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Influences on Influenza Vaccine Uptake Among Older Lebanese Adults

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Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

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Abstract

Influenza is a viral infection that is globally transmitted and that increases the risk for infectious diseases, hospitalization, and morbidity and mortality, especially among the older adult population. Although influenza vaccines are recommended in several countries, influenza vaccine hesitancy remains a challenge. In Lebanon, there is minimal research related to older adults' attitudes and perceptions associated with influenza vaccination. To explore older Lebanese adults' vaccination experiences and perceptions of the factors that affect their influenza vaccine uptake, a qualitative investigation was conducted. The theory of planned behaviors served as the theoretical framework for the study. A thematic analysis was conducted of data collected from online virtual interviews with 16 older adult Lebanese participants. Eight participants were vaccinated annually, and eight were not. Findings indicated that past experiences of influenza vaccination affected vaccination decisions. Most (n = 14) participants reported trusting their own doctor to give them vaccine information and said that family conversations influenced their vaccination decisions. Half the participants indicated that receiving influenza vaccination was beneficial for them. However, seven participants believed that there was a need for awareness programs. Doctors can help educate older Lebanese adults regarding the benefits and limited side effects of influenza vaccination. Furthermore, including family members in vaccination discussions, collaborating with the government and nongovernmental organizations on the design of awareness programs, and securing vaccine supplies may increase influenza vaccination uptake leading to positive social change through lower hospitalizations and mortality and morbidity.

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Dedication

To my mother and all the elderly Lebanese who suffered during the influenza season and the COVID-19 pandemic. I know about your struggles. You truly inspired me to continue with my research journey.

I also know the suffering of the elderly people from the COVID-19 pandemic through leading the Global MI contact center for one of its vaccines. I will tell your stories through my research work, current and future.

Acknowledgments

I wish to acknowledge Dr. Zin Htway, my dissertation chair, for his immense support, direction, and inspiration. His belief in my capacity and his great mentoring strategy gave me the confidence to finish my dissertation.

I would like to express my sincere appreciation to Dr. Jeanne Connors, my second committee member, and Drs. Sriya Krishnamoorthy and Dr. David Anderson, my university research reviewers, for their support through their invaluable corrections and feedback at different stages of the dissertation process.

Finally, my sincere gratitude and appreciation to the faculty members who supported me and offered guidance on all aspects of this research initiative.

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Chapter 1: Introduction to the Study

Influenza is an infection caused by a virus that can be transmitted widely and lead to a global outbreak (Smetana et al., 2018). When compared to the young adult population, the older adult population is more at risk of acquiring infectious diseases that could cause higher incidence of mortality and morbidity (Centers for Disease Control and Prevention [CDC], 2021a). In this high-risk population, the influenza virus can cause severe serious illness, hospitalization, or death (Smetana et al., 2018). Health officials in developed countries have recommended influenza vaccination for decades. This recommendation is now being extended to developing countries (Smetana et al., 2018). Yet, even though vaccines save lives, hesitancy in seeking vaccination remains a problem, and vaccine reluctance represents a global phenomenon (Betsch et al., 2018).

In Lebanon, there is limited research related to the attitudes of Lebanese older adults towards influenza vaccination (El Khoury & Salameh, 2015). Another factor that contributes to the serious concern associated with vaccine reluctance in Lebanon is the lack of geriatric care in Lebanese primary care practices (Alliance for Health Policy and Systems Research, 2017). An estimated 26% of the Lebanese population will be 65 or older by 2050 (Alliance for Health Policy and Systems Research, 2017). Consequently, there was a need to explore and understand the factors and experiences that drive the Lebanese older adult population to accept or reject the influenza vaccine. The study findings may contribute to the creation of effective intervention programs for this population. Specifically, the study may reveal strategies that the public health community

in Lebanon can use to reduce fear and encourage older people in the country to accept flu vaccination.

The data gathering methodology included interviewing 16 Lebanese older adults. As I discuss in this chapter, the use of a qualitative approach enabled the collection of data that may be useful for decision-making related to the design of public health educational programs. In this chapter, I will also present the research questions (RQs) and problem statement. The study's potential significance is also discussed.

Background

Influenza is an acute respiratory infection caused by a virus that infect millions of people around the globe (Schmid et al., 2017). According to the World Health Organization (WHO, 2018a), the influenza epidemic results in about 3 to 5 million cases of severe illness and about 250,000 to 500,000 deaths worldwide each year, affecting very young children, older adults, and patients with comorbidities. When compared to the young adult population, the older adult population is more at risk of acquiring infectious diseases that cause higher incidence of mortality and morbidity (CDC, 2021b). Vaccination is considered one of the most effective medical interventions (McIntosh et al., 2016). Nevertheless, many people are reluctant to accept vaccination (McIntosh et al., 2016). Globally, vaccination rates are suboptimal even though influenza vaccine is acknowledged as the most effective measure for preventing influenza infections, and vaccination contributes to reducing the overall health care cost (Zakhour et al., 2021). Numerous researchers have focused on understanding the barriers to accepting vaccines

and vaccine hesitancy (Schmid et al., 2017). Still, there is limited research related to the older adult population and influenza vaccine hesitancy (Schmid et al., 2017).

Problem Statement

In Lebanon, there is scarce research related to the attitudes of older adults towards influenza vaccination (Zakhour et al., 2021). I found only one quantitative study conducted in Bekaa region, which indicated that older adult patients lacked knowledge about the influenza symptoms and its effect (Tassi, 2020). Furthermore, the study findings indicated that influenza vaccination uptake was low among Bekaa older adults with only 31% of the study participants reporting a previous vaccination against influenza due to limited knowledge about the benefits of vaccination.

Although not specific to the older adult population, another noteworthy study evaluated the Lebanese adult population and their uptake of influenza vaccination. The researchers administered their survey in 30 randomly selected Lebanese pharmacies (El Khoury & Salameh, 2015). Only 18% of the participants who were 65 and older were vaccinated; this age group constituted 8.4% of the overall sample. The authors found that vaccination rates were suboptimal, and misinformation related to the importance of regular influenza vaccination existed.

A retrospective study, conducted in Lebanon, aimed to evaluate the burden of influenza (Assaf-Casals et al., 2020). Chart reviews of 1,829 cases over an 8-year period between 2008 and 2016 indicated that 33% of cases were related to pneumonia (the most common complication). Mortality was 3.8%, and patients less than 2 years old and more than 65 years old experienced more hospitalizations, intensive care admissions, and

deaths. The recent ongoing COVID-19 pandemic further substantiates the need for this study. Illness due to the coronavirus is associated with flu-like symptoms, with the risk for severe COVID-19 illness increasing with age (WHO, 2020a). Lebanese intensive care units reached a critical 82% of capacity during the height of transmission (Jalabi, 2020). The pandemic further makes it imperative to educate the older adult population in Lebanon to seek and accept vaccination. A detailed understanding of the vaccine hesitancy knowledge gap informs the development effective educational programs (Alhatim et al., 2022).

Tassi (2020) highlighted how through education the uptake of vaccines increased. However, Tassi did not delve deeper into what are the experiences that influence the decision to reject or accept vaccination. This represents an opportunity to conduct a qualitative study focusing on a better understanding of the experiences and factors that affect Lebanese older adults' decision to seek vaccination. The study findings may inform public health decisions related to educating the Lebanese older adult population, including the design of effective educational programs targeting any knowledge gaps that are uncovered. Understanding the barriers and motivators for older adults seeking vaccination in Lebanon may assist in eliminating such barriers. Moreover, appropriate intervention programs could be developed because the study findings may clarify approaches to aiding older Lebanese individuals to manage their health and minimize risk factors associated with influenza. In addition to minimizing hospital bed occupancy and decreasing health care costs, the lives of older adults may be saved with effective interventions (Kan & Zhang, 2018). Given the existing research gap on this high-risk

Lebanese population, it is critical to explore and understand in detail the factors and experiences that influence Lebanese older adults' acceptance or rejection of the influenza vaccine.

Purpose of the Study

The purpose of this study was to gain a better understanding of barriers and motivators for older individuals in rejecting or seeking influenza vaccination in Lebanon. Morbidity and mortality rates related to influenza infections are higher in older adults compared to young adults (CDC, 2021a). Moreover, the existence of limited research on the Lebanese older adult population and reasons for accepting or rejecting influenza vaccination reinforced the need to conduct further research on this topic (El Khoury & Salameh, 2015).

Research Questions

I sought to answer one main RQ and three subquestions (sub-Qs). The questions were as follows:

RQ: What perceived factors and previous vaccination experiences influence Lebanese older adults to receive or reject the influenza vaccine?

Sub-Q1: How are the risks of influenza and influenza vaccines perceived by Lebanese older adults?

Sub-Q2: How do Lebanese older adults' perception of previous vaccination experiences influence their current decision to accept or reject influenza vaccination?

Sub-Q3: Are there other factors that influence Lebanese older adults' decision to receive or reject vaccination?

Theoretical Framework

The theory of planned behavior (TPB), also known as the theory of reasoned action, explains behaviors over which individuals exert self-control (Ajzen, 1991). TPB describes health behavior as a function of the behavioral intention to engage in a specific behavior—for example, vaccination (Ajzen, 1991, p. 184). The TPB is one of the most common models for predicting, explaining, and changing human social behavior. Researchers have used the theory to investigate several health behaviors including drug use and compliance with medical treatments (Ajzen, 2008). According to the TPB, human behavior is guided by three types of beliefs (Ajzen, 1991).These include beliefs about the possible outcomes of the behavior and the evaluation of such outcomes (behavioral beliefs), beliefs related to the normative expectations of important others and motivation to adhere to these expectations (normative beliefs) resulting in subjective norms, and beliefs associated with internal and external factors and the perceived power of these factors to hinder or facilitate the performance of the behavior (control beliefs). Control beliefs lead to the development of self-efficiency or perceived behavioral control. Together, attitudes toward the behavior, perceived behavioral control, and subjective norms lead to the development of a behavioral intention. In general, the more favorable the attitude and subjective norm and the greater the perceived control, the stronger the person's intention to perform the behavior in question (Ajzen, 1991, as cited in Boslaugh, 2008).

The TPB has six constructs (LaMorte, 2022). They are:

- attitudes: the extent to which a person has an unfavorable or favorable assessment of the behavior of interest and consideration of the outcomes of performing the behavior.
- behavioral intention: the motivational factors that influence a specific behavior.
- social norms: customary codes of behavior in a group of people.
- perceived power: the perception about the presence of factors which enable or hinder performance of a behavior.
- subjective norms: the belief about whether family members, peers, or people of importance to the individual think they should engage in the behavior.
- perceived behavioral control: a person's perception of the ease or difficulty of performing the behavior of interest.

Perceived behavioral control varies across situations and actions, thus resulting in a person having varying perceptions of behavioral control depending on the circumstances.

The TPB has been used in several public health studies. In a recent vaccine hesitancy study of U.S. adults, the authors investigated the intentions of the participants to receive the influenza vaccine in 2020–2021 (Chu et al., 2021). About half of the U.S. adults in the study indicated intent to receive the vaccine and believed influenza vaccines were beneficial to their health. The authors concluded that doctors could help increase flu vaccination uptake by educating their patients regarding the limited side effects of this vaccine and by including patients and their families in vaccination discussion given the influence of family members on the decision to seek vaccination.

Also, Catalano and colleagues (2017) utilized the TPB to predict human papillomavirus (HPV) vaccination behavioral intentions of college men eligible for receiving this vaccine. The cross-sectional qualitative study instrumentation consisted of an expert panel review, test, and retest in addition to a pilot test. The study results demonstrated that practitioners could use this instrument to develop and assess TPB-based interventions to augment HPV vaccination intentions of undergraduate college males. One of the limitations of this model would be that time between intention and action is not addressed by the theory (LaMorte, 2022). Also, this model assumes that the person has acquired resources and opportunities to successfully perform the behavior (LaMorte, 2022). Finally, the TPB does not take into consideration economic or environmental factors (LaMorte, 2022). However, it is noteworthy that the health belief model has shown less utility than the TPB in public health, and over the past few years other elements from behavioral theory were added to develop a more integrated model (LaMorte, 2022). The TPB was appropriate for the study given that individual behavior and intention were the focus of this study.

Nature of the Study

A qualitative researcher needs to collect data in the field at the site where participants experience the issue or problem under study (here, vaccine reluctance). Therefore, to understand the phenomenon, the researcher should ideally have face-to-face interaction while conducting interviews (Creswell & Creswell, 2018). There are five main qualitative approaches in qualitative research: Narrative, phenomenology, grounded theory, ethnography, and case study (Burkholder et al., 2016). For this study, I used the

basic general qualitative method. Use of this qualitative approach enables the analysis of subjective thoughts like motivations and opinions (Shetty, 2022). Through the interview process, I was able to garner insights from the participants' responses that I used to generate themes.

I interviewed 16 subjects for 30 to 50 min each. This provided data that may be useful for decision-making pertaining to the design of public health educational programs. The study was conducted in a virtual environment using the Zoom or WhatsApp platforms. Participant interviews were recorded to capture verbatim responses. All potential participants were invited to interview through a poster that was placed in a public area in various locations (a pharmacy, a clinic) in Lebanon. Also, leaflets were available in the various locations where the study invitation was posted.

Definitions

Herd immunity: A level of protection that occurs when a lot of people in a community are vaccinated and a pathogen has a hard time circulating because people who are vaccinated are immune (WHO, 2020b). Higher vaccination rates in a community provide a level of protection for those who cannot be vaccinated (WHO, 2020b).

Influenza: A respiratory illness, also known as the flu, that is caused by influenza viruses (CDC, 2021b). The viruses infect the nose, throat, and lungs causing mild to severe illness and sometimes death. Flu symptoms include fever, cough, sore throat, headache and fatigue (Central Administration of Statistics, 2022).

Influenza vaccine: A vaccine that has been shown to be effective in controlling the severity of influenza. Flu vaccines lead to the development of antibodies in the human

body in about 2 weeks after receiving a vaccination (CDC, 2021c). The antibodies provide protection against two different types of Influenza A viruses (H_1N_1 and H_3N_2) and two Influenza B viruses (CDC, 2021c).

Vaccine hesitancy: "The behavior and psychological concerns that cause people who are able to access vaccination to avoid doing so, either at all or in a timely manner" (Li et al., 2021, p. 243).

Assumptions

I had several assumptions in conducting this qualitative study. They included the following: (a) the purposeful sample selected was an appropriate representation of the study population in the region of interest; (b) the participants' confirmation of receiving or rejecting vaccines was genuine; (c) a sample of 10 to 20 participants was adequate; and (d) the interview questions would enable the identification of themes related to the study concepts including trust, perceived efficacy and safety, perceived risk, and previous vaccination experience. All the assumptions related to the study design, the instruments of data collection, participants, and target population were necessary to ensure the validity, reliability, and transferability of the research.

Scope and Delimitations

I designed this study to explore older Lebanese adults' influenza vaccination experiences and perceived factors that influence their vaccine uptake. The goal was to identify themes linked to knowledge gaps, hindrances that could be minimized through the design of effective campaigns, or motivators. The influenza vaccine motivating factors represent areas that could be promoted when designing the influenza vaccine

campaign or any local educational programs. This study featured a qualitative interview design. It was delimited to various locations in Beirut and the surrounding region and to people 60 and older. All other age groups were excluded from the study. Therefore, the study findings are only transferable to older adults who live in Lebanon.

Limitations

I conducted this study in English and Arabic. The interview questions were translated to Arabic only, the official language spoken in Lebanon. However, most of the Lebanese population speak English and French in addition to Arabic (Esseili, 2017). Potential barriers included possible difficulty recruiting participants to interview via Zoom or WhatsApp platforms. Another study limitation was the potential selection bias; nonparticipants could have different views about influenza and influenza vaccines compared to the participants who were interviewed.

