaccination* or vaccine*).tw,kw.
5	or/1–4
6	Health Knowledge, Attitudes, Practice/
7	Attitude/
8	Perception/
9	(attitude* or belief or beliefs or knowledge or percept*).tw,kw.
10	Decision making/ or choice behavior/
11	Attitude to Health/
12	Intention/or intention*.tw,kw.
13	Communication Barriers/
14	(barrier* or facilitat*).tw,kw.
15	"Patient Acceptance of Health Care"/
16	(acceptance or acceptability or rejection or willingness).tw,kw.
17	or/6–16
18	5 and 17
19	Refugees/
20	(refugee* or migrant* or asylum seek*).tw,kw.
21	"Emigrants and Immigrants"/
22	Immigrant*.tw,kw.
23	"Transients and Migrants"/
24	19 or 20 or 21 or 22 or 23
25	18 and 24

Bold font indicates combined search terms.

An additional review of the studies was then conducted to determine which themes appeared in each study.

2.7. Study appraisal

We assessed study quality by employing the Critical Appraisal Skills Programme Qualitative Checklist [10]. This tool provides researchers with 10 questions and a number of prompts to critically appraise the studies' methodologies through two screening questions and eight additional appraisal questions. All of the studies met both of the screening questions: "Was there a clear statement of the aims of the research?" and "Is a qualitative methodology appropriate?". Consistent with the methodology of this tool, no attempt was made to provide an appraisal score to the studies.

3. Results

3.1. Study selection

Our literature search yielded 415 titles from four databases. Of these, 241 were included for abstract screening and 36 of these underwent full-text review. Of these 36 studies, 22 met the inclusion criteria and were included in our final review. Reviewer agreement was high for both abstract inclusion ($k = 0.89$) and full-text inclusion ($k = 0.97$). One study was excluded at the data abstraction phase due to issues of readability upon its translation [11]. This left 21 studies for analysis. A flowchart illustrating reasons for and stage of exclusion is presented in Fig. 1.

3.2. Study characteristics

Study characteristics are summarized in Table 2. Ten studies used semi-structured interviews (range: 10–55 participants, median: 23), 10 studies used focus groups (range: 12–90 participants, median: 28), and one study used both interviews and focus groups. The majority of studies (13/21) only included women (predominantly mothers). Studies addressed vaccine knowledge, attitudes, and beliefs (KAB) regarding vaccination for oneself (10/21) and

