

# Exploring the Negative Perceptions Influencing the Refusal of Flu Vaccination in the Older Adult Aged Greater than 60 Years Old: A Qualitative Systematic Review

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## Abstract

**Aim:** To review and investigate the negative perceptions influencing the refusal of flu vaccination in the older adult population age older than 60-year-old. **Methods:** This literature review focus on the qualitative studies or qualitative data from the mix-design research. A structural search of databases was performed for qualitative studies or mix-design research containing qualitative methods which were published in English between 2011 and 2021. There are eight studies selected in total, including 6 pure qualitative studies and 2 mixed-design studies with qualitative research methods. Only the qualitative data would be analyzed during this literature review. **Results:** Five descriptive themes emerged: “Insufficient promotion for influenza vaccination by health-care professionals”, “Anti-vaccination influence”, “Insufficient local policies for encouraging influenza vaccination in elders”, “The negative personal experience of influenza vaccination” and “The negative perception of influenza vaccination from social network”. And one analytical theme was developed: “The cultural influence of influenza vaccination”. “Anti-vaccination influence” was the most significant theme out of the others, as this theme contained the greatest number of correlations to the other themes. **Discussion:** The six themes synthesized from the reviewed studies have correlations between them. The theme of anti-vaccine influence was the most significant theme with the evidence of the greatest number of correlations with the other theme. Both intrinsic and extrinsic factors strengthen the effect of anti-vaccine perception in older adults, leading to refusal of influenza vaccination in older people population. **Conclusion:** The government should design new strategies for promoting influenza vaccination among older adults and acknowl-

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edge their needs culturally and financially. The cooperation of alternative medicine and mainstream western medicine maybe help for promoting influenza vaccination among older adults who adopted alternative medicine. Moreover, healthcare professionals also play a vital role in improving the influenza vaccination ratio in older adults as older adults are likely to follow the vaccination advice from healthcare professionals.

## Keywords

Perceptions, Flu, Vaccine, Elder, Refuse

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## 1. Introduction

Every year three to five million people develop severe illnesses, and over twenty-nine thousand people die from influenza [1]. The influenza pandemic has put a large burden on the national healthcare systems in developing countries. For example, in the 2002 influenza outbreaks in Madagascar, almost 2.5% cases of deaths were noted, causing a large healthcare burden in Madagascar [2]. However, it has been estimated that influenza-associated morbidity and mortality in older people can be reduced by 60% and 70% to 80% respectively after vaccination [3]. The prophylactic efficacy of influenza vaccination was recognized internationally, as regular vaccination for high-risk groups including older people was recommended by The World Health Organization [4].

Yet less than half of the total population in age greater than 65 has been vaccinated in Hong Kong, Japan, Finland, and Luxembourg; Less than 10% of Turk elders were vaccinated [5] [6]. It indicated that many older people globally were at risk of death or complications related to influenza. This situation makes investigating older people's perceptions toward influenza vaccination become important nowadays, as the data can contribute to developing strategies for improving influenza vaccine uptake [7]. However, cultural differences can affect each perception of a certain lifestyle or willingness toward an event [8]. A lack of consensus on the perceptions of refusing influenza vaccination in older people is revealed in the literature. Reviewing older people's perceptions of refusing flu shots would be an essential step to improving the situation of a low vaccination ratio.

This thematic synthesis aimed to review and investigate the negative perceptions influencing the refusal of flu vaccination in the older adult population. The review was limited to qualitative research only because the intention was to review individual cultural and interpersonal dimensions of negative perceptions towards refusal of flu vaccination. The result may be important for the government to set up public health policies to improve influenza vaccination in older people. Therefore, there is a need for further in-depth research into exploring negative perceptions towards refusal of flu vaccination.

The structure of this literature review started with an introduction and back-

ground of this literature review. The content of research methods, research results with critical appraisal, and discussion will be included afterward. All content will be referenced using Harvard protocol. Last but not the least, the data summary sheet of selected papers for this literature review also will be included.

## 2. Methods

The research question was formulated based on PICoS frameworks, which represent Population, Phenomenon of Interest, Context, and Study design respectively [9]. PICoS frameworks were strongly relevant for this literature review and identified below:

**Population (P):** Older adult population;

**The phenomenon of interest (I):** The negative perceptions;

**Context (Co):** The refusal of flu vaccination;

**Study design (S):** Qualitative.

The research question drawn from the PICoS frameworks goes to “What are the negative perceptions influencing the refusal of flu vaccination in the older adult population?”

The literature review was adopted as the research method for this study, to explore the negative perceptions influencing the refusal of flu vaccination in the older adult population. The literature review can subside the likelihood that misleading studies will dominate readers’ attention, to prevent some lower-level evidence from taking center stage [10] [11].

Besides, context stripping was a well-known risk for an individual qualitative study, particularly during summarizing the data [10] [12] [13] [14] [15] [16]. The research method of the literature review was recognized as a necessary and useful work for its function of making individual study can be seen in the context of others [17]. In other words, the characteristics of the literature review can contribute to synthesis and generate the potential cultural difference, and perception changes of refusal of flu vaccination compared with the past, from the research around the world.

## 3. Search Strategy

The selected electronic databases will be used to retrieve associated journals published between 2011 and 2021. Using electronic databases is beneficial to select updated journals and avoid outdated journals [18]. The systematic data searches will be conducted via CINAHL, PubMed, and PsycINFO.

CINAHL is a most massive source of full text for nursing and healthcare papers and provides full text for over 1300 papers. It also provides indexing for over 4000 papers [19]. It is favorable to use CINAHL to search the qualitative paper which explores the perceptions of flu vaccination as it is the greatest healthcare database in the world [20].

PubMed consists of more than 26 million citations for biomedical papers from MEDLINE, life-science papers, and eBooks [21]. PubMed citations and abstracts

comprise the domains of biomedical and health science.

PsycINFO comprises comprehensive indexing and abstracts of international psychological papers [22] [23]. Exploring one's perception is a psychological aspect of an investigation, which makes PsycINFO suitable for this study.

The same set of keywords and synonyms will be used for searching the literature under Boolean Operator in the selected electronic databases. The details will show in below (Table 1).

#### 4. Inclusion and Exclusion Criteria

After the removal of the duplicated literature, the titles and abstracts will be screened based on the review question. As well as against the inclusion and exclusion criteria to make sure that all included pieces of literature were highly relevant to the review question. The inclusion and exclusion criteria were identified (Table 2).