Significance

This study may inform future research and enable the design and development of effective intervention programs intended to educate the older adult population in Lebanon. The proposed intervention would include designing an educational program based on the knowledge gained from the qualitative study outcomes. The study findings could provide a clearer approach to aiding older Lebanese individuals in managing their health, seeking influenza vaccination, and minimizing risk factors associated with influenza. The study results offer insights that may potentially be utilized by public health professionals to develop appropriate educational programs or campaigns. Hopefully, such programs will assist in the elimination of barriers to seeking the influenza vaccine. In

summary, the findings of this study may inform the public health community in Lebanon and lead to social change through recommendations to develop an effective educational program designed to influence the Lebanese older adult population to seek vaccination. This, in turn, can potentially minimize the hospitalization burden and reduce the mortality rate associated with influenza.

Summary

In Lebanon, limited information is available on influenza vaccination experiences among older adults (Zakhour et al., 2021). The findings of this study may be useful in identifying the experiences and perceived factors that influence vaccine hesitancy in the older adult population. The focus of the study was previous influenza vaccination experience and impact on vaccination uptake, in addition to trust, perceived efficacy and safety, and perceived risk associated with influenza and its vaccines. In this chapter, I introduced the problem statement and summarized the purpose of this study. In addition, the nature of the study, I presented the study limitations, and significance of this research initiative. In Chapter 2, an in-depth literature review will be presented, and the theoretical framework will be discussed in a more detailed manner.

Chapter 2: Literature Review

Introduction

The purpose of this research was to gain a better understanding of barriers and motivators for older adults in rejecting or seeking influenza vaccination in Lebanon. Influenza is a viral infection that can spread widely leading to a global outbreak (Smetana et al., 2018). The influenza virus causes mild to very severe serious illness, hospitalization, or death, especially among high-risk groups like the older adult population (Smetana et al., 2018). Influenza illness burden is significant, especially among older adults, young children, and those with underlying conditions (Lafond et al., 2021). Influenza viruses are linked to more than 5 million hospitalizations worldwide annually (Lafond et al., 2021). A meta-analysis that included both published and unpublished findings permitted an increased power to generate stratified estimates and enhanced representation from lower income countries (Lafond et al., 2021). The available data show influenza viruses as a cause of severe disease and hospitalizations in younger and older adults worldwide (Lafond et al., 2021). Although vaccines save lives, reluctance in seeking vaccination remains a concern, and vaccine hesitancy seems to be a global phenomenon (Betsch et al., 2018; Schmid et al., 2017).

In Lebanon, there is limited research related to the attitudes of older adults towards influenza vaccination. In reviewing the literature, I found only one study, which included this population. The findings for the study, which was conducted in Bekaa, showed a lack of knowledge about the influenza symptoms and its effects among participants (Tassi, 2020). Furthermore, the authors noted low influenza vaccination

uptake (31%) among the older adult participants and suggested that it was due to the limited knowledge about the benefits of vaccination. It is critical to understand the experiences or perceived factors that influence the Lebanese older adults to accept or reject vaccination. Understanding the knowledge gap may enable public health officials to design effective educational intervention programs that bridge the gap and drive the Lebanese elderly population to seek vaccination. This in turn might minimize the hospitalization burden and reduce the incidence of mortality associated with the influenza virus. This chapter includes the literature search strategy, the theoretical framework, and a review of literature related to the study topic. In the review, I provide background information on vaccine hesitancy in adults in Lebanon, the Middle East, Europe, and Canada, where there are cultural and language similarities to Lebanon.

Literature Search Strategy

I searched the following databases for relevant articles and publications for this research project: MEDLINE/PubMed, CINAHL, APA PsycInfo, SocIndex, ScienceDirect, Academic Search, Education Source, Directory of Open Access Journals, ProQuest Health & Medical, and Embase. I also used Google Scholar search engine and searched for literature on the WHO website. The reference sections of the various articles identified were searched to further select additional relevant articles. The key words used with Boolean operators to search databases included (*Lebanon* or *Lebanese*) AND (*elderly* or *aged* or *older* or *elder* or *geriatric*) AND (*vaccines* or *vaccinations* or *immunizations*) AND (*influenza* or *flu* or *flu virus*) NOT (*refugees* or *asylum seekers*), *vaccine hesitancy*, *vaccination knowledge*, *attitude*, and *vaccine uptake*. I limited the

searches of the academic databases to articles published between 2016 and 2021 and to peer-reviewed articles that were published in English.

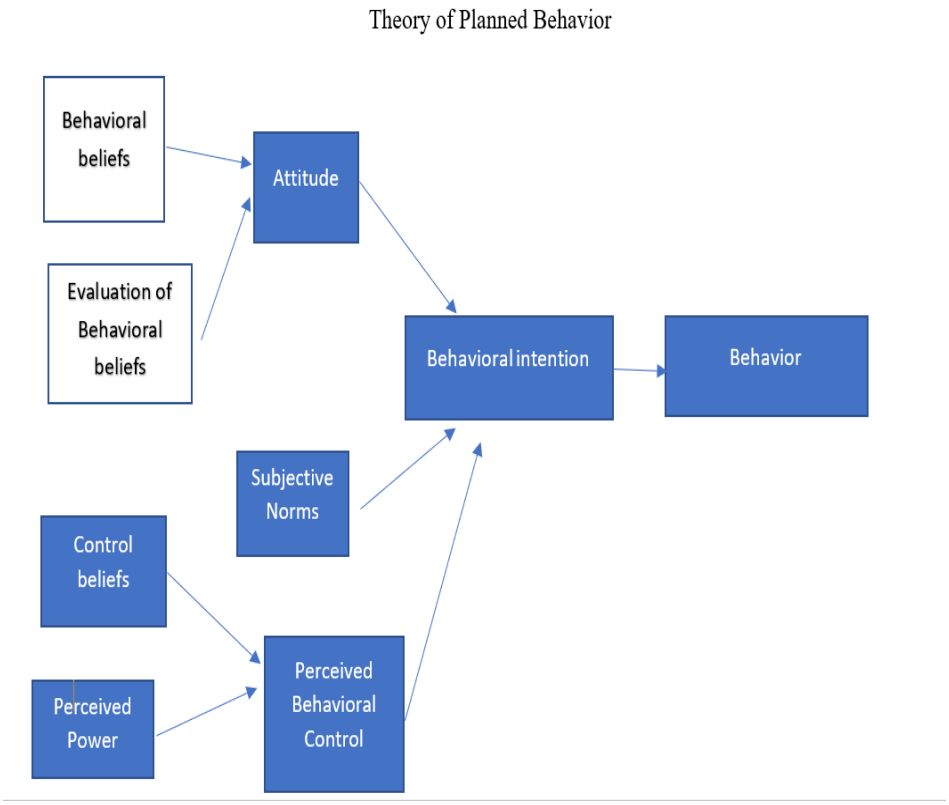
The exhaustive search yielded 163 articles, with 71 considered relevant after applying the inclusion and exclusion criteria. The exclusion criteria included articles that addressed refugees, immigrants, children, or pregnancy. I also focused my searches on qualitative studies. Given the limited number of vaccine hesitancy publications in Lebanon and the Middle East, the search parameters were expanded to include Europe and Canada, where French is a spoken language. The rationale for including the European region and Canada pertains to French being a spoken language in Lebanon and the European style of living within the Lebanese community (Lebanese Culture-Core Concepts, 2015).

Theoretical Framework

I selected the TPB as the theoretical framework for this study because if offers psychological insights that contribute to understanding why some people reject vaccination while others accept them (Schmid et al., 2017). Intention is a key element of this model and is influenced by perceived behavioral control, an individual's attitude, and subjective norms (Ajzen, 1991). TPB describes health behavior as a function of the behavioral intention to show a specific behavior (e.g., seeking or rejecting vaccination). Figure 1 illustrates the six constructs of the TPB.

Figure 1

Theory of Planned Behavior



Note. Adapted from *Theory at a Glance: A Guide for Health Promotion Practice* (2nd ed., p. 18), by National Cancer Institute, 2005, U.S. Department of Health and Human Services, National Institutes of Health (https://cancercontrol.cancer.gov/sites/default/files/2020-06/theory.pdf). In the public domain.

Behavioral theories have underpinned many studies of factors contributing to vaccination intentions. Xiao and Wong (2020) investigated whether perceived behavioral control accounts for a significant portion of the variance in intention to vaccinate, thus indicating the TPB to be superior to the theory of reasoned action in effectively

addressing vaccine hesitancy. The authors synthesized the effects of norms, attitude, and perceived behavioral control on vaccination intentions. They searched five databases and included a sample of 5,149 participants for final meta-analysis. The results showed that attitude, norms, and perceived behavioral control were significant predictors of vaccination intentions with attitude being the strongest predictor. The study findings demonstrated support for the utility of TPB in explaining vaccine hesitancy. This study supported using the TPB as the theoretical framework for my study.

Another study that supported the use of the TPB was by Hossain and colleagues (2021). The researchers compared the predictability of the TPB, the health belief model, and the 5C psychological antecedents to determine which framework explains the most variance in COVID-19 vaccine hesitancy in Bangladeshi adults. The study results demonstrated that the TPB has the highest predictive power followed by the other two theories. However, all three theories could be used to explore the psychological determinants of vaccine hesitancy. The study variables' alignment with the selected theoretical framework is outlined in Table 1.

Table 1

Theoretical Framework and Study Concepts

Constructs of the theoretical framework	Study concepts
1- Attitude- pertains to the extent to which a person has a favorable or unfavorable assessment of the behavior and consideration of the outcome of the behavior.	1- vaccination experience and outcome
2-Behavioral intention- refers to motivational factors that impact a certain behavior.	2- Previous vaccination experience
3- Subjective norms- relate to the belief whether, family members, and people of importance to the individual think he or she should engage in the behavior.	3- Conversations with family members or health care professionals
5-Perceived power- refers to the perception about the power factors that hinder or enable performance of a behavior.	5-Perceived efficacy and perceived side effects of vaccine
6- Perceived behavioral control- relates to a person's perception of the ease or difficulty of performing a certain behavior.	6- Accept vaccine or reject vaccine based on access and cost

Note. Adapted from "The Theory of Planned Behaviour" by W. La Morte, 2019, (https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/BehavioralChangeTheories3.html). Copyright 2019 by Boston University School of Public Health.

Schmid and colleagues (2017) clustered the barriers for different risk groups according to the conceptual framework based on the TPB. They reported on the literature about social norms and how there was differentiation between descriptive norms and injunction norms. Descriptive norms mean "what significant others do" and injunctive norms mean "what significant others think one should do". In the TPB, subjective norms were defined as the outcome of normative beliefs. They are injunctive norms and a person's motivation to abide by these beliefs (Schmid et al., 2017). The authors also stated that predictive power of the TPB increased when concepts of previous experience, past behavior and knowledge were integrated. Therefore, the TPB can predict health behaviors (such as influenza vaccination) in a reliable manner. The Lebanese influenza uptake studies identified did not use any theoretical models. However, the study by Choucair and colleagues (2021) recommended using the health belief model for future campaigns based on the researchers' findings. Schmid and colleagues (2017) argued for the utilization of psychological determinants to secure valid results and permit the scientific community to compare influenza vaccine hesitancy publications. Based on the information summarized, the TPB was used to identify barriers or motivators associated with seek influenza vaccination in the Lebanese elderly target population.

Literature Review Related to Key Concepts and/or Variables

Influenza and Vaccine Hesitancy

Influenza is a highly contagious virus that can cause an acute illness characterized by fever, joint and muscle pain, headache, and cough. Although most people recover, those at the risk of clinically serious infections are elderly, children under the age of 5,

pregnant women, and individuals with chronic illnesses (Smetana et al., 2018). The morbidity related to influenza is linked to an increase in health care utilization including hospitalization especially among high-risk groups. At an international level, influenza causes 1 billion infections every year (Canada P.H.A., 2018; Kizmaz et al., 2020) and the approximate annual global influenza burden is between 3 to 5 million cases of severe illness, and about 290,000 to 650,000 respiratory deaths, where most cases of death occur among elderly people 65 years of age and older in developed countries (Canada P.H.A., 2018). A study by Paget and colleagues (2021) mentioned an average of 389,000 respiratory deaths were associated with influenza globally each year during the study period, corresponding to 2% of all annual respiratory deaths. Of these, 67% were among people 65 years and older (Paget et al., 2019). The higher prevalence of comorbidities among the elderly augments the severity of influenza in this age group (Smetana et al., 2018). Hospitalization and death occur mainly among high-risk groups (WHO, 2018b).

In the elderly population, complication rates are high and inpatient hospitalization are necessary (Smetana et al., 2018). Influenza increases the risk of heart attacks in older adults by 3-5 times and the risk of stroke by 2-3 times in the first 2 weeks of infection in those 65 years of age and older (National Foundation for Infectious Diseases, 2019). Thus, for all individual 65 and older, the WHO recommends influenzas vaccination annually (Kizmaz et al., 2020). Flu vaccination reduces such risks; however, vaccine hesitancy remains a challenge (Smetana et al., 2018).

Vaccine hesitancy is a global phenomenon even though vaccines save lives (Smetana et al., 2018). The SAGE group defined vaccine hesitancy as follows “A delay

in acceptance or refusal of vaccination despite the availability of vaccination services." (Bou Hamdan et al., 2021). The health and economic impact of influenza drives the need for vaccination to prevent serious infections, hospitalizations, and death, especially in high- risk groups. Due to the high risk of influenza complications in the elderly, a significant proportion of the influenza related costs were attributed to this population group (Schmid et al., 2017). Based on the studies of economic evaluation of influenza vaccination program, influenza vaccination programs showed cost effectiveness for elderly aged 65 and older (Schmid et al., 2017).

The global burden of vaccine hesitancy varies from country to country. Vaccine hesitancy was studied in several countries with variances in methodology to better understand the barriers for seeking and accepting vaccination. In Lebanon, there is scarce research work on vaccine hesitancy and the Lebanese elderly population. Lebanon is a small country located on the eastern coast of the Mediterranean with a population of about 5.3 million (Central Administration of Statistics, 2022). Lebanon represents a crossroad of numerous passages from the East and the West, and this gives Lebanon important roles including a mediator and transit to and from Arab countries, and a gate to the East which converts the country into a cultural and commercial hub (Central Administration of Statistics, 2022). There are 1108 municipalities in Lebanon and about 1,550 villages. A portion of the Lebanese people identify as Phoenicians in origin (Zaraket et al., 2020). The spoken languages in Lebanon are Arabic, English, French and Armenian (Central Administration of Statistics, 2022). Lebanon is a member of the

international organization of La Francophonie, and has an active French cultural center (Esseili, 2017).

In Lebanon there is no national surveillance program or awareness campaigns for influenza and the influenza vaccine is not a component of the national vaccination program. Also, data related to the uptake of the influenza vaccine, knowledge and attitudes of the Lebanese population towards influenza vaccines is lacking (Tassi, 2020); El Khoury & Salameh, 2015). In a cross-sectional survey conducted in several community Lebanese pharmacies, seasonal influenza vaccination rate in ambulatory adults was about 28% and for high-risk groups, the rate varied between 18.2% and 35% (Zaraket et al., 2020) ;(El Khoury & Salameh, 2015). Also, the Eastern Mediterranean Region (EMR) studies highlighted the urgent need to increase awareness about influenza and about vaccines (Zaraket et al., 2020). This was due to the misconception about the benefits and efficacy of vaccine, fear of side effects and vaccine cost (Zaraket et al., 2020).

Vaccine Hesitancy in Lebanon and the Middle East

Researchers have investigated the issue of vaccine hesitancy in the Lebanese elderly group to a limited extent. Only one quantitative study related to the elderly Lebanese where vaccine hesitancy was identified (Tassi, 2020). However, the topic has not been explored to permit a better understanding of the Lebanese elderly perceptions or experiences and their impact on influenza vaccines. With the research gap related in this high-risk Lebanese population, it is critical to explore the perceptions and experiences that drive or prevents the elderly Lebanese population from accepting the influenza

vaccine. The elderly Lebanese patients in this study lacked the knowledge about the influenza symptoms and its effect (Tassi, 2020). Furthermore, influenza vaccination uptake was low among the participants. Only 31% of the study subjects have been vaccinated previously against influenza due to the limited knowledge about the benefits of vaccination (Tassi, 2020).