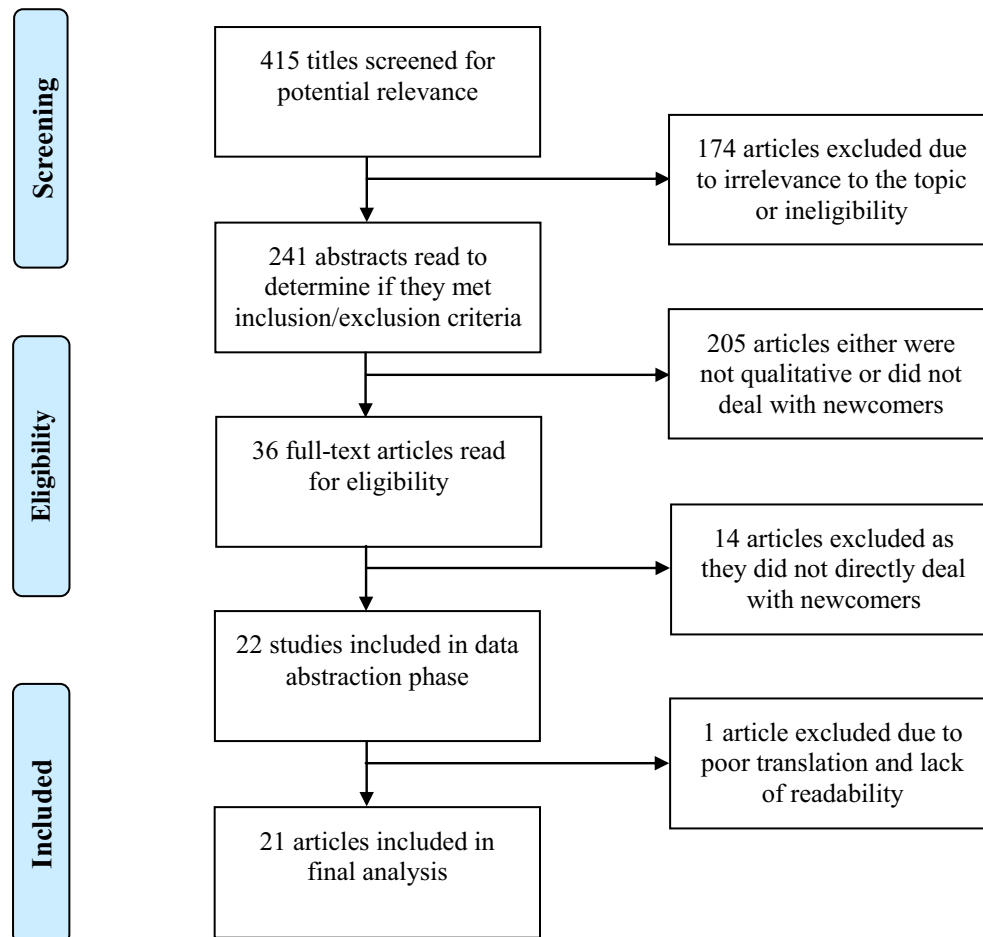


Fig. 1. Flow diagram of study inclusion.

one's children (11/21). All but one study [12] described participants as immigrants, while the remaining study included refugees.

The majority of studies (14/21) were conducted in the United States. The remaining studies were conducted in Canada, the Netherlands, Sweden, Hong Kong, England, Scotland, and Australia. Study dates ranged from 1999 to 2013. The largest numbers of study participants were from Haiti, China, Somalia, Korea, and Mexico. Participants were recruited from a variety of locations, including local community agencies, medical centres, and schools (data not shown). More than half of included studies (11/21) focused on HPV vaccination.

Nearly all studies examined in this review (20/21) explicitly reported receiving ethical approval for their research from an institutional review board. Fewer studies reported obtaining consent from participants (15/21).

3.3. Barriers to vaccination

Four categories of barriers to vaccination were identified: cultural norms; knowledge gaps; insufficient access to healthcare; and anti-vaccination beliefs. Table 3 illustrates which studies contained each theme and the number of times each theme appeared overall.

3.4. Cultural norms

Cultural norm barriers were those that stemmed from perceptions that vaccination or elements of vaccination were in conflict

with one's cultural beliefs or practices. Many of the themes in this category were specific to vaccines related to sexual health, especially HPV vaccination. In nine of the 21 studies [13–21], discussion of sexual health was described as a cultural taboo, particularly if participants considered their children to be too young to be sexually active, as occurred in six studies [14,15,17–19,21]. Participants were reluctant to discuss sexual health with their children due to concerns about encouraging sexual promiscuity: "Since my daughter doesn't know about this [HPV vaccine] much, I am afraid that she might think that I give her permission to have it [sex] by even talking about the vaccine" [16].

Social norms were important factors in many studies. In two studies [15,22], gender roles influenced vaccine decision-making, with participants in one study reporting that women's health was not valued as highly as that of men [15]. In the other, participants noted that men generally avoid seeking healthcare for all but the most serious concerns, so preventive medicine such as vaccination was generally not viewed as a priority [22]. In seven studies [13,16,18,23–26], participants who were feeling uncertain about a vaccine often consulted trusted friends or family members for advice. While peers could positively influence one's decision to vaccinate, having peers who did not vaccinate or had negative attitudes toward vaccination was often associated with opting not to vaccinate one's own children either: "I have a very close friend, and her mother is a doctor, and her dad also, and I eventually phoned her because for me it is so difficult. I really don't know what I should do, she then phoned her mum and advised me. Well we decided.. she decided that I should not take this vaccine" [24].

Table 2
Summary of study characteristics included in the final review.