**Table 1.** Search terms using boolean operator.

Keywords & Synonyms	Keywords & Synonym	Keywords & Synonym	Keywords & Synonym
flu vaccin*	perception*		refus*
OR	OR	Older people*	OR
influenza vaccin*	perspective*	OR	uptake
OR	OR	elder*	OR
flu immuniz*	view*	OR	decision
OR	OR	elderly	AND
flu immunis*	opinion*	OR	decid*
OR	OR	retired	OR
influenza immuniz*	attitude*	OR	choice*
OR	OR	older adults*	OR
influenza immunis*	feel*		choos*

**Table 2.** Inclusion and exclusion criteria.

Inclusion and Exclusion Criteria		
Parameters	Inclusion criteria	Exclusion criteria
<b>Population</b>	Older adults aged or greater than 60 years old	People who aged less than 60 years old
<b>Phenomenon</b>	Studies related to perceptions/attitude/opinion/feel of flu vaccination	Studies related to knowledge/statistic of flu vaccination
<b>Methodology</b>	Qualitative studies/Mixed methods with qualitative methods	Quantitative studies
<b>Language</b>	Published in English	Non-English papers without a professional interpretation
<b>The geographical location of research</b>	Worldwide	Not applicable
<b>Publication date</b>	Between 2011 and 2021	Before 2011
<b>Types of research</b>	Primary studies	Book review, opinion essay, review essay, and so on

## 5. Critical Appraisal Strategy

### 5.1. Purpose of Critical Appraisal

Critical appraisal is the process of systematic evaluation of published studies, in which to assess their trustworthiness and value in studies [24] to judge the quality of evidence in each study and make the weighing of evidence. The inclusion of poor-quality literature in the review may mislead and make a negative impact on the results [25] [26]. An effective critical appraisal can guarantee the transparency of studies, and the rigor of the research inclusion process, as well as set up a conception of the general quality of the relevant research [27] [28]. After the critical appraisal, the strengths and weaknesses of the study will be identified [28] [30], and hence decide the weight each research ought to play in the consecutive analysis. Studies with poor quality or poor design will be excluded from the literature review, to avoid bias during literature synthesis and obtain reliable results [24].

Ensuring evidence-based practice in the healthcare profession, a critical appraisal provides a platform for the healthcare professional to criticize clinical practice and scientific research and to contribute the most trustworthy, effective, and applicable evidence on the clinical practice of each healthcare professional [29]. In other words, healthcare professionals with critical appraisal ability may lead them to implement and safeguard quality healthcare through evidence-based clinical practice [11] [30].

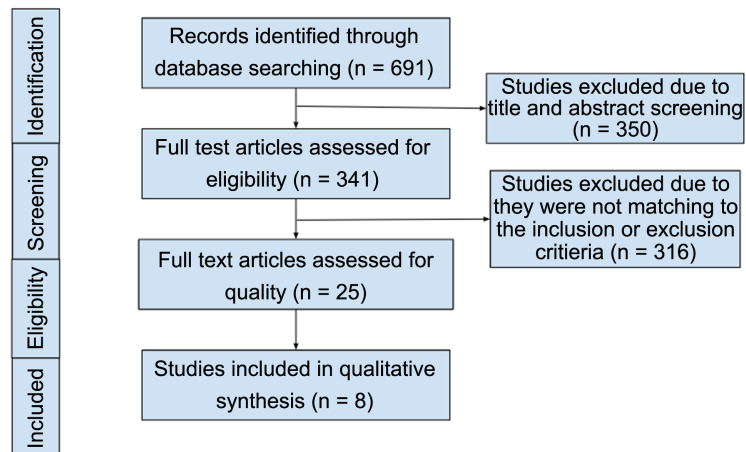
### 5.2. Critical Appraisal Tool

The importance of critical appraisal has led to the establishment of various types of critical appraisal tools to facilitate the critical appraisal process [31]. Although the use of critical appraisal tools is not a prerequisite to being an effective critical appraisal (Aveyard, Payne, and Preston, 2016; [32], the tool can act as a memorandum to facilitate the appraisal process [24]. Making good use of critical appraisal tools can contribute to a clear systematic review.

During this literature review, the Critical Appraisal Skills Program (CASP) would be chosen to critically appraise the studies. Critical Appraisal Skills Program is a well-known critical appraisal tool with different types of checklists to appraise both quantitative and qualitative research [33]. The validity and reliability of each CASP checklist were confirmed by a group of experts, as well as the format of CASP checklists was improved and adjusted over the years, to ensure appropriateness [34]. The CASP Qualitative Studies Checklist would be adopted since this is a qualitative literature review [35]. The CASP Qualitative Studies Checklist contains 10 questions that research viewers to evaluate the essential points of studies during the critical appraisal. The critical appraisal of individual studies is shown in **Figure 1**.

### 5.3. Analysis or Synthesis Approach

There is no perfect research method for doing a literature review (Aveyard,



**Figure 1.** Flow chart of the selection process.

Payne, and Preston, 2016; [36]. However, choosing a suitable literature review method is still an important step in the literature review. Meta-aggregation and interpretative reviews approach are designed for analyzing qualitative research in which the content can be analyzed or synthesized by further interpretation. Meta-aggregation is a controlled method for the non-numerical summary of qualitative data in that further interpretation of the research was not involved; Interpretative reviews have three major approaches which are meta-ethnography [37] [38], thematic synthesis [10] [39], and meta-synthesis [40] [41] [42]. Compared with meta-aggregation, interpretative reviews are a less controlled method that concentrates on the re-interpretation of the qualitative paper during the literature review [11].

In the following literature review, an interpretative approach will be adopted (Table 3(a) and Table 3(b)). Thematic synthesis is the sub-approach under the interpretative approach that will be mainly conducted. It is because this literature review aims to explore and interpret concepts in detail of the negative perceptions influencing the refusal of flu vaccination in the older adult population rather than simply reporting and summarizing the result of a range of studies [11]. Also, the interpretative approach is designed for qualitative studies which makes this approach fit for this literature review [10] [43].

## 6. Ethical Considerations

There is no primary data that will be collected in this study. All the data that will be used during this study are secondary data, making this study not required to gain ethical approval from the certain Research Ethics Committee [44] [45]. Although ethical approval is not required, this study strictly sticks to research ethics to ensure anonymity and safeguard the data [46] [47]. Thus, all the literature included in this literature review must be approved by a certain Research Ethics Committee. Otherwise, the literature will be excluded from the literature review.