Although not specific to the elderly population, another study evaluated the Lebanese adult population and their uptake of influenza vaccination. The survey was conducted in 30 randomly selected Lebanese pharmacies (El Khoury & Salameh, 2015). Only 8.4 % of the participants were 65 and older and the vaccination rates were only 18% in this group (El Khoury & Salameh, 2015; (Barry et al., 2020). The authors of this Lebanese study reported suboptimal vaccination rates existed, and there was misinformation related to the importance of regular influenza vaccination. A third recent study was conducted in Lebanese students, patients, and health care workers at the American University of Beirut. A significant percentage of the participants never received the influenza vaccine (Choucair et al., 2021). Reasons for not seeking the vaccine included fear of adverse events, lack of knowledge, and the “ not at risk” perception (Choucair et al., 2021).

The literature searches revealed most vaccine hesitancy studies conducted in Lebanon were quantitative research initiatives. This aligned with the broader global searches where consistently the search terms used rendered more quantitative studies than qualitative studies. Although the surveys implemented provided important information, it was not possible to probe further to understand why certain responses were provided

(Meyer & Lum, 2017). There is limited documentation about vaccine hesitancy interventions design and testing in low to middle income countries (Oduwole et al., 2019). Therefore, understanding the experiences and perceptions of a particular population with a specific setting, permits the development of a targeted intervention with successful influenza vaccination uptake. Oduwole and colleagues (2019, p. 3) stated "not all interventions work in all settings for all vaccines".

In the Middle East region, knowledge and attitudes related to influenza vaccine were evaluated in students, health care workers and patients. Most of the studies were quantitative study designs. For example, Alawneh et al. (2021) conducted a cross sectional study in North Palestine hospitals to assess the knowledge and attitudes related to seasonal influenza, influenza vaccination and factors influencing the vaccine uptake among patients; they aimed to identify knowledge gaps using a questionnaire and to provide feedback to health authorities for quality improvement in future projects (Alawneh et al., 2021). About 39% of the participants believed that influenza is the same as the common cold and about 53% of the participants believed the influenza vaccine was safe. Some of the reasons for not seeking vaccination included concerns related to the safety and efficacy of the vaccine and fear of needles. The authors suggested low levels of knowledge and uptake among Palestinians were identified (Alawneh et al., 2021). These findings are consistent with the study conducted in Saudi Arabia (Alabbad et al., 2018) where the participants who did not receive the influenza vaccine believed that it is not necessary, and it had no positive effect. Similarly, vaccine hesitancy insights reported by Awaidy and colleagues (2020) focused on concerns related to side effects and the

perceived lack of benefit. The authors mentioned similar barriers were cited by the Dubai health authorities (Awaidy et al., 2020).

Most of the Middle Eastern studies followed quantitative methodology. One of the few qualitative studies identified was a study conducted in Singapore (Teo et al., 2019) where influenza vaccine attitudes and perceptions in older people were evaluated, and the results were consistent with the various middle eastern and gulf studies. In this qualitative study, fear of side effects was linked to the participants' perception that an aging body would not tolerate the vaccine. In addition, participants misconceptions related to the efficacy and safety of the influenza vaccine were reported. Participants shared influenza vaccines were only needed when travelling or as a cure (Teo et al., 2019). Overall, the vaccine hesitancy reasons reported were concerns pertaining to the efficacy and safety of the influenza vaccine.

Vaccine Hesitancy in Europe and Canada

In developed countries, several studies related to attitudes and perceptions of adults and elderly adults were conducted. In cases of influenza vaccination, individuals with chronic diseases have a higher risk of serious complications or even death (European Centre for Disease Prevention and Control, 2018). The European Union set a goal to achieve vaccination coverage of 75% in seniors and chronically ill individuals. European studies that evaluated knowledge and attitudes related to influenza vaccination showed many European countries were below the set target. Also, a report by the European Centre for Disease Prevention and Control mentioned that none of the European Union member states achieved the vaccination target of 75% (European Centre

for Disease Prevention and Control, 2018). For instance, in Southern Italy, a cross-sectional study was implemented to assess the attitudes and knowledge related to influenza vaccination and to explore the potential determinants of vaccine uptake (Bertoldo et al., 2019). The study sample included 700 participants (mean age 58.7 years) with chronic diseases. The study participants attended four public specialty clinics in Italy. More than 64% of the participants knew vaccines prevent influenza and patients with chronic diseases are at higher risk of developing severe complications, yet only 42.1% received influenza vaccination in the last season, and 46.9% indicated they would receive influenza vaccination in the next season. The authors highlighted the level of awareness was significantly lower among the elderly (65 years and older) and individuals with a higher self-reported health. They concluded communication strategies and education programs are needed in adults with chronic diseases to improve influenza vaccination knowledge and uptake.

Similarly in France, Casalino and colleagues (2018) conducted a prospective observational study to evaluate patient knowledge and behaviors, and the impact of missed opportunities for vaccination (MO) on vaccine uptake. Emergency department patients at risk of severe influenza were included in this study. The multivariant analysis showed predictors of influenza uptake included confidence in the influenza vaccine effectiveness, knowledge related to the seriousness of the flu, and opposition to vaccines in general (Casalino et al., 2018). A total of 868 patients were interviewed and the results indicated vaccine uptake was 33.2%. Only 42% of patients knew about the possible severity of influenza, 23% thought they were not at risk for severe influenza, 39% knew

they have an indication for the vaccine, and 4.3% to 11.5% expressed reservations concerning influenza vaccine side effects and effectiveness. However, MO reported by 484 patients were frequent (69.4%). Moreover, up to 60% of patients underestimated the risk of severe influenza and were unaware of having an indication for the influenza vaccination, and 24% underestimated their own risk for presenting a severe or deadly form of seasonal influenza (Casalino et al., 2018). The authors suggested there is an increased need for information on influenza vaccine indications. They also concluded implementing vaccination campaigns should be based on tailored strategies to address the behaviors and fears of each patient (Casalino et al., 2018).

A cross-sectional study was conducted to estimate the vaccination frequency in patients older than 60 years and /or adults with chronic illness at a primary health care center in Greece. Influenza vaccination status and patient's underlying disease were recorded. The results showed about 35% of the subjects received seasonal influenza vaccines. The authors concluded vaccination rates identified were higher than what was reported in the literature (Papaioannou et al., 2020). However, there was a need to adopt more effective strategies including education on the benefits of influenza vaccination. Thus, reducing the incidence of influenza especially in the vulnerable population. In Greece, this survey was one of the first to assess the influenza vaccination rate among patients that are a subset of high- risk groups (Papaioannou et al., 2020). Another study conducted in Greece was a quantitative research initiative (Dardalas et al., 2020). This study used the TPB and although the authors reported most participants thought they retain control over influenza vaccination, their positive beliefs and intentions are affected

by recommendations from health care professionals like doctors and pharmacists, as well as friends and family members.

In Canada, only a third of Ontarians received the vaccine in 2013/2014 despite the evidence of the significance of the seasonal influenza vaccine for population health (Meyer & Lum, 2017) . The study was conducted to identify why Ontarians are not getting the seasonal influenza vaccine. Using the Conceptual Model of Vaccine Hesitancy, written responses to the question "Why didn't you get the seasonal flu vaccine in the last flu season?" were deductively analyzed (Meyer & Lum, 2017). Inductive coding was also implemented to obtain explanations that fall outside of the present model and may be unique to the seasonal influenza vaccine. The survey conducted in the Waterloo region located in Ontario, showed more than 90% of responses related to perceived importance of vaccination (46.8%), past experiences with vaccinations services (14.5%), and moral convictions (19.4%). The explanations related to health care professional attitudes, risk perceptions and trust, and subjective norms were identified to a much lesser extent. The remaining 8.6% of responses could not be explained by the model because they did not relate to hesitancy (Meyer & Lum, 2017). The authors stated findings contributed to the limited body of Canadian research investigating low uptake of the seasonal flu vaccine, adding to an evidence-base upon which to inform promotional campaigns. The study results highlighted the utility of the Conceptual Model of Vaccine Hesitancy for the design and analysis of research investigating seasonal flu vaccine refusal or delay. The researchers were unable to continue sampling until saturation of themes was reached given the nature of their data collection. Also, they were not able to

probe further to gather more information about insights that influenced knowledge, attitude, and behavior of the respondents (Meyer & Lum, 2017).

The high participation rates in the European studies and Canadian studies summarized represent an important strength of these studies. However, the cross-sectional nature of the study is a limitation given causality between vaccination rate and various factors in this type of design could not be established. Also, in the survey, questionnaires prevent researchers from probing further to gather more information about insights that influenced knowledge, attitude, and behavior of the respondents. Moreover, recall bias by respondents represents another limitation, as vaccination status was evaluated by self-reporting without validation through a medical record. Generalizability is also an important limitation that should be highlighted, as it supports the need to implement this study in a specific population group, in a particular country.

In summary, fear associated with vaccination and doubts about the effectiveness of the influenza vaccine appear to be common barriers among the published articles specific to the Middle East and the European region, as well as Canada. This clearly guides the decision makers to design campaign strategies intended to address the knowledge gap among the population groups studied. These studies highlight the significance of understanding barriers and motivators related to seeking influenza vaccination. Thus, emphasizing the need to conduct the study in Lebanon. Hopefully, the findings will assist in closing the vaccine uptake research gap in the Lebanese elderly group and will drive other researchers to explore the barriers and motivators further to enable designing targeted campaigns.

Factors That Affect Vaccine Hesitancy and the Decision to Receive Vaccines

Demographic and Health Promotion Factors

Kan and Zhang (2018) highlighted several age, sex and health promotion factors that impact vaccine uptake in the elderly population. They stated people aged 70-84 seemed to have higher vaccination rates when compared to other age groups. Thus, older adults between the age of 60 and 70 should be a target group when designing vaccination campaigns (Kan & Zhang, 2018). This systematic literature review identified some note-worthy areas for future research. For instance, Kan and Zhang (2018) mentioned a study conducted in Hong Kong (Lau et al., 2007) where the authors reported that elderly people living with another person were more likely to have been vaccinated in the last 6 months.

Health promotion factors were found to impact vaccine uptake in the elderly population, health status perceived as poor seemed to encourage elderly people to seek vaccination (Kan & Zhang, 2018). While health perceived as good was of the main reasons for vaccine refusal. Health habits and medical service use were additional factors that impacted vaccination uptake. Poor health habits like smoking were associated with vaccine refusal, while the use of medical services like clinic visits or hospitalization follow ups contributed to receiving influenza vaccination (Kan & Zhang, 2018). This finding aligned with the results reported in a Canadian study where the researchers reported vaccine coverage remained below targets (Roy et al., 2018). However, the non-vaccinated Canadian adult group aged 65 years and older was 36.2%. These proportions were higher than in the United Kingdom where the percentage varied between 23.1% and 31.7% (Roy et al., 2018). Among this age group of Canadians, factors independently

associated with non-vaccination were lower level of education, not having a family doctor and excellent self-perceived health. Also, among adults aged 65 years and older having a low household income was another factor independently associated with non-vaccination. Furthermore, Guay et al. (2019) aimed to detect the vaccine hesitancy determinants among a large population in Quebec's Eastern Township region. The researchers conducted a structured telephone survey. They collected socioeconomic information and found people who smoke cigarettes, consult alternative health care professionals, have issues related to trusting public health authorities, or have low household income should be targeted by health professionals during immunization counseling (Guay et al., 2019).

Knowledge and Health Behavior Factors

Studies that evaluated elderly adult knowledge about influenza and side effects of the vaccine showed that participants with high scores were more likely to be vaccinated (Kan & Zhang, 2018). Also, a Turkish study (Korkmaz et al., 2019) showed common reasons for not receiving vaccination were believing that vaccination was not necessary because they were healthy (26%), and not knowing that it was necessary (34%). The number of subjects who gained their knowledge from a physician were more vaccinated than those whose knowledge came from other sources (Korkmaz et al., 2019). Participants who mentioned they had sufficient information about influenza were vaccinated more frequently, the knowledge related results were statistically significant ($p < .05$). Korkmaz et al. (2019) stated their findings were like the results of a Jordanian study. They also concluded that two strategies might contribute to increasing vaccination

rates: (a) physicians could inform target risk groups about influenza vaccination and (b) the level of awareness about influenza could be enhanced (Korkmaz et al., 2019).

The systematic literature review by Kan and Zhang (2018) also indicated vaccinated elderly people were inclined to believe they were susceptible to contacting the influenza virus easily and unvaccinated elderly perceived that they have low susceptibility. A qualitative study conducted by Cameron and colleagues (Cameron et al., 2009, as cited by Kan & Zhang, 2018) in the United States showed perceived health status, age and influenza prevalence influenced the perception of susceptibility (Kan & Zhang, 2018). Vaccinated elderly agreed more strongly that influenza leads to serious complications. In addition, the perceived barriers that predicted refusing the influenza vaccine by elderly people included financial burden and perceived transportation difficulty (Kan & Zhang, 2018). One of the reasons for elderly people accepting influenza vaccines was recommendation from medical staff and advice received from family members and friends. Several studies reported doubt about influenza vaccine efficacy as a reason for vaccine refusal and fear from possible side effects. Furthermore, elderly people were more likely to get vaccinated if their doctors wanted them to receive it and if they have had positive vaccination experiences (Kan & Zhang, 2018).

Brown Nicholls and colleagues (2021) stated limited research has focused on understanding the reasons behind vaccine hesitancy towards various vaccines in the older adult group. The researchers implemented a survey in 372 U.K. older adults between the ages of 65 and 92 years to assess the awareness and uptake of pneumococcal, influenza and shingles vaccines. Two scales measured the psychological factors linked to

vaccination behavior, and health and sociodemographic data were provided by participants (Brown Nicholls et al., 2021). In addition, participants were given the opportunity to provide in free text three reasons for their decisions related to vaccination, and cognitive difficulties, self-reported daily functioning and socials support were evaluated (Brown Nicholls et al., 2021). The researchers found more than 83 % of the participants reported they had received the influenza vaccine in the last 12 months compared to about 60 % who have received the shingles and pneumococcal vaccine. Moreover, higher calculation of vaccine risk and disease risk in addition to preference for natural immunity predicted not getting the influenza vaccine. The analysis of qualitative responses highlighted participants were vaccinated to protect their own health and the health of others (Brown Nicholls et al., 2021).

Social and Cultural Factors

Promotion strategies for influenza vaccination that were effective in developed countries might not have the same effect in developing countries due to variances in cultural and social backgrounds. Thus, researchers need to determine factors impacting influenza vaccination in particular cultural background (Kan & Zhang, 2018). The clustering of opinions and decisions not to receive vaccination weaken campaigns designed to promote vaccination (Taylor et al., 2016). Taylor and colleagues (2016) argued clustering is most problematic at the household level relative to the schools and social circles. They implemented an international survey that included participants from different cultures. The survey results showed household members, across the globe, advise each other to seek vaccination to various degrees, and there was correlation

between advice and vaccine uptake (Taylor et al., 2016). The survey also revealed participants in the United States, Japan and China were less likely to advise older adults than younger family members. In addition, the advice offered was not directed at the age groups advised to get vaccinated by the national health policies. The authors concluded focusing on the household members influence might represent an opportunity to improve vaccination uptake across diverse cultures (Taylor et al., 2016).

Beyond cultural factors, determining social factors related to vaccine uptake enabled targeted interventions to minimize disparities (Jain et al., 2017). A European study was conducted by searching Medline and Embase (Jain et al., 2017). The systematic appraisal and quantification of social factors linked to vaccine uptake among the elderly population aged 60 and older were the key objectives, The results of the study showed social factors affecting vaccination rates included income and education levels, living alone, marital status, vaccination costs, area level deprivation, social class, urban versus rural residence, immigration status and religion (Jain et al., 2017). Of the selected 27 studies related to seasonal influenza vaccine uptake, higher uptake was reported for individuals not living alone (summary odds ratios (OR) = 1.39 (95% confidence interval (CI): 1.16–1.68). Lower seasonal influenza vaccine uptake was observed in more deprived areas and in immigrants. Higher seasonal influenza vaccine uptake was associated with higher income and higher education in sufficiently adjusted studies (Jain et al., 2017). The authors concluded lower vaccine uptake was notably reported with individuals living alone, a segment of the elderly population typically overlooked (Jain et al., 2017). They suggested measuring the association between social factors and vaccine

uptake might permit health professionals to target certain social groups and enable them to address vaccine related disparities (Jain et al., 2017).