Reference	Study Setting	Sample			Ethics		Vaccines Considered	Vaccination for Self or Children	Qualitative Method Used
		Number	Gender	Countr(ies) of Origin	Approval received	Informed consent given			
Aragones et al. [27]	USA	36	Female, Male	Latin America	Yes	Not reported	HPV	Children	Focus Groups
Brooke and Omeri [40]	Australia	22 ^a	Female, Male	Lebanon	Unclear	Yes	Childhood vaccines	Children	Interviews
Burke et al. [12]	USA	25	Female	Cambodia	Yes	Yes	HPV	Children	Interviews
Cassady et al. [22]	USA	90 ^a	Female, Male	Mexico, Guatemala, Argentina	Yes	Not reported	H1N1 influenza	Self	Focus Groups
Chen et al. [28]	USA and Canada	40	Female, Male	Mainland China, Hong Kong, Taiwan	Yes	Not reported	Hepatitis B	Self	Interviews
Dailey and Krieger [14]	USA	20	Female	Somalia	Yes	Not reported	HPV	Children	Interviews
Grandahl et al. [15]	Sweden	50	Female	Countries in the Middle East, Africa, Asia, and East Europe	Yes	Yes	HPV	Self	Focus Groups
Harmsen et al. [29]	The Netherlands	33 ^a	Female	Turkey, Morocco	Yes	Yes	Childhood vaccines	Children	Focus Groups
Kim et al. [16]	USA	26	Female	Korea	Yes	Yes	HPV	Self	Focus Groups
Kobetz et al. [17]	USA	41	Female	Haiti	Yes	Yes	HPV	Self	Focus Groups
Kowal et al. [30]	Canada	23	Female	India, Pakistan, China, Bhutan	Yes	Not reported	Vaccines during childhood, pregnancy, and influenza	Children	Interviews
Lee & Lee [18]	USA	16	Female	Korea	Yes	Yes	HPV	Self	Focus Groups
Lee et al. [13]	USA	27	Female, Male	Thailand	Yes	Yes	Hypothetical HIV vaccine	Self	Focus Groups
Leonard and Van Landingham [31]	USA	~30 (total number not reported)	Female, Male	Nigeria	Unclear	Not reported	Typhoid, Hepatitis A	Self	Focus Groups and Interviews
Luque et al. [19]	USA	12	Female, Male	Mexico and Honduras	Yes	Yes	HPV	Children	Focus Groups
Pierre-Joseph et al. [20]	USA	55 ^a	Female, Male	Haiti	Yes	Not reported	HPV	Children	Interviews
Scarinci et al. [23]	USA	55 ^a	Female	Central/South America (breakdown not reported)	Yes	Yes	HPV	Self	Focus Groups
Sim et al. [24]	Scotland	10 ^a	Female	Poland	Yes	Yes	H1N1 influenza	Self	Interviews
Stephens and Thomas [21]	USA	31	Female	Haiti	Yes	Yes	HPV	Children	Interviews
Tomlinson and Redwood [25]	England	23	Female	Somalia	Yes	Yes	Childhood vaccines	Children	Interviews
Wang et al. [26]	Hong Kong	23	Female	Mainland China	Yes	Yes	Childhood and adolescent vaccines	Children	Interviews

^a Participants included both newcomers and non-newcomers, results reported only from participants known to be newcomers.

Table 3
Emergent themes by study.