According to the previous studies, qualitative data such as perceptions, attitudes, opinions, and feelings about influenza vaccination will be collected by

**Table 3.** The application of critical appraisal skills program.

(a)

Critical Appraisal Skills Program Checklist (Section A & B)	Literature							
	Teo <i>et al.</i> , 2019	Cummings, Kong, & Orminski, 2020	Siu, 2018	McIntyre, Zecevic, & Diachun, 2014	Rikin <i>et al.</i> , 2018	Kaljee <i>et al.</i> , 2017	Briggs <i>et al.</i> , 2019	Sun <i>et al.</i> , 2020
1. Was there a clear statement of the aims of the research?	✓	✓	✓	✓	✓	✓	✓	✓
2. Is a qualitative methodology appropriate?	✓	✓	✓	✓	✓	✓	✓	Can't Tell
3. Was the research design appropriate to address the aims of the research?	✓	✓	✓	x	Can't Tell	✓	✓	✓
4. Was the recruitment strategy appropriate to the aims of the research?	✓	✓	✓	x	✓	✓	✓	✓
5. Was the data collected in a way that addressed the research issue?	✓	✓	✓	x	x	✓	✓	✓
6. Has the relationship between researcher and participants been adequately considered?	Can't Tell	Can't Tell	Can't Tell	✓	Can't Tell	Can't Tell	✓	Can't Tell
7. Have ethical issues been taken into consideration?	✓	✓	✓	✓	✓	✓	✓	✓
8. Was the data analysis sufficiently rigorous?	✓	✓	✓	✓	x	✓	✓	✓

(b)

Literature	Critical Appraisal Skills Program Checklist (Section C)
	10. How valuable is the research?
Teo <i>et al.</i> , 2019	Highlight that Singaporean elders were misled that the flu vaccine is a travel precaution only. Active vaccine promotion by healthcare professionals also plays a vital role in influenza vaccination, as the absence of advice or promotion may interpret as influenza vaccination not necessary.
Cummings, Kong, & Orminski, 2020	Highlights that Singaporean elders were making confusion about the term's "influenza", "flu", and "common cold", leading to underweighting the severity of influenza disease and the need for the vaccine. There are many misconceptions about the influenza vaccine such as ingredients, usage, cost of the vaccine and so on also contribute to a lower vaccination ratio.
Siu, 2018	Cultural factors affect older adults' discussion of vaccination in Hong Kong, as the elders think the injection location like hospitals and clinics in the area for the sick person, made them not want to go. It also points out that lacking promotion from healthcare professionals leads to low vaccine acceptance.
McIntyre, Zecevic, & Diachun, 2014	Doctors' advice for vaccination and vaccination experience from others was important for elders to vaccinate. Even if the elders know the effectiveness of the influenza vaccine, they may still refuse the vaccine due to the recognition that they are healthy enough against influenza.
Rikin <i>et al.</i> , 2018	Side effects, and adverse vaccine reactions have become a major concern for US elderly getting the flu vaccine. Negative experiences from their social network and themselves also affect their vaccination status, such as lost productivity experience, pain in the injection site for a period, or getting the flu despite being vaccinated.

**Continued**

<b>Kaljee <i>et al.</i>, 2017</b>	Insufficient vaccine information from healthcare professionals may contribute to lower vaccination in the USA. Elder perceptions of health also lead to their vaccination status, they think they can prevent flu except for vaccines, or manage flu themselves effectively. On the other hand, US elders' vaccine and flu experience affect whether they continue with the vaccine or not.
<b>Briggs <i>et al.</i>, 2019</b>	Healthcare practitioners' suggestions once again influence older adults' decisions about flu vaccination. Anti-vaccination influence also affects their choice of vaccination. The research also indicated rural and remote areas of older Australians found it difficult to access flu vaccination centers for vaccination, making them refuse vaccination.
<b>Sun <i>et al.</i>, 2020</b>	Perceived limited benefits of influenza vaccination, fear of side effects of vaccination, and beliefs in their immune system were the comment barriers for Hong Kong elders to being vaccinated.

conducting focus group interviews, face-to-face interviews, and telephone interviews respectively [48]. The aforementioned data collection methods cause no harm to the interviewer or participants [49]. The participants from previous studies were enrolled voluntarily and can leave the study at any time if they want.

## 7. Trustworthiness

It is an important part of qualitative studies, as it refers to the validity and reliability of the research [50]. Credibility, dependability, transferability, and confirmability are the assessing values to ensure rigor in qualitative studies since there is no tool to measure the validity and reliability of qualitative research [51]. The trustworthiness of this study would ensure by those assessing values.

To ensure credibility and dependability during this systematic review, a continuous self-reflection process throughout the thematic synthesis would perform. In addition, the quotations and references from the selected studies were also screened as they provide original data for synthesis [52]. To demonstrate the confirmability and transferability of the data, the audit series of all decisions were reserved [51].

## 8. Studies Characteristics

Of the included literature, half was conducted in Asia, where Hong Kong (n = 2), and Singapore (n = 2). While the others were published in Canada (n = 1), the USA (n = 2), and Australia (n = 1). In total 506 participating elders were included in the 8 studies, ranging from 15 to 200 elders in one study. Studies used individual, or focus group interviews with semi-structured, unstructured, or open-ended formats for data collection. The characteristics of each study are shown in below (Table 4).

During this literature review which focuses on qualitative studies, 2 mixed research design published studies are still included in this literature review because of the preciousness and rareness of qualitative data in my research regions, as well as achieving data saturation. Although mixed research design studies were included in this literature review, only qualitative data would be analyzed. In addition, one research targeted all age ranges in Hongkongese, only qualitative data from the older people would be analyzed.



**Table 4.** Description of the included qualitative studies.

Studies	Site	Journal	Title	Aims & Objectives	Numbers of participants	Methods	Qualitative data collection	Analysis
Teo <i>et al.</i> , 2019	Singapore	Vaccine	Attitudes and perception of influenza vaccines among older people in Singapore: a qualitative study.	To explore the obstacles and intentions behind order's decision to flu vaccinations and assess their knowledge of it.	15	Qualitative	Individual	Thematic content analysis
Cummings, Kong, & Orminski, 2020	Singapore	PLOS ONE	A typology of beliefs and misperceptions about the influenza disease and vaccine among older adults in Singapore.	To identify the most noticeable and essential misperceptions about influenza and the flu shot among Singapore's older people.	76	Grounded theory	Semi-structured interviews	Content analysis
Siu, 2018	Hong Kong	The Gerontologist	Perceptions of seasonal influenza and pneumococcal vaccines among older Chinese adults.	To explore the perceptions and obstacles related to flu shots and pneumococcal vaccinations among Chinese elders.	40	Qualitative	Individual	Microsphere analysis
McIntyre, Zecevic, & Diachun, 2014	Canada	Canadian Journal on Ageing	Influenza vaccinations: Older adults' decision-making process.	Exploring the self-perceived influences among older Canadian adults in deciding whether to take or not take the flu shot.	37	A qualitative cross	Semi-structured interviews	Content analysis
Rikin <i>et al.</i> , 2018	USA	Journal of Community Health	Influenza vaccination beliefs and practices in elderly primary care patients.	To identify which influenza vaccine-specific beliefs are related to vaccination.	200	sectional design	Individual	Content analysis