Political and Religious Factors

According to Baumgaertner et al. (2018), vaccination decisions are based on several factors beyond cost, benefits and knowledge related to risk. Individual vaccination decisions are impacted by emotional, cultural, and sociopolitical contexts in addition to religious contexts. In a national study conducted in the U.S., the researchers aimed to explore how political ideology and trust affect opinions about receiving vaccines for influenza, pertussis and measles, and how ideology has an indirect effect on vaccination propensity (Baumgaertner et al., 2018). They aimed to examine trust in government medical experts and trust in primary health care provider including family doctors. The results showed political ideology indirectly influence vaccine attitudes (Baumgaertner et al., 2018). The authors suggested the ideology variable predicts an indicator capturing trust in government and medical experts, which explained individual-level variation with regards to attitudes about vaccine decisions (Baumgaertner et al., 2018). In developing countries, like Lebanon, recommendations from health professionals were reported as a key factor in elderly people seeking vaccination (Kan & Zhang, 2018). This highlights the importance of trusting health professionals and other authoritative groups like governments. A qualitative study implemented in 9 countries showed different promotion policies by government produced different concerns among elderly groups, for example affordability was the top hinderance in China and Turkey, while in Brazil accessibility was the main issue (Kan & Zhang, 2018). The published

articles confirmed health professionals and governments play an essential role in eliminating obstacles for elderly people to receive or seek influenza vaccines.

Vaccine refusal is sometimes associated with strong religious convictions. For instance, Orthodox protestants who live in the Netherlands represent religious communities known to reject vaccination for religious motives (Dubé et al., 2013) . Also, religious affiliation has been described as a possible barrier for receiving vaccination in African countries.

A study conducted in sub-Saharan Africa used data from 15 nationally representative surveys where major religious groups were described by country based on education, wealth and residence (Costa et al., 2020). The researchers assessed whether immunization outcomes varied based on religion. They found nine countries had significantly lower immunization coverage among Muslims than Christians (Costa et al., 2020). The authors proposed the Muslim religion was associated with lower vaccination coverage in many sub-Saharan African countries, in both girls and boys, and religious Leaders' involvement is essential for increasing the level of immunization (Costa et al., 2020). In conclusion, religious, political, and socio-cultural context should be taken into consideration when aiming to understand of vaccine hesitancy and making policy related decisions regarding vaccination programs and providing education to the public.

Summary and Conclusions

In my study, concepts that aligned with the selected theoretical framework and vaccine hesitancy determinants are outlined in the Table 2.

Table 2

Theoretical Framework, Vaccine Hesitancy Determinants and Study Concepts

Constructs of the planned behavioral model	Factors that impact vaccine hesitancy	Study concepts
Attitude- pertains to the extent to which a person has a favorable or unfavorable assessment of the behavior and consideration of the outcome of the behavior.	Political and cultural factors	Trust
Behavioral intention- refers to motivational factor impacting a certain behavior.	Behavioral factors	Previous vaccination experience
Subjective norms- relate to the belief whether, family members, and people of importance to the individual think he or she should engage in the behavior.	Knowledge and behavioral factors	Perceived risk of influenza
Social norms- relate to customary behavior codes existing among a group of people.	Social and cultural factors	Perceived side effects of vaccine
Perceived power- refers to the perception about factors that hinder or enable performance of a behavior.	Demographic and health promotion factors	Perceived efficacy and safety
Perceived behavioral control- relates to a person's perception of the ease or difficulty of performing a certain behavior.	Demographic and health promotion factors	Accept vaccine or reject vaccine

In my study, the focus was on gathering information related to trust in government and trust in health care professionals (doctors, nurses, and pharmacists). Also, several interview questions were dedicated to understanding perceived efficacy and safety of the influenza vaccine in addition to the risks associated with influenza illness. Finally, information related to previous vaccination experience and ease or difficult of seeking and accessing the influenza vaccine were collected. As outlined in the Table 2, understanding the mentioned concepts enabled uncovering specific themes Lebanese elderly perceived as reasons to seek or reject the influenza vaccine. Consequently, the study findings revealed the areas of focus needed to design an effective influenza vaccination campaign or educational programs.

Vaccine hesitancy prevents the medical community from achieving herd immunity and it might hinder the function of vaccines in protecting against diseases (Wang et al., 2021). Understanding the reasons behind vaccine hesitancy enable public health professionals to design effective influenza vaccination campaigns. The study population was selected due to the gap in the literature related to vaccine hesitancy in the Lebanese elderly population. In this Chapter, I attempted to review the influenza vaccine hesitancy literature relevant to the elderly population and the discoveries of various scholars. In different settings and countries, studies reported influenza vaccine hesitancy and decisions related to accepting or rejecting the vaccine were influenced by the determinants discussed (political, knowledge, cultural, social, religious, and demographic factors). To date and to my knowledge, there are limited number of publications addressing the influenza vaccine hesitancy perceptions and experiences of the Lebanese

elderly population. The study findings contributed to filling this gap. In the subsequent Chapters, I describe in detail the methodology for the study. In addition, the target population, recruitment strategy, and data analysis are discussed.

Chapter 3: Research Method

Introduction

In this dissertation, I explored the experiences and perceived factors that influence Lebanese older adults' acceptance or rejection of the influenza vaccine. According to my research, only one researcher (Tassi, 2020) investigated such factors and/or experiences in the Lebanese older adult population. The selected qualitative approach included interviewing 16 participants for a duration of 30 to 50 min. I used an interview protocol to collect information about participants' level of trust, subjective norms, and behavioral intentions related to vaccine hesitancy (see Appendix A). The study may inform the design of educational programs intended to improve Lebanese older adults' knowledge about the benefits of influenza vaccination. In this chapter, I discuss the research methodology for the study. The following topics are described: the sampling procedure, participant recruitment, the data collection process and instruments, operationalization of the constructs, data analysis plan, and ethical procedures.

Research Design and Rationale

The main RQ was as follows: What perceived factors and previous vaccination experiences influence Lebanese older adults to receive or reject the influenza vaccine? The sub-Qs were as follows:

Sub-Q1: How are the risk of influenza and influenza vaccination perceived by Lebanese older adults?

Sub-Q2: How do Lebanese older adults' perceptions of previous vaccination experiences impact their decision to reject or accept vaccination?

Sub-Q3: Are there other factors that influence Lebanese older adults' decision to accept or reject vaccination?

Qualitative research originated from sociology, anthropology, and humanitarian evaluation. As Creswell and Creswell (2015) noted, qualitative research became more widely used in the 1990s. Qualitative research encompasses five characteristics: it is naturalistic, the data are descriptive, it is process related, it is inductive, and meaning is the goal (Salazar et al., 2015). In a natural setting, a qualitative researcher needs to collect data in the field at the site where participants experience the issue or problem under study. Therefore, to understand the problem, the researcher should have face-to-face interaction (Creswell & Creswell, 2018). A qualitative researcher typically collects data by interviewing participants, and the underlying process is inductive given that the researcher starts by collecting and describing data and subsequently tries to interpret the data (Salazar et al., 2015). The main approaches to qualitative research include case studies, ethnography, phenomenology, and grounded theory; however, most qualitative research is referred to as general qualitative research (Ravitch & Carl, 2016). Researchers who engage in general qualitative interview-based inquiry (online or by phone) seek to describe the meaning of key themes in the lived world of the participant (Moser & Korstjens, 2018). The researcher elicits participants' experiences, thoughts, and perceptions.

The purposes of qualitative research include understanding individuals' perspective in addition to contextualization and interpretation of the study phenomenon (Salazar et al., 2015, p.221). Qualitative researchers have investigated peoples' beliefs,

attitudes, and experiences of various topics that cannot be statistically measured, and such studies require a qualitative design (Salazar et al., 2015, p. 230). In this study, the focus was on the perceived factors affecting vaccination uptake and vaccination experiences of Lebanese older adults. Therefore, the more common approaches such as ethnography, case study, and grounded theory were not suitable for the study.

Case study researchers investigate a single case in depth where the boundaries of the case are clearly recognized (Burkholder et al., 2016). A case study is a research design that is used to gather in depth or detailed information about the subjects, an entity, or an organization. The nature of this research is explanatory or exploratory (Burkholder, 2016). The finding would not be transferable outside the parameters of the study. In this study, older people's perceptions and experiences were not recognized as a single case. For this reason, I opted against using the case study design. Ethnographic researchers explore the network of social groups and practices that define a culture (Burkholder et al., 2016). One unique aspect of ethnography is that the researcher lives with participants for a specific period, which could be years, and becomes submerged in their culture (Burkholder et al., 2016). Records of observation are made on site where the subjects live; thus, ethnography necessitates field work. Because this study was not focused on cultural aspects, ethnography was not the appropriate approach for my study.

The purpose of grounded theory research is to discover or construct theory from data (Burkholder et al., 2016). A researcher who uses this theory analyzes collected data to understand the meaning behind individuals' behavior (Pezalla,.2016, p. 188). I opted against using the grounded theory design because I did not collect data to develop a

theory. Phenomenologists investigate individuals' lived experience, focusing on the actual content of the information being reported (Burkholder et al., 2016). For example, if an older adult reports fear of receiving vaccines and fear of being injected, the phenomenologist focuses on the fear itself and not what the individual's experience of fear was like. As a researcher, my interest was in Lebanese older adults' actual perceptions. I was less focused on the inner structure of the participants' experience process. Therefore, a general qualitative study approach was appropriate. In this type of study, the researcher investigates participants' reports of their subjective opinions, beliefs, and reflections of their experiences about things in the outer world (Salazar et al., 2015). I used semistructured, open-ended interview questions to query Lebanese older adults about their perceptions of influenza, previous experiences of influenza vaccination, and perceptions of vaccine efficacy and safety. I also asked participants about their vaccine knowledge and level of trust. Because I aimed to obtain a broad range of reflections, this generic qualitative approach was appropriate. The results of this study may be transferable to other situations, as I will discuss in other sections of this chapter. .

Role of the Researcher

Through my active awareness of the researcher's role and influence in the development of and relational contribution to meaning and interpretation throughout the research process, I planned to avoid potential biases by documenting, and coding my observations (Creswell & Creswell, 2018). Positionality refers to the researcher's role and social location in relationship to the context and setting of the research. To demonstrate my effectiveness in the presentation of positionality, I interviewed eligible

participants who provided informed consent. A participants consent to participate in the study allowed me to book an appointment to conduct and record the interview. As a pharmacist I am trained to counsel patients on their treatments. However, in this study, I did not engage in any counselling and/ or education to remain focused on the data collection process. If any required counselling or education was identified during the interview process, I advised the participant to speak to their own doctor or pharmacist to seek additional information about the flu vaccination, at the end of the interview. This secured I am meeting my obligations as a health care professional.

Methodology

Participant Selection Logic

In this study, the targeted study population was elderly people who are 60 or older. Purposeful sampling enables selection of information rich instances that offer insight into RQs (Emmel, 2013). It is also used when the researcher uses their judgement to select a representative sample suitable for the phenomenon being explored (Vehovar et al., 2016). In purposeful criterion sampling, the researcher must select all participants that meet certain criteria. The study inclusion criteria were Lebanese elderly people who are 60 years of age or older, who must be comfortable speaking English or Arabic. All other age groups were excluded from the study. Interviews in this case will offer rich information that could be used to improve a strategy like enhancing educational programs or flu vaccination campaigns.

After obtaining approval from Walden University IRB (approval no. 08-23-22-0443725), I drew a purposeful sample based on to the availability of Lebanese older

adults at the determined locations and the potential for these individuals to recruit others, such as relatives, who might be interested in participating in the study. A poster and leaflets introducing the study and inviting elderly people to call my number were posted and made available in a common area of the specified locations (see Appendix B). If the potential participant agreed and provided their informed consent, an appointment to conduct the interview was booked. The option of conducting the interview immediately after informed consent was obtained, was offered. The total number of participants interviewed was 16 Lebanese elderly individuals. Each participant was interviewed based on a one-to-one interview with me over a duration of 30-50 min.

Sampling and Sample Size

Obtaining adequate data appropriate to the study should be the goal when determining the sample size. Creswell and Creswell (2018) provided an estimate of appropriate sample sizes based on the qualitative research design and the review of numerous qualitative studies. They suggested a range from 3-10 subjects for phenomenology studies. The authors also suggested adopting the idea of saturation, where the researcher stop collecting data when gathering additional new data no longer delivers new insights. For this study, the small sample of 10-20 participants was deemed adequate. When adding more study participants no longer delivers additional information or perspectives, saturation will be achieved (Shetty, 2022). It is possible the sample size might increase to ensure saturation will be reached.

Instrumentation

Semi structured and open-ended Interview questions were outlined in an interview protocol and the sequence depended on how the interview progressed (Moser & Korstjens, 2018). During interviews, an instrument for recording data should be used and the researcher is the one who gather the information and interpret it (Creswell & Creswell, 2018). The conversation might evolve requiring the researcher to go back and forth between questions. A pilot test will be required to confirm the appropriateness of the content and determine if a question should be re-worded (Moser & Korstjens, 2018). In a semi-structured interview, participants speak freely, and they share specific experiences and feelings. Probing and asking follow-up questions will allow participants to provide more details (Moser & Korstjens, 2018). Qualitative data analysis will include a review of transcribed responses, adding notes, defining codes.

For this study, the interview questions were developed based on the following reference: Akel et al., (2021); Guay et al., (2019); Larson et al., (2015). The questions in these publications were validated and used in other publications. The Sage Working group developed a model of adult vaccine hesitancy determinants based on a validated parental instrument. This model is a useful guide to develop questions specific to vaccine hesitancy (Larson, 2015). Another study utilized to develop this interview instrument was a study by Guay and colleagues (2019). To identify determinants of vaccine hesitancy, the researchers developed a questionnaire based on validated questionnaires and the questions were established in collaboration with the Eastern Townships Health Authority. Furthermore, the questionnaire was pretested and approved by the Research Centre on

Aging, Health and Social Services Centre—University Institute of Geriatrics of Sherbrooke (CSSS-IUGS) Research Ethics Board.

Akel and colleagues modified the Vaccine Hesitancy Scale to provide measures of its validity and reliability in relation to adult influenza vaccine uptake and COVID-19 vaccination acceptance. The cross-sectional survey was conducted in the United States and China. They evaluated the impact of vaccine hesitancy on influenza and COVID - 19 vaccination using multivariable regression modeling that informed the validity of the adult Vaccine Hesitancy Scale (Akel et al., 2021). Based on the available literature, the reasons for vaccine hesitancy were captured using the questionnaires related to access, fear, lack of communication about flu vaccines, and other determinants. I developed the interview questions based on guidance from the above-mentioned publications.

The interview questions for this study did not require modification after piloting the interview question with 2 participants. The pilot interview contributed to the validity and reliability of the semi- structured questionnaire. Validity pertains to the extent to which a specific test or evaluation tool measures what it claims to measure, while reliability relates to the extent to which the results of an assessment are free from "random sources of measurement error" (Creswell & Creswell, 2018).

Content Validity

Castillo-Montoya (2016) presented the four-phase interview protocol refinement (IPR) framework as a means to secure alignment between the interview and research questions for a study, create an inquiry-based dialogue in organizing an interview protocol, and ensure that the protocol is reviewed by others and is piloted. Use of the

framework also strengthens the reliability of a study's interview protocol (Castillo-Montoya, 2016). Consequently, the quality of the data obtained from the research interviews is enhanced. The framework is a worthwhile approach to creating a solid initial interview protocol. This framework enables a researcher to obtain rich meaningful data about the study participants' experiences, to the extent possible.

Procedures for Data Collection, Recruitment, and Participation

Pilot Study

Data was drawn from semi structured interviews, the purpose of which was to explore the perceived factors and influenza vaccination experiences that impacted vaccine uptake among the elderly Lebanese. Once approval by Walden University IRB was received, the interview questions were tested in a pilot study where two separate interviews were conducted with two Lebanese elderly participants after granting their consent to be participants in this study. The Lebanese elderly participants were recruited from determined locations in Beirut and the surrounding region. Before proceeding with subsequent interviews, interview questions were assessed to determine if any modification was needed based on the findings from the pilot study phase.