	HPV-Specific Studies											Non-HPV Vaccine Studies										No. Times Theme Appeared	
	Reference	Aragones et al. [27]	Burke et al. [12]	Dailey et al. [14]	Grandahl et al. [15]	Kim et al. [16]	Kobetz et al. [17]	Lee & Lee [18]	Luque et al. [19]	Pierre-Joseph et al. [20]	Scarinci et al. [23]	Stephens et al. [21]	Brooke and Omeri [40]	Cassady et al. [22]	Chen et al. [28]	Harmsen et al. [29]	Kowal et al. [30]	Lee et al. [13]	Leonard & VanLandingham [31]	Sim et al. [24]	Tomlinson et al. [25]		Wang et al. [26]
Themes																							
Cultural Norms	Conflation of vaccination and sexual activity/promiscuity			X	X	X	X	X	X	X	X							X					9
	Lack of discussion of sexuality, cultural taboos, belief that child is too young to discuss sexuality			X	X			X	X			X											6
	Peer influence from non-vaccinating peers/family members					X		X		X								X		X	X	X	7
	Gender roles: women's health not valued or men less likely to use healthcare system				X									X									2
Knowledge Gaps	Lack of knowledge about virus being prevented/role in other health problems	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X		X	X	18
	Lack of awareness of vaccine's existence	X				X		X	X		X			X					X			X	8
Insufficient access to Healthcare	Language barriers		X		X			X	X						X	X			X	X			8
	Lack of clinician recommendation/discussion	X	X	X				X		X		X			X	X		X				X	9
	Cost (financial/time) of seeking healthcare/vaccination					X			X	X								X	X			X	6
Vaccine Hesitancy	Healthcare inaccessibility (including culturally appropriate healthcare)				X			X	X				X		X		X			X	X	X	8
	Belief in low risk of infection						X						X	X				X	X	X	X		7
	Concern about side effects, safety			X	X	X	X	X	X		X		X	X	X			X		X	X	X	14
	Belief that vaccine is unnecessary, optional			X									X									X	3
	Perceived low effectiveness of vaccines			X	X		X													X		X	5
Vaccine Hesitancy	Mistrust of provider/government/ vaccines (including recommendation)								X		X		X					X		X		X	6
	Concern about newness of vaccine		X				X						X		X			X		X		X	7

Bold font indicates combined search terms.

3.5. Knowledge gaps

Knowledge gaps were common reasons underlying decisions not to vaccinate, with participants in 18 of the 21 studies [12,14–23,25–31] reporting a lack of knowledge regarding the viruses being prevented and the vaccines themselves. Participants in eight studies [16,18,19,21,26–28,31] reported a lack of awareness that the vaccine existed. Even participants who had obtained the vaccine for themselves or their children often did not know what the vaccine did or why they had been vaccinated. Several participants stated that the only reason they knew of certain vaccines was due to their participation in the research study: “*Very strange. I am hearing this for the first time and that the doctor doesn’t talk about this. . . they [don’t] inform you about this. . . If I didn’t come to [this] meeting, I wouldn’t have known*” [27].

3.6. Insufficient access to Healthcare/Services

Access barriers comprised challenges with obtaining care, both generally and with regards to vaccination. At the patient level, participants in eight studies [12,15,18,19,24,25,29,30] reported that language barriers prevented them from fully understanding the information they were being given either by a provider or through information materials.

At the provider level, a barrier reported in nine of the studies [12,14,18,21,26,27,29–31] was simply not being offered the vaccine. Many participants indicated that if their provider had recommended the vaccine, they would have accepted it, but as it had not been recommended, they did not believe it was necessary, or may not have been aware of it in order to ask for themselves. For others, the vaccine may have been recommended, but because it was not explained to them, they did not feel comfortable accepting it. Participants across several studies reported a high level of trust in their healthcare provider, so recommendations were taken very seriously: “*If I have the recommendation from a doctor, I would take it and if there is none, I won’t*” [30].

Finally, at the healthcare system level, participants in eight studies [15,18,19,22,25,26,30,31] were unfamiliar with how to navigate the healthcare system in a new country, noting that they did not know how to make an appointment with a doctor or where to go for culturally-appropriate care (e.g., female newcomers seeking care at clinics with female healthcare providers). Among those who knew how to access care, in six studies [13,16,19,23,26,31], the cost of seeking healthcare was often prohibitively high: “*If you have 2 to 3 children, if one vaccine costs two to three hundred dollars, the total expense will be a lot. If each extra vaccine costs a few hundred dollars, it will be a big burden for family life*” [26].