## Continued

Kaljee <i>et al.</i> , 2017	USA	Human vaccines & immunothera peutics	You need to be an advocate for yourself: Factors associated with decision-making regarding influenza and pneumococcal vaccine use among US older adults from within a large metropolitan health system.	To enhance understanding of obstacles and enablers to vaccinating in older cohorts within the context of general healthcare availability and accessibility, social networks, information sources, and individual perceptions of diseases and vaccines.	48	Mixed methods	Semi-structured interviews	Content analysis
Briggs <i>et al.</i> , 2019	Australia	therapeutics	Perceptions of influenza and pneumococcal vaccine uptake by older persons in Australia.	To understand the varied perspectives of older Australians on flu vaccines.	36	Qualitative	Focus groups	Thematic analysis
Sun <i>et al.</i> , 2020	Hong Kong	Vaccine	Seasonal influenza vaccine uptake among Chinese in Hong Kong: barriers, enablers, and vaccination rates.	To explore the updated seasonal flu vaccination rates among Chinese in Hong Kong after subsidy programs were implemented these years and the public's obstacles and facilitators to vaccination.	54	Qualitative	Semi-structured interviews	Content analysis

## 9. Finding

There are five descriptive themes were resulted from the thematic synthesis of coded data (Table 5), which are “Insufficient promotion for influenza vaccination by healthcare professionals”, “Anti-vaccination influence”, “Insufficient local policies for encouraging influenza vaccination in elders”, “The negative personal experience of influenza vaccination”, and “The negative perception of influenza vaccination from social network”. As well as, one overarching analytical theme was developed from further synthesis that revealed, which is “The cultural

**Table 5.** The presence of major aspects in the reviewed research contributing to six descriptive and analytical themes.

Descriptive and Analytical Themes	Literature							
	Teo <i>et al.</i> , 2019	Cummings, Kong, & Orminski, 2020	Siu, 2018	McIntyre, Zecevic, & Diachun, 2014	Rikin <i>et al.</i> , 2018	Kaljee <i>et al.</i> , 2017	Briggs <i>et al.</i> , 2019	Sun <i>et al.</i> , 2020
Insufficient promotion for influenza vaccination by healthcare professionals	✓	✓	✓	✓			✓	✓
Anti-vaccination influence	✓	✓	✓		✓		✓	✓
Insufficient local policies for encouraging influenza vaccination in elders	✓	✓	✓	✓				✓
Negative personal experience of influenza vaccination			✓		✓	✓		
The negative perception of influenza vaccination from social networks		✓	✓	✓	✓	✓	✓	✓
The cultural influence of influenza vaccination	✓		✓	✓		✓		

influence of influenza vaccination”. The detailed finding will be elaborated in the part of the result and the discussion.

## 10. Results

### 10.1. Insufficient Promotion for Influenza Vaccination by Healthcare Professionals

From the reviewed literature, active promotion, and recommendation for influenza vaccination by healthcare professionals would have a positive impact on elderly influenza vaccination. Elders believed in healthcare professionals’ ethical conduct such as being beneficial and doing no harm to patients [53] [54]. Elders were likely to follow the recommendation of healthcare professionals for influenza vaccination decision-making. One vaccine recipient said:

*“The doctor recommended [the vaccine], and we have full confidence in our doctor’s recommendation to follow his advice”* [55].

Alternately, elders who refused influenza vaccination may be due to no healthcare professionals promoting or recommending the influenza vaccine for them [53] [56]. Two influenza vaccine refusers said:

*“... if I consult with the doctor, the doctor says you have this problem, you have to [take the vaccine], then I will follow his instructions”* [56].

*“If the doctor says it you must listen to him... if you want to be healthy then you should take”* [56].

On the other hand, some healthcare professionals not only refuse to promote flu shots for their older patients but also discourage them from receiving the vaccine. It made a negative impact on elderly influenza vaccination [57]. One influenza vaccine refuser stated that:

*“My doctor for arthritis says it's not necessary. He says it's better to get more rest than to go for these vaccines” [57].*

However, an Australian study shows that if the older adult does not have pre-existing anti-vaccination beliefs, they will criticize the recommendation from healthcare professionals rather than accept it directly [58]. The education level of the participants from that study is considered a good level, based on their previous occupations. Two older adults stated that:

*“My chiropractor is always going on about it [not having vaccinations] ... But if you're coming from one side, you're often not open to the reasons on the other side, so I think I probably make more of my own informed decisions given all the information I get from other people” [58].*

*“I take the information to my doctor and talk it through with her and take her advice. I wouldn't make a decision in ignorance, I would get some expertise” [58].*

## 10.2. Anti-Vaccination Influences

This theme deliberated how the perception of anti-vaccination develops in the older adult and how this perception made them refuse the vaccine. Most older adults who hold an anti-vaccination perspective have two beliefs. One is that the influenza vaccine is harmful, and the other is that influenza vaccination is not a prerequisite for preventing influenza [53] [57] [58] [59]. In terms of the influenza vaccine as harmful, the older adult does believe the vaccine is an artificial and invasive product, it was additional to the human body, thus it is harmful to their health. Three older adults from Hong Kong and the USA commented that:

*“... just as you do not need to take extra vitamins [supplement] if you are in normal health... All vaccines are unnatural, and you can never know what kinds of chemicals are inside these man-made things” [53].*

*“No need for vaccines, don't believe in vaccines... That vaccines harm the immune system” [59].*

*“I won't even enter into any discussion because I know it will end in grief, because [relative] is so adamant so adamant that vaccinations are bad and leads to autism...” [58].*

Furthermore, some older adults may not think vaccines are harmful, but it is not necessary for them. Few studies state that the older adult acknowledged vaccines can protect valuable groups such as the older adult, but if they recognize them as having a strong immune system for preventing influenza or fighting influenza, they probably can live well without the influenza vaccine [57] [60]. It was revealed by those statements:

*“I believe that I have a strong immune system, and it is unnecessary to inject these antibodies into my body. Everyone has antibodies inside their body, so I do not think I have to be vaccinated” [60].*

*“Strong people are strong, so they don't need [the influenza vaccine]” [57].*

Teo *et al.* (2019) mentioning the perspective of older adults outlined the fear of side effects that led to the refusal of the influenza vaccine in more than half of

the vaccine rejecters in the studies. This theme illustrated the perception in older people that the side effect outweighs the effect. The older people do not even want to suffer any side effects like pain or discomfort from the vaccine. Two older adults from the study said:

*“Your injection will make hand ah, cannot carry everything... Because of your injection, I cannot work two [or] three days” [56].*

*“Whether it is good or not to take this injection must clarify... if it is bad for me then I am in trouble. She is working and I am alone at home, I have no money to hire a maid” [56].*