Final Study

This qualitative study involved one-on-one interviews with Lebanese elderly participants. Individual semi-structured interviews are required to derive multiple themes based on individual experiences. This study may be of significant interest to future research and may enable the design and development of effective intervention programs intended to educate the elderly population. To invite potential participants to engage in

one-on one interviews, advertisements and leaflets were placed in the common waiting area and the main entrance of the determined locations in Lebanon after obtaining Walden University IRB approval. This allowed potential participants or relatives of potential participants to take a leaflet and contact me to participate. As part of the recruitment strategy, I offered compensation of $15 in U.S. dollars per participant as an expression of gratitude for their time to answer the interview questions. This compensation was added to the recruitment leaflet.

Once approval by the Walden University IRB was received, the study recruitment phase began. Each participant was assigned a unique number to identify them and maintain confidentiality. As the researcher for this study, I aimed to interview one to two participants per week. Based on this frequency all 16 interviews were completed within a duration of 10-20 weeks. Using the Zoom feature of audio recording, I audio recorded the interviews and transcribed the interview verbatim. Also, all recorded interviews were backed up using an MQ U300USB flash drive recorder. During the interview, member checking was conducted, where appropriate. To ensure the recruitment plan was implemented at the selected sites permitted interviewing the total number of participants needed for this study, approval to post information about the study was obtained from the IRB.

I designed the interview protocol to answer the main RQ and the sub-Qs (see Appendix A). The interviews were recorded using the Zoom or WhatsApp features. In addition, the recorded interviews were backed up using an MQ U300USB flash drive recorder.

Data Analysis Plan

Data was entered and analyzed using Delve Tool software to compare categories and themes. Analyses of responses to interviews were done by coding through categorical concepts and this involved deductive conceptual analysis based upon the TPB. A combination of inductive and deductive approaches was adopted. This permitted a holistic approach to analyzing the data while checking for data saturation (Creswell & Creswell, 2018).

The transcripts were reviewed to identify codes in an iterative manner. Units and meaning were isolated from individual words and small phrases. Subsequently, phrases and units were grouped into common elements that constituted categories. This enabled me to identify global ideas that represented themes. To assess thematic saturation in inductive analysis of the qualitative interviews, the method proposed by Guest et al. (2020) was used. This permitted greater transparency and clarity related to reporting on saturation (Guest et al., 2020).

Issues of Trustworthiness

Trustworthiness is the extent to which a researcher has confidence in the sources and the methods used to gather the data and analyze the study findings. Strategies related to evidence of trustworthiness include dependability, credibility, transferability, and confirmability (Burkholder et al., 2016). Moreover, instrument development such as the interview protocol and conducting a pilot would enhance trustworthiness.

Dependability

Consistency in collecting, analyzing, and reporting on data demonstrated dependability. Records included raw data, documentation of process, analysis, and synthesis, methodological process notes, and reflexive notes that were used to demonstrate dependability. Reflexivity was another study strategy utilized to ensure not only dependability, but also credibility, confirmability, and transferability (Laureate Education, 2016; Lincon & Guba, 1985). Reflexivity entails the recognition of the researcher she or he is a participant in the research process. Therefore, the researcher should be clear about their own personal biases, values, and assumptions that influence the research process (Burkholder et al., 2016). Strategies that demonstrate evidence of reflexivity include the researcher keeping a journal to evaluate their own thoughts and interactions thus enhancing the research findings through their subjective experiences (Laureate Education, 2016; Lincon & Guba, 1985). In the comment section of each interview, I documented notes specific to the interview being conducted, and any self-critical analysis of biases were reported as well as changes made to the study based on ongoing data analysis. Since, I was collecting data remotely, my presence in the setting had limited influence on the participants' behavior (Burkholder et al., 2016).

Credibility

Credibility pertains to whether the findings reflect reality as perceived by the participant (Laureate Education, 2016; Lincon & Guba, 1985). Member checking enable the researcher to discover whether the data analysis is consistent with the participant's experience (Laureate Education, 2016; Lincon & Guba, 1985). This relates to involving

the participants in the process of data analysis (Burkholder et al., 2016). To ensure credibility, the data collected in this study underwent member checking where participants reviewed a brief summary of the results and confirmed whether it captures their response (Burkholder et al., 2016).

Transferability

The finding of a qualitative research initiative should be transferable. Transferability relates to whether the conditions are similar enough to make the findings applicable. Study findings of a qualitative research initiative should be transferable when attempting to achieve credibility and authenticity (Burkholder et al., 2016, eBook pg.123). Readers of a qualitative research article should be able to determine whether the findings can be applied in other contexts based on the details provided. Consequently, there should be a detailed descriptions of the participants and their own experiences to make comparisons with other groups and their own experiences. Therefore, a thick description of study participants settings, procedures was another strategy I have adopted to demonstrate credibility and transferability.

Confirmability

Confirmability pertains to the capacity to authenticate the study findings and the interpretations of the data (Laureate Education, 2016; Lincon and Guba, 1985). To secure confirmability, an audit trail was adopted by transcribing audio taped interviews verbatim and describing in detail how categories were derived. Moreover, reflexive notes added to the interview protocol under comments and conducting a pilot study as described

previously were strategies and actions that contributed to confirmability as well as dependability (Laureate Education, 2016; Lincon & Guba, 1985).

Ethical Procedures

I obtained IRB approval after submitting my proposal and following the process outlined by Walden University. Participants were offered an informed consent for their review and signature prior to starting any interviews. In addition, they were invited to call my number using WhatsApp to ask any questions or discuss any aspects of the informed consent prior to signing it. Recruitment only commenced after IRB approval and informed consent of the participant were obtained. Strategies to address any recruitment challenges included posting the same advertisement in public areas at determined locations. To ensure participants were protected and their information remained confidential. appropriate measures were taken in alignment with the Walden University IRB, privacy, security, and ethical standards. I complied with the HIPPA, IRB, and related regulations to protect the anonymity of the participant and their health information. Invitation to participate in this study was voluntary and anonymous, consequently permission for documentation from organizations was not required. All information was stored securely and privately. All information is stored in a password protected home computer and was backed up using a USB drive. Password protection and the use of locks were security measures taken to protect the data collection, transfer, analysis, and archiving. No personal identifying information will be shared, each participant was assigned a number and only initials were used to link the participant to the number assigned. All collected data will be archived for 5 years and then deleted.

Summary

In this Chapter, the research design and methodology were described. A semi-structured interview was used to collect the data for this general qualitative study. An interview protocol was developed and included in this Chapter. The purposeful sample of 10-20 participants was described. The data was analyzed using Delve Tool software. Demographic data were presented in Tables where gender, age, living conditions were captured. In the following Chapter the results of the data analysis were presented, and I detailed how they were utilized to answer the RQ.

Chapter 4: Results

Introduction

The purpose of this study was to gain a better understanding of barriers and motivators for older individuals in rejecting or seeking influenza vaccination in Lebanon. I sought to answer the following main RQ: What perceived factors and previous vaccination experiences influence Lebanese older adults to receive or reject the influenza vaccine? In this chapter, I describe the pilot study and present the themes that were identified in the final study. In addition, the chapter addresses the following topics: the study setting, demographics of the participants, the data collection process, the data analysis methods, and the trustworthiness of the study methods.

Pilot Study

The pilot study consisted of the first two semistructured interviews. The interview questions were well received by the participants. There were two scenarios where further probing or confirmation was required. During the first interview, the participant wanted to confirm if I was asking about discussions related to the flu and flu vaccine with her friends. Also, the first participant shared information about who gave her the vaccine. I asked a probing question to obtain information about where the vaccine was administered. Each of the two interviews was completed in less than 50 min. Also, the participants were able to respond to each question using the Zoom and WhatsApp platform. I concluded that there was no need to change the interview questions or the study procedures.

Setting

I conducted the semistructured interviews using Zoom or WhatsApp. The study invitations were posted in a public area at a clinic, a pharmacy, and a church. Multiple sites were selected to allow a representative sample of older people from the community to participate in the study.

Demographics

The study interviews started on September 15, 2022. I interviewed 16 individuals. The demographics of the study participants are shown in Table 3. I assigned each participant a numerical identifier (P1–P16). I recruited participants from a clinic, a pharmacy, and a church. All participants were 60 years or older as verified by asking about their age range during their semistructured interview. Demographic questions pertained to gender, age range, level of education, and living arrangements.

As presented in Table 3, 12 women participated in the study; only four men participated. Regarding age range, eight participants were 60–70 years old, seven were between the ages of 71 and 80, and only one participant was over 80 years old. Regarding education level, two participants had postgraduate degrees whereas seven participants had a university or college degree. The remaining seven participants had a high school degree or less. The living arrangements column shows that eight participants lived as a couple, three participants lived alone, and the remaining five participants lived with family.

Table 3

Study Sample Demographics

Participant no.	Gender	Age range	Education level	Living arrangement
P1	F	60–70	Postgraduate	Part of a couple
P2	F	60–70	University/college	Part of a couple
P3	M	71–80	Postgraduate	Part of a couple
P4	F	60–70	University/college	Live with family
P5	F	71–80	High school	Part of a couple
P6	F	60–70	University/college	Part of a couple
P7	M	60–70	University/college	Part of a couple
P8	F	71–80	High school	Live with family
P9	F	60–70	University/college	Live alone
P10	F	71–80	College	Live alone
P11	F	71–80	High school	Part of a couple
P12	M	71–80	High school	Part of a couple
P13	M	60–70	High school	Live with family
P14	F	60–70	University/college	Live with family
P15	F	70–80	High school	Live with family
P16	F	more than 80	High school	Live alone

Note. F = female; M = male.

Data Collection

I used the Zoom platform for all interviews. I conducted each interview in 30–50 min. I followed the interview protocol guide and asked each participant the same questions to ensure that the same general information was collected for each interview. After introducing the study and obtaining permission to record the interview, I successfully conducted the interviews, which I recorded using the record feature of the Zoom platform. Four participants did not know how to unmute within the Zoom platform. Consequently, WhatsApp calls enabled audio communication, and I was able to record using the Zoom platform. The interview questions permitted me to collect data in a consistent manner, and I probed where applicable to confirm a response or collect

further information specific to a question. Where a participant did not wish to elaborate further, I respected their desire and moved on to the next question. For example, P9 stated, “No, I don’t like the needle, I don’t like the shot, I don’t like the needle, that’s it.” Also, P2 stated “it is not the trend to take the flu shot,” hinting that I should stop the discussion related to why people do not take their influenza vaccines.

I encountered unusual circumstances during two interviews. The first situation was with P12 where I heard a female voice commenting on one of the questions. The participant interrupted her and explained that he was the only one who should answer the question. I proceeded with the interview and did not hear any other voices. The second circumstance occurred during the interview with P16 where I heard a female voice advising her to mention that she takes Panadol (the brand name for Tylenol in Lebanon) for pain. The participant ignored the comment and proceeded to give me her own answer specific to how she felt when she took the influenza vaccine. In both circumstances, it was clear that the participants were not influenced by the comments heard.

After each interview, I thanked the participant for the opportunity to interview them and sent them $15 in U.S. dollars. All interviews were transcribed verbatim, and the Arabic interviews were translated into English and transcribed immediately in English. This was possible for me to do so because I speak English and Arabic fluently. In addition, I speak French, and this permitted me to translate all French words used during the certain interviews. All data collected, for the study, were secured in a locked cabinet in my home office, and all electronic data are password protected on my personal computer.

New information threshold less or equal to 5% correlates to saturation of 80% (Guest et al., 2020). Based on the existing literature, saturation of 80% will require 6-8 interviews, while 95% saturation would necessitate 12 interviews (Guest et al., 2020). In this study, the aim was to reach 95% saturation. This was achieved by interviewing 14 participants in addition to two more participants interviewed for the pilot phase of the study. To account for any dropouts during the conduct of the study, the total number of interviews completed was 16 interviews.

Data Analysis

In this general qualitative study and using semi-structured interviews, I asked each participant the same 16 open-ended questions. I transcribed each recorded audio interview prior to analyzing the data. Transcribing the data allowed me to become more familiar with the data (See Creswell, 2018). I applied open coding to the raw data to search for units of meaning that answer the RQ. Then I applied axial coding by grouping the open codes into categories based on their similarities. The qualitative data analysis software, Delve Tool was used to upload all transcripts and start coding. This software allowed me to organize the raw data and store the collected data safely.

Interview Analysis

The process I used to move inductively from coded units to categories and themes was based on the five steps for qualitative data analysis described by Creswell (2018). The Creswell (2018) approach that I used includes the following steps: (a) prepare and organize data, (b) review data to become familiar with the data, (c) start coding and categorizing, (d) develop themes, and (e) represent and describe the themes.

Step 1: Prepare and Organize the Data

During the first step of the analysis process, I prepared and gathered the collected data by downloading each audio recording under one electronic folder on my computer in addition to all notes taken during the interviews. I transcribed and where appropriate translated to English each interview. The transcripts were then uploaded to the Delve Tool software. I matched the interview protocol (see Appendix A) and transcript to the identifier assigned to each participant.

Step 2: Review Data

I listened to the recordings and transcribed the data. After transcription, I read the data 2 times and in some cases I listened one more time to the recordings of Arabic interviews and read the English transcript to confirm the responses of participants were translated appropriately to English.

Step 3: Start Coding the Data

I coded the data in two phases: (a) open coding and (b) axial coding.

First Phase (Open Coding). I reviewed each response to each question and searched the transcripts line by line for repetitive, significant words or phrases, thus selecting the "unit of meaning" from each response. I created labels for the units of meaning in the Delve Tool software under the tab "Codes". Subsequently, I reviewed the codes thoroughly and where appropriate moved codes under categories. For instance, where one participant experienced "fear", another experienced "good result" or "aches", or "pains". All such terms mentioned pertaining to the participant experience when they received the influenza vaccine were moved under the category "Experience". Fifty-eight

open codes, fourteen categories. Table 4 shows participant identifier, examples of open codes, and excerpts from the interview transcripts that fit each code.

Table 4

Open Coding for Research Questions 6 and 9

Open codes	Categories	Participant identifier	Excerpts
Good results	Outcome	P1	"It has been 20 years I am taking it every year because it gave good results."
		P4	"When I start doing my vaccine it I had a good result and I used to take it every year and for me it was a solution"
My family	Who takes the vaccine	P8	"In my family, my daughters and their families take the influenza vaccine"
Safe	Perceived Risk	P2	"Let me give you an example, my mom was in the U.S. a few years back. She took the flu vaccine, and I don't know what happened. But she was sick for 10 days with high fever and very strong flu symptoms"
		P16	"I think it's safe. they have researched it and they have experience in its safety. It is safe to use"

Second Phase (Axial Coding). For this phase of my analysis, I used axial coding to identify relationships among the labels created through open coding. Based on

similarities among codes I organized them into categories. To uncover connections between the data and the RQs, I arranged the codes into various categories.

Step 4: Generate Themes

Further analysis led me to review the axial codes and arrange them into categories to uncover connections between the data and the RQs. Categories were then used to generate themes. I organized the themes into a list and identified key concepts. Subsequently, I matched the theme that answered a specific RQ. I reviewed the themes to determine alignment with the selected TPB. I reviewed the data several times to identify ways in which the participants answered interview questions. Moreover, “in vivo” coding allowed me to identify key insights. For example, when asked why a participant thinks they are not receiving enough information about the flu and flu vaccine? Ten participants mentioned the need to create campaigns and focus on awareness. Codes and themes will be described using quotations where appropriate and the identified insights will be discussed in detail.

Step 5: Represent and Describe the Themes

I reported the results by compiling the information collected based on the themes and the discrepant data. Five themes emerged from the data. A listing of the categories and related themes identified during analysis is shown in Table 5.