3.7. Vaccine hesitancy

The final category of barriers refers to beliefs and attitudes toward vaccination based in vaccine hesitancy or outright anti-vaccine sentiment. These negative KAB stemmed from a number of concerns. In five studies, participants expressed concerns about the effectiveness of vaccines (5/21 studies) [14,15,17,24,26]. Participants in six studies [19,21,22,24,26,31] viewed a provider’s vaccine recommendation with skepticism or mistrust, feeling that it was a form of “marketing” [26]. Vaccines were also viewed as being unnecessary in three studies [14,22,26], particularly if the participant felt that the virus against which they or their children were being vaccinated was rare or not particularly serious, as occurred in seven studies [13,18,22,24,25,28,31]. Participants in 14 studies [13–19,22–26,28,29] expressed concerns about side effects and the safety of vaccines, particularly in the case of the HPV vaccine, which participants in seven studies reported feeling uncertain about due to the fact that the vaccine was “too new”

[12,17]: “*I think there is no substantive evidence for the HPV vaccine. I had a chance to talk about the vaccine with my friend who is studying in a vaccine-related area. He did not have any idea about the HPV vaccine. Also, I heard that it is a kind of clinical experiment*” [18].

3.8. HPV Sub-Analysis

The themes summarized in Table 3 have been grouped according to their focus on HPV or another vaccine. As demonstrated in the table, several themes were more common in studies of HPV than in other studies. In particular, cultural beliefs about sexuality as barriers to vaccination were almost exclusive to studies of HPV. Furthermore, incomplete understanding of the virus and its role in the development of other health problems, such as cervical cancer, was a theme that appeared in all 11 of the HPV-specific studies, indicating knowledge gaps in this area.

4. Discussion

The results of this systematic review reveal numerous barriers that impede newcomers’ uptake of vaccination on arrival in a new country. Many of the barriers stem from a lack of information about immunization. Lack of knowledge about a vaccine or disease was the most commonly reported barrier across all of the studies, with participants noting that they could not request a vaccine of which they were unaware. However, many of the barriers that were not explicitly due to knowledge gaps also stemmed from misconceptions and misunderstandings about immunization. Concerns about side effects, safety, and low effectiveness were all noted, suggesting a need for increased opportunities for learning about vaccination, a conclusion also reached by the authors of several of the studies we examined [15–17,27].

Several barriers described in the index studies were not unique to newcomers and indeed frequently appear in studies of vaccine decision-making and vaccine hesitancy. Previous systematic reviews exploring parental attitudes toward childhood vaccination have outlined similar beliefs, including concerns about side effects, skepticism toward vaccine safety, and belief in conspiracy theories [32–35]. Knowledge barriers have also been reported among non-newcomer populations, with participants reporting a lack of knowledge of vaccine schedules and how to get vaccinated [32,36], mirroring the knowledge gaps identified by participants in this review. Quantitative studies amongst newcomers and the general population corroborate these qualitative findings; survey data from knowledge questionnaires indicate that participants’ understanding of various diseases tends to be low [37,38], potentially contributing to lower levels of vaccine uptake. Conversely, several studies have demonstrated that greater exposure to information about vaccination contributes to more positive vaccine KAB [16,19,21,23,26,31].

However, the cultural norms outlined are unique concerns applicable to newcomer populations when compared to previous studies of the general population. As with religious beliefs [39], cultural factors play an important role in one’s decision to vaccinate. Cultural sensitivities regarding sexual health and the importance of peer influence in vaccine decision-making are factors that will need to be taken into consideration when developing vaccine campaigns among newcomers. It is important to note that our review included a large number of studies about HPV vaccination, emphasizing cultural barriers to vaccination that may be less prominent regarding vaccination more generally, and were indeed less common in studies of other vaccines (Table 3). In particular, while we have noted that participants with peers who opposed vaccination were more likely to opt not to vaccinate either, the

inverse is also true, as peers who do vaccinate were likely to influence others to do the same [16,18,23–26,29,40]. Several studies have also indicated that perceiving that vaccination aligns with religious beliefs about protecting one's health is associated with increased vaccine uptake [25,29,31,40]. Acknowledging the role of social norms in vaccine decision-making can help healthcare providers to offer culturally-appropriate care and vaccine information that may promote uptake. Engaging with newcomer communities and leaders in order to better understand their concerns may be beneficial in helping to alleviate these worries and promoting vaccination in ways that are accessible and acceptable to newcomers [41].