### 10.3. Insufficient Local Policies for Encouraging Influenza Vaccination in Elders

Insufficient local encouraging policies for influenza vaccination in the older adult was another theme identified in the reviewed research. If the influenza vaccine can be subsidized by the local government, it increases the motivation for the older people to get the vaccine. At least retired older people do not need to worry about the financial problem based on the vaccine [53] [55] [60]. In the reviewed studies, only Canada and Hong Kong provide influenza vaccines for older adults free of charge [53] [55] [60]. One Canadian older adult who received influenza vaccines has mentioned:

*“You just go, give him your OHIP [Ontario Health Insurance Plan] card, and that's it” [55].*

No doubt subsidizing the cost of influenza vaccines plays a crucial role in encouraging elderly vaccination. However, not all governments can afford certain vaccine subsidy schemes. The cost of the influenza vaccine may create a financial burden on the older people, who are retired and have no income. One Singaporean research mentioned that older adults think the vaccine is expensive, around US\$22 to 29 per shot. The older adult expected the government could subsidize the influenza vaccine [57]. As stated by two older adults:

*“[Vaccination is] necessary but it costs me money. One injection [is] S\$40... expensive” [57].*

*“I think people will say it's expensive for Singaporeans who don't have enough money. The government has to subsidize a bit for the poor people” [57].*

Apart from the cost of the vaccine, insufficient public education on influenza vaccination led to the misconception about the vaccine. Two research supported that the influenza vaccine was misunderstood as a travel vaccine only in Singapore and is intended for use by people traveling to countries with lower hygiene standards [56] [57]. The older people may not understand the influenza vaccine can not only protect them away from influenza overseas but also protect them in their hometowns. Certain causes were leading to refusing vaccination in the older population. Two older people from Singapore were mentioned:

*“For me, I only go [overseas] for holidays. Most of the time, like in third-world countries then I go for a job. Other than that, I don't go for jab” [57].*

*“Maybe when I travel yes as a precaution because other countries, I do not*

*know the conditions, but local no. If I am staying in Singapore, I will not take...*” [56].

#### 10.4. Negative Personal Experience of Influenza Vaccination

The theme “Negative personal experience of influenza vaccination” highlights that older adult who declined the influenza vaccine had previous experience with vaccination, but the negative experience causes them to decline to participate in routine annual vaccination. Those negative experiences included but were not limited to the side effect of the vaccine, and the less effective the vaccine [61] [59]. In terms of the side effects of the vaccine, the older people refused to be vaccinated again due to being intolerant to the side effects of their first influenza vaccination. Some refusers stated:

*“Well, I take it not to get sick, but I know last year after I got the shot it hurt for about a week, and I was like good God, that was a bad shot”* [61].

*“Last time I got the vaccine I had palpitations, a rash on my face, and a bad reaction”* [59].

*“I received the vaccine last year and still have pain in my arm”* [59].

Siu (2018) also reported that the negative experience of vaccination may create a negative perception of future vaccination. The older adults with a negative experience of vaccination bodily perceived vaccine as an “invasive” them. In other words, vaccines may hurt them possibly. As stated by the older adult:

*“Vaccines are not good because they are too strong and invasive. They can give you a fever and make you feel uncomfortable. When I got a vaccination when I was young, vaccines make me sick; I will get a fever and pain from them. I think the vaccines are too strong for me, they disturb my body and make me sick. It is ridiculous to get vaccinated. What is the purpose of making myself sick when I am actually fine? ... For some vaccinations that were done when I was a child, I had no choice but to refuse because they were required by the government. We had the “jab card” [vaccination record] from the government. However, for the optional ones I will not get them because they are not compulsory”* [53].

Besides, personal feeling about ineffective vaccines leads the older people discontinuous to joining routine influenza vaccination. The older adult may be suffering from influenza although they got a vaccination already [59]. The older adults may not know the vaccine can reduce the symptom of influenza even if it may not help them away from the disease. An older adult said:

*“Vaccines don’t work for me, but they might work for others”* [59].

#### 10.5. The Negative Perception of Influenza Vaccination from Social Networks

The negative perception of influenza vaccination from social networks was the other theme identified in the reviewed studies [53] [55] [57] [58] [59] [60] [61]. Older adults were likely influenced by the people surrounding them, particularly family members and friends. Even though that perception may not be a real-life

experience from their social networks, it still influences the decision of influenza vaccination in older adults. In the study [53], almost half of the participants were circulated by negative rumors about the influenza vaccines. Thus, the older people are afraid of influenza vaccines, or even reject that:

*“I dare not get the vaccines because my friends told me that they can lead to becoming “elderly dull” [dementia] sooner. Being “elderly dull” is very scary; just look at the professor [Professor Charles K. Kao, Nobel Laureate in Physics 2009] and you realize that “elderly dull” is really a burden for the families. If the vaccines can make me become “elderly dull,” I will refuse, definitely” [53].*

Cummings, Kong, and Orminski (2020) illustrated that the negative perception of influenza vaccination was usually drawn from second-hand experiences from the vaccine users. The older people pay attention to the side effects which are explained by vaccine users and develop negative perceptions of influenza vaccination. The older people are worried about the influenza vaccine would weaken their immunization systems and potentially cause the disease:

*“People don’t have the sickness and then get vaccinated and then they get the sickness. Some of them who got vaccinated got the illness through the vaccination” [57].*

Apart from the negative rumors and misconceptions from the social networks affecting the decision on influenza vaccination in the older people, the real-life experience that the older people observed from their family members or friends also affected their decision [59]. The negative experience of influenza vaccination from their social networks may be from the negative perception of vaccines in older people. The negative experience of post influenza vaccination observed by the older people develop the negative perception of vaccination:

*“Someone received the vaccine 14 years ago, and that person still has a cough” [59].*

*“The variability of the vaccine, after getting it, some people get the flu, others don’t” [59].*

## 10.6. The Cultural Influence of Influenza Vaccination

This analytical theme bundles the cultural influence of influenza vaccination of east meets west, but fewer studies can tell. In the reviewed studies, only three out of eight recognized that the influenza vaccine refusers may be culturally influenced [53] [55] [61]. The ethnicity information was not collected in some of the studies, leading to the relationship between influenza vaccine refusers and their culture cannot be analyzed. As well, the reviewed studies usually take place in one community center contributing to monotonous ethnicity in participants possibly. However, this literature review included studies from both western (e.g., The USA, Australia, Canada) and eastern (e.g., Hong Kong, and Singapore) countries or cities, the cultural difference can be observed through this literature review.