Table 5

Axial Coding Categories, Themes, and Research Questions Connection

Categories	No. of participants who responded (N=16)	Themes
RQ1: What perceived factors and previous vaccination experiences influence Lebanese older adults to receive or reject the influenza vaccine?		
Insufficient information	9	Lack of awareness-Participants do not receive enough information about the details of the influenza and influenza vaccine
Direct assessment of past vaccination experience	5	Access to vaccine-Participants encountered challenges in finding the vaccine in Lebanon and paying for the flu vaccine. Government involvement is necessary to provide access and explain advantages and disadvantages
Sub-Q1: What are the perceived risks?		
Perceived risk	4	Beliefs regarding the flu vaccine-There is misinformation about the influenza vaccine. Participants mentioned the need to get vaccinated only for traveling reasons. All 4 participants indicated people got the flu after receiving the vaccine.
Trust	16	Control beliefs-A total of 14 participants responded they trust their doctor. This is an important finding. An opportunity to engage doctors in educating the public about the influenza vaccines.
Sub-Q2: How do Lebanese older adults' perceptions of previous vaccination experiences impact their decision to reject or accept vaccination?		
Experience	14	Attitude-Participants felt receiving the injection at the pharmacy made it easy. However, the influenza vaccine was not available in Lebanon last year and many participants struggled and continue to order it.
Cost		Cost was a key factor to avoid vaccination and it was highlighted by participants during each interview. The 5 participants who did not receive the influenza vaccine indicated fear, bad experience with previous vaccination, or perceiving it is not necessary prevented them from seeking vaccination for the influenza. Also, COVID 19 was the focus of education in the country and there was no mention of the influenza vaccine.
Outcome	14	Attitude- the participants who did not get the flu after they received the vaccine continued to go to the pharmacy every year to buy the vaccine and take it. Participants who received the vaccine at the pharmacy said it was "easy" and recommended making it available through the pharmacy for free, at least for people 65 and above.

Specific Categories and Themes

The total number of categories was 12, and there were five themes extracted from the codes and categories (see Appendices C and D). The responses from the Lebanese elderly participants were helpful in gathering information related to their perceived factors and previous vaccination experiences influence on their influenza vaccination decisions. The categories were developed based on grouping similar codes that originated from the transcripts (Saldana, 2016). Previous vaccination experience reported varied by participant. P1, P5, and P16 reported their results were good. P1 stated, “When I started doing my vaccine, I had good results”. P-16 stated” the vaccine is good, and it was a good experience”. A common category highlighted was the positive experience of receiving the influenza vaccine at the pharmacy. P4, P5, P6, P7, P10, and P11 stated that they got the vaccine at the pharmacy. P4 stated, “and just for you to know, here the pharmacist makes it” (the participant meant: “administer it”) because the shot is very simple.” P3 stated, “In Lebanon it was easy to take it because my sister (a nurse) gave it to me once and either once or twice at the pharmacy, easy.” Five out of all 16 participants did not take the vaccine. P9 stated, “I am a little bit afraid from the shot, I keep myself healthy and stay away from others”. P12 stated that “we started to get colds after the vaccine,” whereas P13 mentioned that “there was no chance to take it, there was no incident that scared me to go and get vaccinated for the flu.”. P2 stated, “I never found it necessary because I never get the flu”. The participant shared she received the influenza vaccine only once because she was planning to travel. This was an important finding also

reported by P3. These insights represent an opportunity to educate elderly people about when to take the influenza vaccine and for what purpose. Also, clarifying, and correcting misinformation related to availability of oral flu vaccines and risks associated with the influenza illness, mainly severe respiratory infections, and hospitalization, seem to be suitable topics for educating the Lebanese elderly.

Treatment of Discrepant Case

P15 was confused about the difference between the influenza vaccine and COVID-19 vaccine. The participant responded to the questions specific to receiving influenza vaccine by talking about her experience with receiving COVID-19 vaccine. Although there was an attempt to explain we are talking about influenza and the influenza vaccine, the participant continued to mention COVID-19 vaccine and the information provided about COVID-19. The alignment of the RQs to the interview questions and the theory is shown in Tables D1 and D2 (see Appendix D).

Results

In this basic qualitative study, I explored the perceived factors and previous vaccination experiences influence on the Lebanese elderly decision to receive or reject the influenza vaccine using a semi structured open ended interviews. In this section, I present the results of the responses I gathered during the interviews with 16 participants. I used 16 open ended interviews to generate the themes.

In this section, I summarize the interview responses for each interview question. Responses to Interview Questions 1, 2, and 3 are presented in Appendix C. Key observations included the following: Seven participants out of 16 did not receive the

influenza vaccine last year, and six participants did not receive the influenza vaccine in the past. P2 and P3 took it in the past for travel reasons. This is an interesting finding as it represents a knowledge gap related to when the influenza should be taken and for what purpose. Also, although committed to taking the influenza vaccine every year, P11 did not receive the annual vaccine since COVID-19 started. It seemed availability and cost were important factors in this situation.

Table 6 below illustrates the responses to Question 4: How was your experience when you received the flu shot? and Question 5: Tell me where do you go to get the vaccine?

Table 6

Responses to Question 4 and 5 Participant's Experience and Location

Participant number	Simple, good, easy at the pharmacy, clinic, or hospital	Afraid	Pain, fever or runny nose
P1	Yes		Yes
P2	Only once		
P3	Only once		
P4	Yes		
P5	Yes		
P6	Yes		
P7	Yes		
P8	Yes		
P9	N/A	Yes	
P10	Yes		
P11	Yes		
P12	N/A	Yes	
P13	N/A		
P14	N/A		
P15	N/A		Yes, but no fever
P16	Yes		

Table 7 shows the responses for Question 6: In your opinion, what could be done to make it easier for you to access influenza vaccination?

Table 7

Responses to Question 6: What Could Be Done?

Participant number	Need Awareness/Campaigns	Make it Free	Make it available in pharmacies
P1	X		
P2			X
P3			X
P4		X(government)	
P5		X (Charitable associations)	
P6			
P7	X		X
P8	X (remote areas)		
P9	X (elderly people)		
P10			X
P11	No issues with access	----	----
P12		X (Poverty)	
P13	X (When You talk)		
P14	X		
P15	X		
P16		X (government)	

Responses to questions 1-16 addressed the RQ and sub-Qs, and five themes emerged based on these questions. Responses from the interview questions were clustered around five main themes generated from the codes. These themes where: previous vaccination experience and challenges accessing and paying for the vaccine, participants trusted their doctors, perceived risk of the influenza vaccine, family influence, limited knowledge about the flu and the flu vaccine.

Theme 1: Assessment of Past Vaccination Behavior

Previous vaccination experience and participants encountering challenges with ordering and paying for the influenza vaccine prevented participants from seeking the vaccine. Eight of the 16 participants received the influenza vaccination at a clinic or a pharmacy. They described the experience as easy and there was no need for an appointment at the pharmacy. They indicated the outcome was good, and the vaccine prevented them from getting sick, so they take it every year. The remaining participants did not comment on this question except for P2 and P3 who took it in the past once for travel reasons. They both took it at a clinic and by appointment. They both expressed it was a good experience. However, P2 stated, "it is not necessary …"

All eight participants commented on the challenges associated with the availability of the influenza vaccine especially in the past year. P6 and P7 also mentioned it was costly to order from France or Greece. All 16 participants stated they had to pay for the influenza vaccine. Financial challenges for families who used to be able to pay for their medication were expressed by more than half the participants. Six out of 16 participants did not take the influenza vaccine. P9 was afraid from the shot, and P12 was afraid from getting sick from the influenza vaccine due to a bad experience 15 years ago where the whole family struggled with a mild cold for months after receiving the vaccine.

Theme 2: Trust in Health Care Providers

Participants trusted their doctors and pharmacists to receive information about the vaccine and make decisions for their health and for taking the influenza vaccine. Responses to Questions 7, 11, 12 and 15 addressed the aspect of trusting the family and

the family doctor. Table 8 showed 14 participants trust their own doctor. Furthermore, eight participants trusted their doctor to make medical decisions and to resolve any family difference in opinion related to seeking vaccination against the influenza virus. In addition, pharmacists placed orders to receive the influenza vaccine and delivered the injection in the pharmacy. This practice was stated by most of the participants even the ones who did not take the vaccine and they felt this is a good approach to access the vaccine. Although the influenza vaccine was relatively expensive, participants who benefited from receiving it annually were willing to pay for it.

Conversations with friends and family were mentioned by more than 70% of the participants (13 out of 16), as presented in Table 8. This insight showed how the participants' families communicate and discuss the flu vaccination. More than three participants stated they listen to their friends, but they don't do what the friends are saying about why take it if you're going to have the flu. Thus, capitalizing on such communications is key. Educating daughters, and sons, and other relatives about the influenza virus and the influenza vaccine will assist in delivering accurate information to Lebanese people 60 and over. This was highlighted by P12, who stated "I remember the school used to send us information."

Table 8

Influenza Vaccination Behavior of Other Family Members, Medical Decisions and Resolving Differences in Opinion Within the Family

Participant identifier	Receipt of flu vaccine	Who do you talk to about the flu vaccine?	Who do you trust to give you information about the flu and the flu vaccine?	Medical decision	Who resolves difference in opinions
P1	Yes	Friends	Doctor	Husband (doctor)	N/A
P2	No	Doctor/husband	Doctor/own research	Me	N/A
P3	No	Wife/sister/doctor	Doctor/pharmacist/ own research/nurse	Me	N/A
P4	Yes	Friend/ people	Doctor/specialist/ pharmacist	Doctor	Doctor
P5	Yes	Friend/kids/ relatives	Doctor/medical conferences/own research	Me	N/A
P6	Yes	Doctor/friends	Doctor/own research	Doctor	Doctor
P7	Yes	Family/friends/ colleagues/wife	Doctor/own research don't get enough info	Doctor	Doctor
P8	Yes	Family/friends	Doctor	Me/ daughter	Doctor (daughter)
P9	No	Family/friends/ old people	Doctor/pharmacist	Doctor	Doctor
P10	Yes	People	Doctor/dietician (cousins)	Doctor	Doctor
P11	Yes	Friends/ colleagues/boss	Ministry of Health	Me	N/A
P12	No	Sister	Doctor/pharmacist	Me/my wife	N/A
P13	No	Family/colleague	Doctor	Doctor	Doctor
P14	Yes	Physician	Doctor	Doctor	Doctor
P15	No	Doctor/sister	Doctor	Sister (nurse)	Sister (nurse)
P16	Yes	Daughter/son	Doctor/pharmacist/people who know about the vaccine in a professional way	Me and my daughter	Doctor

Theme 3: Perceived Risk

Perceived risk of the influenza vaccine influenced the participants decision to seek or reject vaccination. Questions 8 and 9 responses were illustrated in Table 9. The results showed that P2, P3, P8, and P13, who did not receive the influenza vaccine, were doubtful about the efficacy and/or safety of the influenza vaccine. For example, P3 mentioned “I hear a lot of negatives and positives.” Also, P13 stated, “I don’t think there is anything to lose.” In contrast, participants who took the influenza vaccine stated that it is safe and that it works.

Table 9

Influenza Vaccine Perceived Risk

Participant identifier	Does it work? Yes /No	Is it safe?	Comments
P1	Yes	Yes	"I think it's safe because even last year my daughter gave it to her baby. She is 3 years old."
P2	No	No	"I guess so…it works on certain types of viruses, and it does not work on everything."
P3	X(doubt)	Not sure	"I hear a lot of negatives and positives."
P4	Yes	Don't know	"From my point of view, it works."
P5	Yes	X	"It's safe 100%"
P6	Yes	X	"It works… after taking the flu vaccine, I might get sick but very mild."
P7	Yes	X	"It works…It's safe."
P8	Yes	Don't know	"The doctor knows if the patient needs the flu vaccine and monitors for side effects. The doctor knows who should not take the flu vaccine."
P9	Yes	X	"It works. He might get sick (referring to her brother who takes the flu vaccine." "It's safe."
P10	Yes	X	"Yes, because I got pneumonia, and it was mild." "Like I said, I felt safe …I don't know about others."
P11	Yes	X	"I tried it. It was good for me." "I think it's safe. I did not have side effects."
P12	Yes	X	"Yes, I hear a lot of people getting the flu vaccine. If it didn't have improvement, they will not do it." If it was not safe my sister …will not take it every year."
P13	X(maybe)	X	"I don't think there is anything to lose."
P14	Yes	X	Yes, it works to protect the people who need it." "Yes, it is. Some people are sick, and they need to take it."
P15	Yes	No	"…they took the vaccine, but they got sick. They stayed in bed for 10 days."
P16	Yes	X	"It prevents me from getting sick. It's safe they have researched it …. It is safe to use."

Theme 4: Family Influence and Social Norms

Who takes the vaccine and who does not take the vaccine within the family seems to influence the participants decision related to seeking or not seeking vaccination. Of all 16 participants, eight reported that other family members did not take the vaccine, two participants reported their friends do not take the vaccine, and four participants mentioned a lot of people in their community did not take the vaccine. These responses to the number of participants who take the vaccine showed overall participants who take or do not take the influenza vaccine were not influenced by the behavior of other family members or friends in their own community. Six participants take the vaccine despite their knowledge of a family members, friends or other people in their community do not take it, as shown in Table 10. One rationale behind this theme would be doctors make the medical decision related to taking or not taking the vaccine, according to seven participants. This finding was reported most frequently by the participants (eight participants listen to the decision of the doctor and differences in opinion are mainly resolved by consulting the family doctor), as illustrated in Table 10. However, communication within the family seemed high and family members influenced the decision of the participants. P8 and P16 made decisions related to seeking the influenza vaccination with their daughters. P1 relied on her husband and P15 on her sister to make the medical decisions whereas P12 mentioned that he makes medical decisions together with his wife.

Table 10

Influenza Vaccination Behavior of Other Family Members, Medical Decisions, and Resolution of Differences in Opinion Within the Family

Participant identifier	Participants flu vaccine behavior	Other Family Members	Medical Decision	Who Resolve difference in opinions
P1	Yes	Yes	Husband (doctor)	N/A
P2	No	No	me	N/A
P3	No	No	me	N/A
P4	Yes		doctor	doctor
P5	Yes	No	me	N/A
P6	Yes	a lot of people	doctor	doctor
P7	Yes	a lot of people	doctor	doctor
P8	Yes		me /daughter	doctor(daughter)
P9	No	No	doctor	doctor
P10	Yes		doctor	doctor
P11	Yes		me	N/A
P12	No	No	me/my wife	N/A
P13	No	No	doctor	doctor
P14	Yes	No	doctor	doctor
P15	No	does not know	sister (nurse)	sister (nurse)
P16	Yes	a lot of people	me and my daughter	doctor

Theme 5: Awareness and Knowledge Sources

There was limited knowledge about the flu and the flu vaccine and doubt about the accuracy of the information received.

Table 11

Sample Responses to Interview Question 16 (Sufficiency of Information About Flu and Flu Vaccines)

Participant identifier	Yes	No	Comment
P1		X	Government, public health department is not taking care of this issue. Because it is not killing a lot of people like governed.
P2	X		From my doctor, they should have enough information about the subject.
P3		X	I'm not sure… I'm reading, reading…
P4		X	"I do my own research I know from people around me and from the media we don't have sufficient information."
P5	X		"They give the information they have"
P6	X		"We get enough information from our doctor"
P7		X	"A lot of people don't know about the flu vaccine."
P8		X	"The doctor tells you if you get the flu, it can infect your lungs, but more than that I don't have information."
P9		X	"Not enough information because they say you must take it, but they don't say why."
P10		X	"Not enough information. Maybe on TV. I don't watch much TV, once I saw doctor talking about the flu vaccine. I don't watch much TV. I don't know if they talk about it regularly."
P11		X	"Maybe not to be frankly speaking. I don't know because I have no idea about the details of it. I know it is good for me and I started taking it so long ago, and it was OK with me that's it."
P12		X	"We don't get enough information. Our government like this they don't say anything except for their own benefit. They said a lot of things, but it did not workout like they said it would."
P13		N/A	We watch TV. They talk about it. It's good to be informed. I don't do tests, nothing. I don't want to be stressed.
P14		X	"These days there is no awareness. Things are difficult."
P15	X		"Yes, in Lebanon they did well. A lot of people took the vaccine." (The participant was referring to the COVID vaccine).
P16		X	"Not enough information is provided. I don't know why they don't emphasize certain points, maybe they don't have accurate information."