Our review has important implications for policy and practice. In brief, the 21 studies included in this systematic review revealed a need for culturally-appropriate health services for newcomers from a variety of backgrounds in order to promote meaningful engagement with newcomers in vaccination programming. Healthcare providers should ensure that they are equipped with the knowledge they need to alleviate newcomers' concerns. Numerous studies have indicated that understanding a vaccine and having confidence in its health benefits are major contributors to vaccine uptake among newcomers [14,16,18,27,31].

Educational materials about vaccines should be provided in a variety of languages and literacy levels [18], in culturally-appropriate contexts, and should explain both the purpose and value of vaccination while alleviating concerns about effectiveness and safety. School entry offers an opportunity to engage with parents about the importance of vaccination. There is also potential for leveraging new technologies to facilitate such knowledge sharing in accessible ways [32,42], such as through mobile vaccine tracking applications [43], which can provide electronic vaccination reminders and information offered in a variety of languages [42,44,45]. When a physician offers a vaccine for the first time, care should be taken to ensure that adequate time is spent assuring comprehension and alleviating concerns about safety or effectiveness [14,18]. Physicians were identified as trusted sources of information for participants in many studies [14,20], and taking the time to recommend a vaccine can be very valuable in promoting vaccine uptake [12,22,27,40]. Healthcare providers should utilize this influence to equip patients with the knowledge they need to make informed choices and ease many of the concerns identified in this review. Future studies should examine facilitators to vaccination among newcomers in order to identify other unique opportunities to promote uptake among newcomers that may not exist among non-newcomer groups.

Table 3 demonstrates that studies about HPV vaccination were often distinct from studies about other vaccines. HPV may need to be considered differently from other vaccines when developing vaccination campaigns. Specifically, the results of our sub-analysis on HPV vaccine uptake demonstrated a particular lack of complete knowledge about HPV and vaccination that suggests a need for more comprehensive sex education programming and information for parents and children. Accurate information about HPV [12,18,25] and how the vaccine works [14,16,19,27] are documented facilitators of vaccine uptake that can be promoted through education.

Overcoming vaccine hesitancy is more difficult. These beliefs are often deeply entrenched and can be resistant to change [46–48]. As described, ensuring that healthcare providers are respectful of and spend time addressing patient concerns may be beneficial, but may require more effort in order to be effective. First-time mothers may be particularly hesitant about vaccination, but are also more likely to be undecided about whether or not to vaccinate their children [49], suggesting that interventions targeted toward this population may be more effective than interventions for individuals who already have established anti-vaccine attitudes.

This review has important strengths and limitations. Our focus on qualitative studies permitted a richer exploration of newcomers' vaccine decision-making from the perspective of newcomers themselves compared to quantitative assessments. The use of two reviewers to select final studies and interpret the themes helped to strengthen our conclusions, as reviewers had to reach consensus about each theme's presence in a study and its meaning.

The limitations of our study stem from challenges in synthesizing qualitative research. Despite collaborating with a medical librarian, it is possible that some studies may have been missed if they were not held within the databases searched. Furthermore, the results of the studies included in our review are already likely to be condensed. Other barriers may have been identified but not reported if the investigators did not feel that they were significant findings. Additionally, because our search terms were in English, studies conducted in other languages are unlikely to have been captured. The newcomers represented in the index studies are also unlikely to be representative of newcomer populations broadly. Individuals who were willing to share their perspectives about vaccination may have felt more favourably toward vaccination in general or have had different experiences from newcomers who were unwilling to participate. Additionally, studies almost exclusively included immigrants, with only one study focusing on refugees, and none reporting work with undocumented migrants. The studies also failed to capture the experiences of individuals who migrated to low- or middle-income countries, as nearly all of the index studies were conducted in high-income settings. Lastly, it is difficult to determine which themes were unique to newcomers or specific sub-groups due to the lack of control group in most of the index studies. Future studies should seek to elucidate these distinctions.

5. Conclusion

Newcomers often face unique health challenges. Alleviating the barriers to vaccination identified in this systematic review represents an important step toward addressing this disparity.

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Conflict of interest

None.

Author Contributions

All authors attest that they meet the ICMJE criteria for authorship.

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