In the Chinese culture, Healthcare settings like clinics and hospitals had bad symbolism, likely related to “unlucky”. It is because most of the visitors to clinics

and hospitals were sick or even dying people, healthy people should avoid getting here [53]. This certain concept was not detected in reviewed western studies [55] [58] [59] [61]. Nevertheless, influenza vaccine injection services are usually provided in clinics and hospitals in Hong Kong [60], making traditional Chinese older adults reducing wish for vaccination. An old Chinese lady said:

*“It is not good to go to clinics or hospitals. Of course, if necessary, you still have to go. Otherwise, it is better to avoid going to these places. These places are unlucky and can bring you misfortune. The people who need to go to clinics and hospitals are sick or are dying. Negative forces accumulate in these places. If you go to these places, you may absorb these negative forces and may experience misfortune. Afterwards, I am not young now, so the bad forces can affect me much. Therefore, I will not consider the vaccinations, because I do not want to go to these unlucky Places”* [53].

Alternative medicine was adopted as a norm in older adults' concept of health found in both east and west, while the westerners were more likely to accept the influenza vaccine compared with the easterners [58]. Yet, some westerner's older adults preferred naturopaths, to prevent influenza by taking homeopathic drops [58]. Using Traditional Chinese Medicine as alternative medicine was common in Chinese ethnicity, 36 out of 40 older people in Hong Kong refused influenza vaccination because of adopted Traditional Chinese Medicine [53]. Many Chinese believe that Traditional Chinese Medicine works better in health maintenance compared with western biomedicine [62]. Two older adults from Hong Kong said:

*“Chinese medicine [TCM] is a lot milder than western medicine [biomedicine]. Western medicine is too strong and forceful, and the drugs are all artificial chemicals. It is not good to take vaccines because they are chemicals. Chinese medicines are all herbs, so they are more natural. I prefer taking Chinese medicine to keep up my health instead of vaccines”* [53].

*“You have to strengthen your body from the root to prevent yourself from getting infected. Western medicine [biomedicine] does not have this concept. The doctors just ask you to get enough sleep, have a balanced diet, exercise more, and receive vaccinations. It can never deal with your foundational health. Chinese medicine is very good in prevention because it can strengthen your root and foundational health. If your root is good enough, you do not need to get any vaccinations. I always see my Chinese medicine doctor [TCM practitioner] to maintain my health. You do not need to be sick to go to a Chinese medicine doctor. If you can keep up your foundational health with Chinese medicine, why do you still need to get vaccinations?”* [53].

Teo *et al.* (2019) mention the difficulty of promoting influenza vaccination in the Chinese population may be due to language translations of the medical term. The term “influenza” and “common cold” is the same in the Chinese language. Older Chinese adults may be obfuscated in disease identification and response. Therefore, an incomprehensive understanding of the disease due to the language barrier leads to diminished vaccination motivation in Chinese ethnicity. A Chi-



nese Singaporean older adult explained that:

*“Influenza means some sickness...influences the lungs. Probably some kind of flu...I think influenza and flu are about the same family, quite the same. Flu may be passing flu, sometimes flu may come and go but influenza may be more serious, I don't know. I think so, so I think” [56].*

## 10.7. Identification of Correlation between the Themes

The correlation of themes was identified by mapping the relationship between each descriptive and analytical theme. The more significant the theme is, the more correlation between the certain theme and the others will be detected. The critical elements made the negative perceptions influencing the refusal of flu vaccination in the older adult will be constructed. The reviewer adopted the approach of judgments, deductions, reasoning, and insights to examine the themes which emerged from the analysis [51]. **Table 6** below identified the relationship between each descriptive and analytical theme. The discussion part will further elaborate on the mapping result.

## 11. Discussion

### 11.1. Summary of Main Results

This literature review included 8 studies to explore the negative perceptions influencing the refusal of flu vaccination in older adults worldwide. There were 8

**Table 6.** The correlation between descriptive themes and the analytical them.

Descriptive and Analytical Themes	Insufficient promotion for influenza vaccination by healthcare professionals	Anti-vaccination influence	Insufficient local policies for encouraging influenza vaccination in elders	Negative personal experience of influenza vaccination	The negative perception of influenza vaccination from social networks	Cultural influence of influenza vaccination
Insufficient promotion for influenza vaccination by healthcare professionals	NA	✓		✓	✓	
Anti-vaccination influence	✓	NA		✓	✓	✓
Insufficient local policies for encouraging influenza vaccination in elders			NA	✓	✓	✓
Negative personal experience of influenza vaccination	✓	✓	✓	NA		
The negative perception of influenza vaccination from social networks	✓	✓	✓		NA	
Cultural influence of influenza vaccination		✓	✓			NA

studies recruited for review with 6 pure qualitative studies and 2 mixed research design studies with qualitative research methods, only the qualitative data would be analyzed during this literature review. Studies used individual, or focus group interviews with semi-structured, unstructured, or open-ended formats for data collection. Half of the reviewed studies were conducted in Asia, where Hong Kong (n = 2), and Singapore (n = 2). While the others were published in Canada (n = 1), the USA (n = 2), and Australia (n = 1). There are 506 participating older adults included in the 8 studies, ranging from 15 to 200 older adults in the reviewed study.

After a serious review of the studies, there are five descriptive themes were resulted from the thematic synthesis of coded data, namely “Insufficient promotion for influenza vaccination by healthcare professionals”, “Anti-vaccination influence”, “Insufficient local policies for encouraging influenza vaccination in elders”, “The negative personal experience of influenza vaccination”, and “The negative perception of influenza vaccination from social network”. As well as, one overarching analytical theme was developed from further synthesis that revealed, which is “The cultural influence of influenza vaccination”. Each theme and the correlation between them would discuss in detail in the coming part.

### **11.2. Insufficient Promotion for Influenza Vaccination by Healthcare Professionals**

In the theme of insufficient promotion for influenza vaccination by healthcare professionals, both eastern and western older adults were heavily weighed on advice from healthcare professionals [53] [54]. It may be because the professionalism of the healthcare professionals was acknowledged by the older people [63]. Older people firmly believe in health suggestions from the healthcare professionals such as doctors, chiropractors, Traditional Chinese Medicine practitioners, and nurses [53] [54] [55] [56].

In the reviewed studies, the active promotion of influenza vaccination usually contributes to a positive impact on older adult’s vaccination status [53] [54]. Oppositely, active discouragement of influenza vaccination usually contributes to a negative impact on older adults’ vaccination [58]. Besides, older adults may opt-out of vaccination programs if there are no recommendations from healthcare professionals [56] [58]. Those results have indicated that healthcare professionals’ recommendation for the influenza vaccine is a key step to getting the influenza vaccine. Older people weigh healthcare professionals as an expert on health maintenance, and the vaccination advice from healthcare professionals play a decisive role in their vaccination status. Thus, healthcare professionals have a responsibility to promote influenza vaccination to older adults, and to improve the influenza vaccination ratio in older adults worldwide.