Most of the participants perceived they do not receive enough information about the flu and the flu vaccine. Only four participants out of 16 expressed they receive enough information. However, P15 was a discrepant case, and she was confused about the difference between the influenza vaccine and the COVID vaccine. When she answered this question, she was referring to the COVID-19 vaccine. P2 and P6 stated that they get enough information from their doctor. Again, this aligns with the high level of trust in their doctor as reported by most participants when asked, who do they trust.

Also, question 6: In your opinion, what could be done to make it easier for you to access influenza vaccination? contributed to the theme related to knowledge about the influenza vaccine and information accuracy. Table 7 presented previously, shows the responses for Question 6.

Seven participants shared the need for influenza vaccination campaigns and awareness. Four participants recommended making the influenza vaccine available at pharmacies in Lebanon for ease of access and administration by the pharmacist. P13 mentioned even talking about the influenza vaccine during this semi-structured interview is an encouragement to consider taking the “flu shot”. Four participants took time to describe the poor economy, the deteriorating value of the Lebanese lira against the U.S. dollar, and the poverty-stricken country. They mentioned the need to make the influenza vaccine free, at least to the elderly population 60 and above.

Evidence of Trustworthiness

Informed consent was obtained by receiving an e-mail or WhatsApp response from each participant. Each interview was transcribed verbatim, and transcriptions included an introductory statement to thank the participate for agreeing to be interviewed and to ask the participant if they consent for recording before the Zoom recording started. Also, I included my contact number in the letter of informed consent. Participants did not call me for any questions. There were two participants who could not send an email or open documents in WhatsApp to send me the words “I consent”. This was resolved by recording the review of the informed consent document with each participant and verbal consent was provided before proceeding with the interview. Interviews were conducted between September and October and transcripts were completed by the end of October. Interviews were conducted outside the influenza season; this reduced any bias associated with increased feelings on intent to be vaccinated. Trust was built with each participant through openness and honesty during the introduction of the study. I gave information about myself as a researcher, and I connected with each participant as a Lebanese person. Each participant was treated as an individual. Each interview was conducted based on the comfort level of the participant, their mood, and their level of receptivity to respond to questions.

Credibility

Credibility strategies where integrated into the data collection process that was mainly driven by the RQ. I used an interview protocol to guide the interview of each participant (see Appendix A). Each participant was asked the same interview questions.

Some interview questions were skipped based on the participant answer to the previous question. For example, if a participant answered “No” when asked do you take the influenza vaccine, the subsequent question related to their experience when they receive the influenza vaccination was skipped. Data for this study was collected through a semi structured interview. All responses were captured by using the Zoom recording feature. Reflective notes were recorded during the interview and in some cases, words expressing the participants reactions or observed mood were noted in English or Arabic on the printed interview guide used during the interview. Minimal notes were documented given that each interview was recorded using the Zoom feature. This did not appear to impact the credibility of the study but rather enhanced the interview dynamics by allowing a more engaged dialogue. During the interview, open ended questions and confirmations were utilized to facilitate conversations.

The strategy described in Chapter 3 was to send a summary of the results to all participants. This summary was disseminated to all participants, via email or WhatsApp. Member checking was necessary to test authenticity of the data collected, codes and categories. The term member check pertains to process whereby the researcher checks in with participants in a qualitative study (Frey, 2018). This enables the participant to consider and respond to their comments on the data. This process is important because it enables the researcher to determine how participants see themselves as they relate to the data and the researcher’s interpretation (Frey, 2018). It ensures credibility and reliability of the research process including data collection, analysis, and reporting. Member checking enables the researcher to determine whether they understand their participants

experience and perspectives (Frey, 2018). Each participant received a customized communication. A total of 16 responses were received confirming that the statements were correct.

Transferability

Settings and procedures were described in detail to demonstrate credibility and transferability. In the study, 16 participants were interviewed. Each participant was asked the same set of questions and I encouraged conversation through probing in a comfortable and private environment for the interview. The first two interviews conducted represented the pilot phase of the study. The subsequent 14 interviews were conducted after ensuring there was no need to change the questions or update the interview guide. Duration of each interview varied between 30 to 50 min. The generation of data collection took about 2 months. The first interview started on September 15, 2022. The last interview was conducted on October 23, 2022. I recorded each interview using the Zoom feature and documented on a printed interview guide some notes around how the participant felt or additional details (like their own age) if provided in a voluntary manner. Transferability was enhanced by developing an interview guide. This guide permitted me to ask the same set of questions during each interview and document in a detailed manner the responses received.

Dependability

I followed the data collection techniques throughout the data collection process and by doing so in a consistent fashion dependability was enhanced. For instance, I introduced the study to each participant on individual basis using the study introduction

script. I stated why I was conducting this study and I shared an informed consent document with each participant to enable them to review the document ask their questions before providing their consent. To enhance dependability, the pilot phase of the study was represented by the first two interviews. This allowed me to test the questions and ensure the data collection instrument does not need to be updated or modified before proceeding with the remaining interviews. Furthermore, there was no need to re-interview any participant after collecting the data and after reviewing the data. As discussed in Chapter 3, the pilot study was described in detail and subsequent steps were implemented in alignment with the method described.

Comparability

Interviews were transcribed verbatim in English. Interviews completed in Arabic were translated and transcribed in English while listening to each interview and listening again to the audio to confirm the words translated represent what was stated in Arabic.

In the English and Arabic transcripts there were French terms used and they were also translated to English. Comments representing reflective notes were included in the hard copy of the printed interview guide used during each interview. For example, I observed participant 15 was hesitant and maybe confused when answering certain questions. Transcribed interviews were compared with the recorded interviews. Transcribed interviews were reviewed against my written notes documented in the printed version used for each interview. This was necessary to ensure my reflective notes aligned with what was transcribed. Minimal notes were taken given the interview was recorded. I read and re-read the transcript while listening to the recorded data and

compared what was stated with what was transcribed to ensure accuracy of the transcripts.

Summary

This Chapter was a presentation of the process of data collection, the development of codes and themes, and the qualitative analysis of the data verified by verbatim transcripts from the study participants. One discrepant case of P15 was explained, and trustworthiness evidence was discussed. The results of each of the questions, as they relate to the TPB, were presented. Data analysis indicated there were five emerging themes: Assessment of past vaccination behavior, participants trusted their doctors, perceived risk of the influenza vaccine, family influence and social norms, limited knowledge, and doubt about information accuracy.

In Chapter 5, I will present discussion related to the study limitations and interpretation of the findings of this research initiative. In addition, there will be recommendations for future research and discussion on this study implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Research on the older adult Lebanese population and influenza vaccination is limited (Tassi, 2020). I conducted this qualitative study to better understand the influences of previous vaccination experiences and other factors on Lebanese older adults' influenza vaccination decisions. The study involved one-on-one interviews with 16 participants. Their responses to a set of questions included in an interview protocol were transcribed and analyzed using Delve Tool software. The main RQ was: What perceived factors and previous vaccination experiences influence Lebanese older adults to receive or reject the influenza vaccine? The sub-Qs were:

Sub-Q1: How are the risks of influenza and influenza vaccines perceived by Lebanese older adults?

Sub-Q2: How do Lebanese older adults' perception of previous vaccination experiences influence their current decision to accept or reject influenza vaccination?

Sub-Q3: Are there other factors that influence Lebanese older adults' decision to receive or reject vaccination?

The study findings may provide a better understanding of Lebanese older adults' perceptions associated with seeking the influenza vaccine. From the analysis of the data collected from the 16 interviews, five main themes emerged: assessment of past vaccination behavior, trust, perceived risk, family influence, and awareness and knowledge sources.

Interpretations of the Findings

I obtained approval from the Walden University IRB before starting data collection for this qualitative study. The participants were asked 16 questions during one-on-one interviews to gather data related to what influenced their decision to seek or reject influenza vaccination. I generated five themes and analyzed them based on the RQs. Two themes aligned with the construct of perceived behavioral control of the TPB, one theme aligned with the subjective norms, and one theme aligned with the attitude construct of the theory. The findings of the study showed that participants' previous influenza vaccination experiences influenced their behavior related to subsequent influenza vaccination.

Previous applications of the TPB in studies aimed at predicting behavior have shown that accomplishing a specific behavior is preceded by a person's attitude towards the behavior, customary social norms, and their capacity to perform the behavior (U.S. Department of Health and Human Services, 2018). The participants in this study mentioned that there were barriers to obtaining the influenza vaccine in Lebanon. Also, findings about normative belief values affected their intention to receive influenza vaccination. Evidence indicated that participants trusted their own physician. This presents an opportunity for collaboration between the government and physicians to secure effective educational campaigns and provide influenza vaccination for Lebanese older adults who are 60 and older.

Theme 1: Assessment of Past Vaccination Behavior

Data analysis from this study was consistent with the findings reported by Chu and colleagues (2021) and Tassi (2020). Seven of the 16 participants in this study (about 50%) did not receive the influenza vaccine. I attributed the difference in the vaccination rate variance between this study and that by Tassi to the awareness generated by the COVID-19 pandemic. The findings of this study regarding perceptions of vaccine safety also differed from earlier research; 53% of participants in Alawneh's (2021) study believed that the vaccine was safe, whereas in this study analysis seven out of 16 (44%) participants stated that it was safe. It is not clear whether this perception was influenced by the COVID-19 pandemic awareness and related vaccination programs in 2022. Choucair and colleagues (2021) found that fear, lack of knowledge, and perception of being "not at risk" were factors that led individuals to not receive the influenza vaccine. The findings of this study aligned with the results reported by Choucair et al.

Two participants, P2 and P3, stated that they took the vaccine because they were planning to travel. P9 expressed fear of receiving shots. These findings aligned with the study results reported by Tao and colleagues (2021). The authors showed participants thought influenza vaccine was only needed when traveling and some participants reported fear of side effects. In the French study by Casalino and colleagues (2018) and the Greek study by Papaioannou and colleagues (2020), the authors mentioned the increased need for information, and these reported results also support this study findings. Eleven participants in the study stated they needed more information about influenza and the influenza vaccine.

Behavioral beliefs and Attitudes

Attitude towards the behavior impact behavioral intention (Ajzen, 2008). In this study, the participants' behavioral beliefs about receiving the vaccine led to positive outcomes or negative outcomes. Such outcomes influenced their behavior and their intention to receive influenza vaccination (U.S. Department of Health and Human Services, 2018). Information gathered from the first three RQs related to behavioral beliefs associated with the influenza vaccination. Also, the subsequent two question showed whether the participant had a good or bad experience if they received the influenza vaccine. Based on the data analysis, eight participants believed influenza vaccines protect them from getting ill because of the influenza virus, and even if they get sick the symptoms would be mild. The remaining participants shared different reasons for not receiving the vaccine: P2 felt it was not necessary, P3 was unable find the flu vaccine at the pharmacy, P9 was afraid of shots, P12 mentioned previous vaccination led to bad experience. However, four participants mentioned they know people who got the flu after receiving the vaccine. Although not stated explicitly, this was considered a factor that influenced their decision to not seek the influenza vaccination. The responses formed the participants attitude towards influenza vaccination as explained by the TPB (U.S. Department of Health and Human Services, 2018).

Theme 2: Trust in Health Care Providers

In this study, participants' trust in doctors was a finding supported by Kong et al. (2022), Chu et al. (2021), Kan and Zang (2019) systematic review, and the study published by Korkomaz and colleagues (2019). The authors highlighted participant's own

doctor played an important role in delivering the knowledge about influenza vaccine. This study finding demonstrated participants trusted their doctor to make medical decision and provide them with information about the influenza vaccine, and this aligned with the mentioned studies. In this study, 15 out of 16 participants stated they trust their doctor to give them information about the influenza virus and the influenza vaccine. Doctors seemed to influence participants significantly due to the trust they have been granted by the participants. This finding is an important aspect of designing educational campaigns and programs. A collaboration initiative between doctors, pharmacists, and the Ministry of Health can secure developing a meaningful and effective initiative that will educate the community in Lebanon about the influenza virus and the influenza vaccine.

Perceived Behavioral Control (control beliefs and perceived power)

This element of the TPB relates to the belief about the presence or lack of factors that will make it easier or harder to achieve a certain behavior (U. S. Department of Health and Human Service, 2018). In this study, through trusting their own doctors to make medical decisions and provide knowledge about the influenza vaccine, 12 participants granted the decision-making power to the doctor. Participants perceived their own doctor makes the decision to recommend or not recommend receiving the influenza vaccine. Consequently, it is easy for them to follow the instructions of their doctor. However, four participants maintained it is their own choice to take or refuse the influenza vaccine. Nevertheless, they do trust their doctor to provide influenza vaccine related information. The study finding were aligned with the results reported by Dardalas

and colleagues (Dardalas et al., 2020).. Although the authors in the Greek study reported most participants thought they retain control over influenza vaccination, their positive beliefs and intentions were affected by recommendations from friends, family, doctors, and pharmacists (Dardalas et al., 2020).

Theme 3: Perceived Risk

Questions 8 and 9 related to efficacy and safety of the influenza vaccine. Three participants out of 16 either responded "No" or were doubtful about the efficacy of the influenza vaccine, as shown in Table 9. Also, two out of 16 participants stated they did not think it's safe and another three participants were not sure about the safety of the influenza vaccine. These findings represent an opportunity to educate elderly Lebanese people on the efficacy and safety of the influenza vaccine through an effective campaign. In addition, highlighting the benefits of vaccination against the influenza versus the risks of becoming sick and associated complications like hospitalization should be also included in the campaign. This study finding was consistent with the results reported by Alawaneh and colleagues (2020) where 25.6% of the participants were concerned about vaccine efficacy and safety, Alabbad and colleagues (2018) mentioned 13 % of the participants expressed concerns about side effects and 21% stated it does not have any positive effect. Casalino and colleagues (2018) also mentioned 4.3% -11% of the study participants expressed concerns about efficacy and safety. The percentage of participants who expressed concern related to the efficacy and safety of the influenza vaccine in this study was greater than the percentage reported in the mentioned studies.

Control beliefs and perceived behavioral control

The participants' perception of the efficacy and safety of the influenza vaccines represented their perceived behavioral controls. This aligns with the control belief construct of the TPB. This construct relates to the belief about the presence of factors impacting the ease or difficulty in seeking vaccination. In this study, uncertainty about the influenza vaccine safety and efficacy were mentioned as hindering factors while participants who believed the influenza vaccine was safe and effective were motived to be vaccinated. Thus, incorporating accurate information about the efficacy and safety of influenza vaccines, in addition to clarifying how it reduces the severity of the influenza illness, could minimize this hindrance.

The main barriers for not taking the vaccine were accessibility and affordability. This finding aligned with a qualitative study conducted in nine countries (Kan & Zangh, 2019; Kwong et al., 2010). The Kwong et al. (2010) survey results of the nine countries showed affordability was a concern in China and Turkey, while accessibility was an issue in Brazil (Kwong et al., 2010). In my study, participants mentioned a lot of people do not take the vaccine. The participants also explained cost and availability are prohibitive, P2 thought it is not necessary, and four participants were not sure it works. This finding was consistent with the results reported by Romani and colleagues (2011). The authors reported vaccine availability was an important barrier to seeking influenza vaccination (Romani et al., 2011). The authors also mentioned developing countries seemed to be less of a priority when considering vaccine supply. Based on the findings in this study, cost and availability barriers remain a challenge in obtaining the influenza vaccines.

Theme 4: Family Influence and Social Norms

Family influence was reported by Bhanu and colleagues (Bhanu et al., 2021), (Cordina et al., 2021), and a study conducted in Hungary (Galistiani et al., 2021). Bhanu et al (2021) conducted a systematic review and found encouragement of the social community (family and friends) of older people influenced their view of vaccination in a positive way. Similar findings were reported by the other two studies. Additionally, the data analysis of this study indicated 14 participants trusted their doctor to give them information about influenza vaccines, and 11 participants discussed vaccination decisions with family members. These findings aligned with the results reported by Cordina et al. (2021), although the study focused on attitudes towards COVID-19 vaccination and used questionnaires to collect data. The authors reported participants valued the advice of health care professionals and attitudes of significant others were an important factor in influencing vaccine uptake.

In this study, the participants stated they talk to relatives and friends about the influenza vaccines. Thus, the consistent responses expressing conversations about the influenza vaccine occur with family members should be considered, when designing influenza vaccine campaigns in Lebanon. Educating other family members, like children of elderly Lebanese, and other relatives can help in explaining the risks of the influenza and the benefits of influenza vaccines to elderly Lebanese. However, in this study it should be noted two participants described side effects from the influenza vaccine. P2 spoke about her mother's bad experience, and P12 described poor outcomes when the family received the influenza vaccine in the past. As a result, P2 and P12 confirmed they

don’t take the vaccine and don’t listen to friends or family members. Both participants made vaccination related decision based on recommendations from their own doctor.

Subjective Norms and Normative beliefs

Normative beliefs lead to internalization of the customary codes of behavior in a particular community (U.S. Department of Health and Human Services, 2018). Thus, evolution of subjective norms emerges. Subjective norms relate to the belief whether people of importance to the participant think he or she should take the influenza vaccine. For this study, participants stated they talk to others about influenza vaccination. More than 50% of the participants mentioned they talked to family members who influenced them to take the vaccine. Four participants out of 16 believed this is a personal decision. The remaining participants believed this decision is made in consultation with family members or based on recommendation of a health care professional, mainly their own doctor. When considering the customary code within the community, participants shared a lot of people do not take the influenza vaccine. The participants, who took the influenza vaccines regularly, recommended creating awareness programs to educate the population about the flu and flu vaccination. It is critical to include awareness campaign messaging that targets relatives of elderly people, since this population group trusted their own family to advise them on seeking or not seeking influenza vaccination.

Theme 5: Awareness and Knowledge Sources

Question 6 and 16 were related to knowledge level and trusted sources of information about the influenza virus and its vaccine. The lack of trust with the government was mentioned by two participants and 14 out of 16 trusted their doctor to

give them information about influenza and its vaccine. Furthermore, 11 out of 16 participants stated they needed more information about this topic. This finding aligned with the results reported by Dardalas and colleagues ((Dardalas et al., 2020). The authors also reported low knowledge level and the need for health education of the elderly in Greece. Additionally, a systematic review reported a lack of general knowledge about the influenza virus and its vaccine seemed to act as a hindrance to vaccination (Schmid et al., 2017). In this study, 11 participants mentioned lack of sufficient information about influenza vaccination and seven participants spoke to the need for awareness campaigns. These finding were also aligned with the study by Betsch and colleague (Betsch et al., 2018) where a low awareness level about influenza vaccination was mentioned.

The data analysis of this study presents an opportunity for collaboration between the government, nongovernmental organizations, and health care professionals, mainly doctors. The need for awareness and effective campaigns can be achieved by having such groups work together to address the lack of knowledge about the efficacy and safety of influenza vaccines and the benefits of vaccination in the Lebanese elderly population. Attitudes towards influenza vaccination will be significantly impacted with such campaigns and delivering the appropriate knowledge level suitable for the at-risk group will enhance vaccination rates.

Perceived Behavioral Control

Beliefs about the presence and power of situational factors impede or facilitate getting vaccinated against the influenza vaccine were collected and analyzed (Glanz et al., 2008). This relates to the construct perceived power of the TPB. Responses to

questions 6 and 13 showed the influenza vaccine cost and availability are hindering factors. Also, responses to question 6 showed participants did not get enough information and there was a lack of awareness campaigns. These situational factors were mentioned by 11 participants. Aligning with the perceived power and control beliefs elements of the TPB these responses showed having to pay for the influenza vaccine and not receiving enough information about the influenza and influenza vaccine were situational factors that influenced seeking vaccination.

Limitations

One of the limitations of this study pertains to the inability to generalize the findings to other populations and settings. The data collected represented the perceptions and opinions of the Lebanese participants 60 years and older. Vaccination status was self-reported, and it was not validated through medical records. Additionally, the data collection instrument (see Appendix A) included questions that aligned with the constructs of the TPB (normative beliefs, control beliefs and attitudes). Therefore, the data collected was limited to information provided in response to each RQ. Transferability of findings to other population groups presented certain limitations, since the research was specific to the Lebanese elderly population. Potential selection-bias would be another limitation where non-participants might have a different perspective about the influenza virus and its vaccines compared to interviewed participants. The data collected was also impacted by the events of the past 3 years mainly COVID-19 pandemic, and the availability of the influenza vaccines. Another limitation is that people who may have been interested in participating had little or no knowledge of Zoom and

limited access to this type of technology and/or were technologically challenged. Many older people are afraid of technology.

Recommendations

I recommend that future researchers replicate this study among the same target group using phenomenology with focus on normative beliefs and the perceptions related to the influenza vaccination. Future studies addressing dialogue and behaviors between health care professionals and Lebanese older adults related to influenzas vaccination would also be another recommendation. Additionally, evaluating communication related to the same topic among Lebanese older adults and their family members may provide insights on how to develop effective approaches to influenza education among the target population. Future qualitative and quantitative researchers should also evaluate the impact of the COVID-19 pandemic on the uptake of influenza vaccine in Lebanon.

Implications

The study findings have the potential for positive social change at the health care delivery system level, policy level and organizational level. The study findings can increase awareness about how Lebanese elderly people think about influenza vaccination and inform health policy development to address disparities caused by influenza related illnesses. This study may contribute to improving strategies aimed at (a) addressing influenza vaccination concerns of Lebanese people who are 60 years of age and older and (b) developing community interventions intended to educate this at-risk population group about influenza vaccination. Implementing education strategies supported by insights identified in this study may increase the influenza vaccination rates among older

Lebanese people. Thus, hospitalization rates and possibly mortality rate among this at-risk group will decrease.

System Level

This study implications may be applicable at the health care delivery system level. This study increases awareness of how influenza vaccination is viewed by the Lebanese population 60 years and older. The data analysis of the study results showed beliefs about influenza vaccination from the perspective of this population impacted influenza vaccination uptake. It also provided information to the medical community. Influenza vaccination perceived usefulness remains unclear to the Lebanese people 60 years and older, and the medical community must act to educate them. Also, their need for information about this topic is an opportunity for the Lebanese medical community, nongovernmental organizations, and the Lebanese government to collaborate on closing this knowledge gap.

Organizational Level

Important considerations for the Department of Public Health at the Lebanese Ministry of Health would be to consider disseminating messaging focused on older adults from diverse sources such as government websites, TV health programs, local communities, and hospitals in Lebanon. Public health messages should include data about influenza related hospitalizations and the role of the influenza vaccination in improving health outcomes for this target population.

Policy Level

The study findings showed access and cost represent barriers to influenza vaccination among older Lebanese people. Based on the responses, participants also expressed the need for awareness and information about influenza vaccines benefits, and safety. Policies should be developed to incentivize doctors, nurses, and pharmacists for addressing influenza vaccination knowledge gaps and educating Lebanese elderly which could potentially increase influenza vaccination among this at-risk group of the population. Programs for reporting on the incidence and prevalence of influenza in Lebanon should be created in addition to reporting on hospitalization rates by age group. Educational programs about respiratory illnesses associated with influenza and how they lead to hospitalization and or death should be designed. Such programs must be delivered in a manner easily understood by this population group. Also, addressing the lack of influenza vaccine availability and providing it to pharmacies and clinics to vaccinate the elderly Lebanese will help reduce hospitalization rates.

Individual Level

People 60 years and older benefit from family member support in seeking influenza vaccination. Relatives of this population group should seek information from health care professionals and share it with their elderly relatives. The study findings showed conversations occur with relatives regularly. Thus, equipping the family members and other relatives with appropriate knowledge contributes to closing the influenza vaccination knowledge gap identified in this study.

Conclusion

In conclusion, this study evaluated the perceived experiences and factors that motivate or hinder Lebanese elderly from receiving influenza vaccines. This study provided important information about the need for increased awareness about influenza and the influenza vaccination of the elderly Lebanese participants. Consequently, physicians and pharmacists informing this target population about influenza vaccination and increasing the influenza awareness in general might contribute to enhancing the vaccination rate in the Lebanese elderly population. This study may add further knowledge to theory based and evidence informed design and to the establishment of interventions within the target population. Insights gained from this research project have a positive impact on developing awareness campaigns for the growing number of 60 years or more age group of Lebanese.

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Appendix A: Interview Protocol

Interview Date:

Start time:

End time:

Name of interviewee:

Recording tool:

Introduction

Thank you for agreeing to meet with me today. As you know, this interview will contribute information for a research study intended to gather details related to experiences and perceived factors that impact the decision to seek influenzas vaccination. Just a gentle reminder, even though you have signed an informed consent, you may decline to answer any question or withdraw from the interview at any time. This interview will take about 30-50 min. Different people make different choices about the flu vaccine based on their values and there are good reasons on both sides. It is important to share with me your thoughts and feelings. Would you like to ask any questions before we begin? Do I have your consent to record this interview?

Interview Questions

Demographic Information:

Gender: ☐Male ☐Female ☐Other

Age: ☐60-70 ☐71-80 ☐ more than 80

Household composition: ☐Couple ☐Live alone ☐Live with Family ☐other (specify) e.g. assisted livening

Education level: ▫High school or less ▫College or University ▫ Post graduate degree ▫Prefer not to say

Interview Questions

1. Do you typically get the flu vaccine? Why or Why not?
2. Did you get it this year? Why or Why not?
3. Did you get it in the past? Why or Why not
4. How was your experience when you received the flu shot?
5. Tell me about where you go to get the flu shot?
6. In your opinion, what could be done to make it easier for you to access influenza vaccination?
7. Who do you talk to about the flu and the flu vaccine?
8. Do you think the flu vaccine works? Why?
9. What are your thoughts about the flu vaccine safety?
10. In your family, who does or does not get the flu shot and what are your thoughts about that?
11. Who in your household makes the medical decisions?
12. Who settles conflicts about flu vaccination in your household?
13. Do you have to pay for the flu vaccine? If yes, who pays for the flu vaccine?
14. Do you know anyone else who did not get the flu vaccine and got the flu?
15. Who do you trust to give you information about the flu vaccine?
16. Do you think you are receiving enough information about the flu and the flu vaccines? Why or Why not?

Possible Probes:

Please tell more about…

How did you find out this information…

What would you have liked to be done differently…

Conclusion

Thank you for your time. Your contribution to this study is much appreciated.

Appendix B: Invitation to Participate in the Study

Understanding Influenza Vaccine Perceptions and Experiences of Elderly Lebanese

I am conducting interviews as part of a research study to better understand how influenza vaccines are perceived and experienced by the Lebanese elderly population. Your valuable firsthand information from your own perspective would contribute to this research initiative. The interview will be around 50 minutes. You will receive a $15 gift card once the interview is completed. Your responses to the questions will be kept confidential and you can withdraw from the interview anytime. Your participation will be a valuable addition to the research project. The findings could lead to greater public understanding about influenza vaccination.

If you are willing to participate, please contact me at [redacted] or contact one of the staff members, at the location where your read the advertisement, to book an appointment. They are available to help you connect with me, if needed. My email address is [redacted] and my Zoom ID is [redacted].

Thank you

D. D'Agostini

(interviewer)

Appendix C: Participants' Self-Report of Annual Influenza Vaccination History

Interview Questions 1, 2, and 3 describe the participants' influenza vaccination behavior. I generated codes based on the responses to the interview questions. The codes assigned were as follows: take every year, in the past, and did not take it. The categories were do you take the vaccine or do you not take it. The overarching theme based on the codes was assessment of behavior.

Participant Identifier	In the Past	Every Year	Location
P1	Yes	Yes	Other (at home)
P2	Yes	No	Polyclinic (for travel)
P3	Yes	No	Clinic or home
P4	Yes	Yes	Pharmacy
P5	Yes	Yes	Pharmacy
P6	Yes	Yes	Pharmacy
P7	Yes	Yes	Pharmacy
P8	No (I was younger)	Yes	Clinic
P9	No	No (fear)	
P10	Yes	Yes	Pharmacy
P11	Yes	No	Pharmacy (not since
P12	No	No (bad experience)	COVID-19 started)
P13	No	No	
P14	No	No	
P15	No	No	
P16	Yes	Yes	Other (at home)

Appendix D: Alignment of the Research and Interview Questions and Findings to the Theory of Planned Behavior

Table D12

Interview Questions (IQ) and Theory of Planned Behavior (TPB) Constructs

TPB construct	Research subquestion	IQ
1. Behavioral beliefs and Attitude	Main research question **Sub-Question-**What are the perceptions of Lebanese older adults regarding previous vaccination experience and how it impacts their decision to reject or accept influenza vaccination?	IQ1. Do you typically take the flu shot? Why or why not? IQ2. Did you take it this year? Why or why not? IQ3. Did you take it last year? Why or why not? IQ4. How was your experience when you received the flu shot? IQ5. Tell me about where you go to get the flu shot? **(All 16 questions provided responses that align with the main research question)**
2. Social Norms	Main Research Question	IQ 10. In your family, who does or does not get the flu shot and what are your thoughts about that? IQ11. Who in your household makes the medical decisions? IQ 12. Who settles conflicts about the flu vaccination in your household? IQ13. Do you pay for the flu vaccine? if yes, who pays for the flu vaccine? IQ 14. Do you know anyone else who did not get the flu vaccine and got the flu?
3. Perceived Power (beliefs about safety and efficacy; factors that hinder or enable seeking vaccination)	How are the risks of influenza a**nd influenza vaccine** perceived by the Lebanese elderly?	IQ9. What are your thoughts about the flu vaccine safety? IQ8. Do You think the flu vaccine works? Why? IQ13. Do you have to pay for the flu vaccine? if yes, who pays for the flu vaccine? IQ16. Do you receive enough information about influenza and the influenzas vaccine?
4- Perceived behavioral control	What are the perceptions of the Lebanese elderly regarding their level of trust related to influenza and vaccination?	IQ15. Who do you trust to give info about influenza and the influenza vaccine? Why? IQ7. Who do you talk to about the flu and the flu vaccine? IQ11. Who in your household makes the medical decisions? IQ6. In your opinion, what could be done to make it easier for you to access the influenza vaccine?

Note. IQ = interview questions; Research Question = What are the experiences and perceived factors that influence the Lebanese elderly to receive or reject the influenza vaccine?

Table D2

Alignment of Categorical Concepts and Interview Questions With the Theory of Planned Behavior

Characteristics of the Theory of Planned Behavior	Categorical concepts	Themes	Interview questions
1- Behavioral Beliefs (Attitude)- (Att) favorable or unfavorable evaluation of receiving or rejecting the influenza vaccine	1- Outcome	Theme 1: Previous vaccination experience and participants encountering challenges with ordering and paying for the influenza vaccines prevented participants from seeking the vaccine.	7, 15, 16
2-Behavioral intention (BhvI)- refers to motivational factors that impact a certain behavior.	2- Vaccination experience, trust, outcome, and cost	Theme 1: Previous vaccination experience and participants encountering challenges with ordering and paying for the influenza vaccines prevented participants from seeking the vaccine. Theme 2: Participants trusted their doctors and pharmacists to receive information about the vaccine and make decisions for their health and for taking the influenza vaccine.	1, 2, 3, 4, 5, 6
3- Subjective norms (Subj norm)- relate to the belief whether, family members, and people of importance to the individual think he or she should engage in the behavior.	3- Advice and knowledge about influenza and the flu vaccine	Theme 2: Participants trusted their doctors to receive information about the influenza vaccine and to make decisions related to taking the influenza vaccine.	11,12, 15, 16
4- Social norms (Social norm)- relate to customary behavior codes that exit among a group of people.	Sources of influence	Theme 4: Who takes the vaccine and who does not take the vaccine within the family seems to influence the participants decision related to seeking or not seeking vaccination.	10, 14
5-Perceived power (PP)- refers to the perception about factors that hinder or enable performance of a behavior.	5- Perceived efficacy and perceived side effects of vaccine 5-Cost	Theme 3: Perceived risk of the influenza vaccine influenced the participants decision to seek or reject vaccination. Question 8: Do you think the flu vaccine works? Why? Question 9: What are your thoughts about the flu vaccine safety? Question 13: do you have to pay for the flu vaccines?	8, 9, 13