### **11.3. Anti-Vaccination Influences**

In the theme of anti-vaccination influence, certain perceptions are potentially formatted on two different sides. On one side, some older adults directly ac-

knowledgeable vaccine is harmful based on the nature of vaccine are not natural and invasive to human bodies [53] [58] [59]. On the other side, some older adults refused influenza because of fear of the side effect, even though they know the protectiveness provided by the influenza vaccination [56]. Both sides of view pointed to the misunderstanding of the influenza vaccine and the lacking reliance on vaccines in older adults.

Influenza vaccination is not compulsory in the countries and cities from reviewed studies like the United States, Canada, Australia, Singapore, and Hong Kong, so the older adults can opt for their vaccination status based on their needs, and the reliability of the vaccine [64] [65]. Misunderstanding of the influenza vaccine must be clarified in older adults, as the misconception may spread through social networking and then reduce the vaccination ratio in older adults [53] [56] [58] [59]. Thus, health promotion in influenza vaccination for older adults is a key step to preventing severe influenza in older adults by promoting the benefits of vaccination and clarifying misunderstandings about the influenza vaccine [66].

#### **11.4. Insufficient Local Policies for Encouraging Influenza Vaccination in Elders**

The theme of insufficient local encouraging policies for influenza vaccination in the older adult highlights the cost of influenza vaccines are not affordable for the older adults who retired with no income [57]. Older adults complained the cost of vaccines is expensive, and not willing to pay for them [57]. The subsidy scheme of influenza vaccination for older people should be sincerely considered by the local government, as free of cost is an essential motivation for the older people's vaccination.

In addition to the cost of the vaccine, inadequate health promotion and public education about influenza vaccination have led to the misconception of the influenza vaccine in the older adult that is rediscovered during this theme [56] [57]. Some governments require their citizens to receive influenza vaccines before traveling abroad. Some older adults are misled that influenza vaccines are traveling vaccines only, leading to a lower vaccination ratio in older adults [56] [57]. The government should clarify that influenza vaccines are preferably given once a year whether traveling or not.

#### **11.5. Negative Personal Experience of Influenza Vaccination**

In the theme of the negative personal experience of influenza vaccination, older adults with certain negative experiences usually related to the side effect of the influenza vaccine, as well as the discomfort caused by the needle spike [59] [61]. The older adult complained about the side effect such as flu-like symptoms, and pain in the puncture site that can last for a while making them not tolerated well [53]. This leads to refusing routine influenza vaccination. Prolong suffering from the vaccine side effect may be because of insufficient information on side effect management for older people.

In the reviewed studies, the older adults who complained of intolerant side effects of the influenza vaccination almost did not mention they had attempted the intervention for side effects such as ice pads to injection sites to relieve pain, consider taking Panadol for post-vaccine fever, etc. [59] [61] If the older people can well control the side effect of influenza vaccines, it is possible to encourage influenza vaccinated older adults to join routine injections continuously. Healthcare professionals who work in vaccine centers play a vital role in promoting this strategy.

### **11.6. The Negative Perception of Influenza Vaccination from Social Networks**

The theme of the negative perception of influenza vaccination from social networks shows that peer influence importantly affected older adults' vaccination decisions [53] [55] [57] [58] [59] [60] [61]. No matter how accurate the information, the older adult would refer to the negative perception and experience of influenza vaccination from their friends or family members when deciding whether to get influenza vaccines [53]. As the reviewed studies mention, some negative perceptions of influenza vaccination from social networks were misperceptions, for example, the influenza vaccine can cause dementia [53].

In addition to misperceptions, misleading influenza vaccine effects were also observed in the reviewed studies [59]. The older adult may not clearly understand even if influenza vaccination cannot hundred percent prevent influenza, it still can reduce their hospitalization ratio and the disease severity after influenza vaccination. Certain kinds of misperceptions can cause older adults to refuse influenza vaccination. Based on this finding, active influenza vaccination in older adults' social networks like elderly homes, and elderly community centers may help for reducing misperceptions, and misleading influenza vaccine effects in the older adult [66].

### **11.7. The Cultural Influence of Influenza Vaccination**

The theme of the cultural influence of influenza vaccination indicates that older people's cultural background can affect their choices of vaccination [53] [55] [61]. In the reviewed studies, Chinese culture typically affects Chinese older people to reject vaccinations [53]. Chinese believed that going to the hospital or clinic for vaccination can bring them bad luck, as healthcare setting like hospitals is full of unhealthy and dying people [53] [57]. It suggests that the vaccine service can take place outside the hospital, such as through mobile vaccine buses, community centers, and so on.

Also, alternative medicine like Traditional Chinese Medicine is famous among the older adult, and older adults who believed in alternative medicine may refuse western medicine products like the influenza vaccine [53] [57]. If influenza vaccines are not contraindicated to alternative medicine, it is possible to promote the influenza vaccine cooperated with alternative medicine professionals. Western medicine and Traditional Chinese Medicine cooperation are common in

Hong Kong [67], and the promotion of the influenza vaccine with alternative medicine professionals can potentially increase the vaccination ratio in older adults. Moreover, influenza in the Chinese language is the same word as the common cold, it makes older adults misled influenza as a weak illness and no need for vaccination [57]. Health education to identify influenza and the common cold must provide for the Chinese older adult.

### 11.8. The Significance of the Theme

To evaluate the significance of the theme, the correlation of each theme was measured (Table 6). The more significant the theme is, the more correlation between the certain theme and the other theme will be detected. As the theme may either strengthen or weaken the other theme, detailed thematic synthesis may help to understand the meaning of their relationship. In Table 6, the theme of “Anti-vaccination influence” contained the greatest number of correlations to the other themes. It indicated the importance of this theme was weight more than the other five themes.

Apart from the theme of insufficient local policies for encouraging influenza vaccination in elders, all the other themes were correlated with the theme of “Anti-vaccination influence”. This indicates that the perception of anti-vaccination is a diverse and complex theme to influence older adults to refuse influenza vaccination. Not only the intrinsic factors like cultural background and the negative personal experience of vaccination make older adults refuse influenza vaccination, but also the extrinsic factors like negative peer experience of vaccination and insufficient vaccine promotion by the healthcare professionals.

In terms of the intrinsic factors, cultural influence is a difficult factor to be changed [68]. Nurses must be trained in cultural care and be respectful of clients’ autonomy [69]. However, the cultural influence found in the reviewed studies was not strictly banded influence vaccine. For example, Traditional Chinese Medicine has a long history of cooperating with western medicine in Hong Kong [67], promoting influenza vaccination can be the next topic for their cooperation if no contraindication [70]. Also, the negative personal experience caused anti-vaccine concept is usually because of insufficient knowledge and management of the vaccine’s side effects [53] [59] [61]. Strengthening the promotion of vaccine side effect management would help to improve this problem.

In terms of the extrinsic factors, some of the anti-vaccine perceptions in older adults were influenced by their peers and the lack of suggestions from healthcare professionals [53] [56] [57]. Peer influence contains misperception spread and negative peer experience in influenza vaccination [53] [57] [60]. These two major events can be solved by strengthening the influenza vaccination promotion in older adults, as the major step for changing older adults’ misconceptions is providing evidence for them to assess their own biases [71]. Also, influence from the healthcare professionals proved an important element for older adults to choose vaccination or not. Lack of vaccine promotion from the healthcare professionals

may be distorted as the influenza vaccine is unnecessary in older adults [53] [56], causing anti-vaccine concepts and refusal of influenza vaccination in the older adult. The theme of the insufficient promotion of influenza vaccination by healthcare professionals is the second significant theme of this literature review as well.

In general, the six themes synthesized from the reviewed studies have correlated with the others. The theme of anti-vaccine influence was the most significant theme with the evidence of the greatest number of correlations with the other theme. Both intrinsic and extrinsic factors strengthen the effect of anti-vaccine perception in older adults, leading to refusal of influenza vaccination in older people population.

## 12. Limitations

Due to the intention of this literature review to analyze the negative perceptions influencing the refusal of influenza vaccination in older adults aged older than 60 years old, the thematic synthesis was limited to the qualitative studies or the qualitative data from the mixed-designed research. This literature review was not an exhaustive systemic review of that body of literature, it is because only the peer-reviewed research published between 2011 to 2021 was selected. The reason why including the only research published during that period of years was to update reviews of qualitative studies in the recent decade, hoping to provide a piece of evidence for further police or strategy improvement. Also, the relationship between researcher and participants was not adequately considered in most of the reviewed studies, which could lead to research bias.

Furthermore, all the reviewed studies were from developed counties and cities. As well as a minimum number of studies for a literature review, only 8 eligible studies, were recruited for this literature review. It might be doubted whether the results were represented in most counties, particularly in developing and backward countries. However, the transferability of qualitative results depends on the professional judging of those involved in the practice [72]. Also, the only research published or officially interpreted in English was examined, but those in other languages were not identified. Leading to a potential language bias in this literature.

In addition, dementia is a common disease in older adults, also known as Alzheimer's disease [73] [74]. Older adults with dementia may result in cognitive impairment, affecting their perception and orientation [75] [76]. However, only a few reviewed studies have set up screening tests to exclude older adults with underlying cognitive impairment. It may be a potential bias if the participants have a cognitive impairment, which made the result may not representative [77].

## 13. Recommendation

To solve the anti-vaccine influence under intrinsic factors as discussed, a part of Chinese older adults would likely adopt Traditional Chinese Medicine for health

maintenance, leading to refuse the influenza vaccine as it is a western medicine approach [53] [57]. The long history of cooperation between Traditional Chinese Medicine and western medicine in Hong Kong told us that it is possible no contraindications between both medical approaches [67]. The government can arrange a cooperation program with Traditional Chinese Medicine and western medicine experts to promote the influenza vaccine, and to increase acceptance of influenza vaccination among older people who adopted Traditional Chinese Medicine. Moreover, negative personal experiences with influenza vaccination are also the intrinsic factors causing refusal of influenza vaccination. The major problem with this factor is that older adults did not know how to manage the side effect of the vaccine, making the side effect intolerant [59] [61]. Not only do healthcare professionals have a responsibility to educate the vaccinated older adults on how to manage their post-vaccine side effect, but the government also have a responsibility to promote post-vaccine side effect management methods through advertisement and pamphlet. To let the older adults, know the post-vaccine side effects are manageable, leading to an increase in their willingness to be vaccinated. Also, the government can consider promoting the nasal spray influenza vaccine to be an alternative if the older adults are worried about post-injection pain after vaccination [78].

Apart from the intrinsic factor, extrinsic factors like peers and healthcare professionals' influence also make an impact on the theme of "anti-vaccine influence" causing refusal of influenza vaccination among older adults. As the discussion part mentioned, peer influence contains misperception spread and negative peer experience in influenza vaccination [53] [55] [57] [58] [59] [60] [61]. Those misperceptions like influenza vaccines can cause dementia in older adults potentially due to insufficient influenza vaccine promotion and related misconceptions clarification [53]. Those two interventions can be provided by the government effectively by using advertisements and pamphlets. In addition, the insufficient promotion of influenza vaccination by healthcare professionals also induces impacts on the perception of anti-vaccine. The older adult usually trusts the health advice from healthcare professionals such as influenza vaccination, and insufficient influenza vaccine promotion can cause refusal of influenza vaccination as proven by the reviewed studies [55]. Old adults' influenza vaccination status is relevant to the advice or promotion by healthcare professionals, discouraging influenza vaccination or none of the influenza vaccines promotion by healthcare professionals can cause older adults to refuse vaccination. This highlights that vaccine promotion was not enough by the healthcare professionals [53] [56], healthcare services organizations should provide training for their healthcare professionals for enhancing their vaccine promotion strategies and emphasizing the importance of vaccine promotion by them.

On the other hand, it is difficult to recruit appropriate studies for this review, especially qualitative studies. All the reviewed studies were published in developed countries and cities. Suggesting that influenza vaccination status among older adults may be ignored in some of the developing or backward countries in

the world. As well as there are only 8 recruited qualitative studies related to the topic of this review that indicates measuring the perception of refusal of influenza vaccination among older adults still in the beginning step. Further research in more developed, developing, or backward countries is necessary to analyze the negative perception of refusal of influenza vaccination among their older adults, as the review shows that cultural differences can affect willingness to vaccination [53] [55] [61]. Health is not an exclusive element for the people in developed countries but all over the world. Looking forward to seeing more qualitative studies investigate the negative perceptions influencing the refusal of influenza vaccination in the older adult population. Thus, arousing their local people, and particular governments to review the influenza vaccination ratio among older adults.

## **14. Conclusion**

This literature review aimed to review and investigate the negative perceptions influencing the refusal of influenza vaccination in the older adult population. A thematic synthesis was conducted to analyze the narrative data of the reviewed research, and this produced deeper implied meanings and implications. The results of this review outline the key factors influencing negative perceptions of influenza vaccination refusal among older people. A thematic structure of the negative perceptions influencing the refusal of influenza vaccination in the older adult population was also developed. The in-depth meaning of each theme was analyzed, and the correlation between each theme was also measured to know the significance of the theme. During the process of data analysis, the theme of “anti-vaccine influence” was found to be the most significant theme among the thematic structure in the literature review. The greatest number of the correlated themes was noted with the theme of “anti-vaccine influence”, suggesting that this theme is diverse and complex. The government should pay attention to improving its influenza vaccine-promoting strategies for older adults on the theme of “anti-vaccine influence”. Based on the discussion on this theme, it can be affected by intrinsic and extrinsic factors, and the government can design influenza vaccine-promoting strategies for older adults under both factors.

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## **Conflicts of Interest**

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