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Lived Experiences of Shingles Vaccine-Hesitant Adults Over Age 50 in Riverside County, California

Michelle Beatrice Loomis
Walden University

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Walden University

College of Health Sciences and Public Policy

This is to certify that the doctoral study by

Michelle Loomis

has been found to be complete and satisfactory in all respects,
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the review committee have been made.

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Walden University
2026

Abstract

Lived Experiences of Shingles Vaccine-Hesitant Adults Over Age 50 in Riverside
County, California

by

Michelle Loomis

MPH, Loma Linda University, 2016

BS, Loma Linda University, 1993

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Public Health

Walden University

May 2026

Abstract

Shingles (herpes zoster) causes substantial morbidity, especially among adults over age 50 in the United States. There is a need to better understand the reasons behind low vaccination rates among adults over age 50 given the associated risks for infection and adverse health outcomes that can reduce their quality of life. This qualitative interpretative phenomenological study explored how individuals' perceptions of the benefits, barriers, susceptibility, and severity of shingles influence vaccine intentions and identified what factors influence vaccine uptake. The health belief model was used to guide the study. Data were collected from one-on-one semistructured virtual interviews with eight adults over age 50 who live in Riverside County, California and who had not received a single dose of the shingles vaccine. Reflective thematic analysis was used to analyze the interview data. The predominant view of participants was a general distrust of vaccine safety and efficacy stemming from not knowing what is in vaccines, fear of side effects, discomfort with putting something they do not trust in their bodies, distrust of government oversight and pharmaceutical companies, and cost of vaccine uptake being prohibitive. The social change implications of the findings may inform future life-course immunization programs that could increase the uptake of vaccines in this population, which may improve the quality of life for older adults, thereby promoting healthy aging and improved societal well-being.

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Dedication

I would like to thank my family for their unwavering support throughout this research process. This work is dedicated to my husband, Robert Loomis, for his steadfast partnership, patience, financial support, and belief in my work, and to my daughter, Claire Loomis, who remains my greatest motivation and joy and a constant reminder of why this work matters. This work is dedicated to the memory of my mother, Beatriz Swierkos, whose strength and words of wisdom I carry with me. I hope I have made you proud.

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Section 1: Foundation of the Study and Literature Review

The purpose of this study was to explore shingles vaccine hesitancy among U.S. adults over the age of 50. Shingles (herpes zoster) is a latent viral infection that causes substantial morbidity among older adults (chronic nerve pain, vision loss, hearing loss, facial paralysis) and in rare cases mortality resulting from complications such as brain inflammation and stroke (Patil et al., 2022). An individual who has been infected with chickenpox (varicella zoster virus) as a child is at risk of developing shingles in adulthood (Marcum et al., 2024). After a person recovers from chickenpox, the varicella zoster virus remains dormant in the nerve ganglion and can reemerge later in life as the herpes zoster virus, causing shingles. Herpes zoster infection most commonly affects individuals over the age of 50 (Marcum et al., 2024). As the immune system ages, the risk of getting herpes zoster increases in older adults (Marcum et al., 2024). People with health conditions that compromise the immune system from properly functioning, such as HIV infection, certain cancers (leukemia, lymphoma), taking medications that weaken the immune response such as steroids, and being treated for organ transplantation, have an elevated risk of getting shingles (Marcum et al., 2024).

An individual must have had chicken pox in their past to develop shingles (Boutry et al., 2022). Although a person cannot get shingles from someone infected with shingles, the virus that causes chicken pox (varicella zoster) can be spread from a person with an active shingles infection through direct contact with the rash when it is in the blister stage to a person who has never had chicken pox (Boutry et al., 2022). This virus (varicella zoster virus) initially causes chicken pox infection in the person who has been exposed to

the virus. After the chicken pox infection has cleared, this virus lies dormant and reactivates later in that person's life as the herpes zoster virus, which causes shingles (Boutry et al., 2022).

Shingles cause a painful rash that occurs along a nerve pathway on one side of the face or body (Patil et al., 2022). Following a period of initial pain, tingling, or itching in the affected area, the rash starts as painful fluid-filled blisters that scab after 10 days and fully clear within 1 month (Patil et al., 2022). Although shingles can cause great discomfort, it is usually not dangerous to healthy individuals. The most common long-term complication of shingles is postherpetic neuralgia (PHN; Patil et al., 2022). It causes a burning pain in nerves and skin that can continue for months after the rash and blisters of shingles have cleared (Patil et al., 2022). Up to 18% of individuals over the age of 50 with shingles will develop PHN, which will lower their quality of life (Litt et al., 2024). As people age, they are at higher risk of developing PHN following herpes zoster infection, and it is most likely to be severe (Litt et al., 2024).

A two-dose schedule of recombinant adjuvanted zoster vaccine (RZV/Shingrix) has been recommended in the United States by the Advisory Committee on Immunization Practices (ACIP) to prevent shingles in adults over 50 (Singer et al., 2024). The Centers for Disease Control and Prevention (CDC, 2019) recommended two doses for immunocompetent adults age 50 years and older regardless of a reported prior episode of herpes zoster. The efficacy of the RZV vaccine for prevention of shingles in clinical trials in adults over the age of 50 was 97.2% and in adults over the age of 70 was 91.3% (Litt et al., 2024). The follow-up to these trials showed that 6–10 years after vaccination, the

efficacy of this vaccine in adults over 50 was 81.6% (Litt et al., 2024). The RZV vaccine (Shingrix) is currently the only vaccine approved for the prevention of shingles in the United States (Singer et al., 2024).

Despite the recommendations of the RZV (Shingrix) vaccine for protection against herpes zoster by public health professionals, vaccine uptake among adults over age 50 remains negligible (Singer et al., 2023). In the United States, vaccine coverage is particularly low in adults age 50–59 compared to adults over age 60 (Singer et al., 2023). In 2020, coverage with one dose of the two-dose RZV vaccine was 7.3% in adults 50–59 compared with 17.9% in adults over age 60 (Singer et al., 2023). According to the CDC (2019), in 2019 26.1% of adults age 50 and older had received a shingles vaccination. There was a need to better understand the reasons behind low vaccination rates among adults over 50 given associated risks for infection and adverse health outcomes to improve their quality of life. The current study also identify the factors that influence vaccine hesitancy through a qualitative phenomenological approach that utilized the health belief model as a lens to interpret the lived experiences/perspectives of adults who are hesitant about receiving the shingles vaccine.

The results of this research may contribute to positive social change by identifying perceived barriers and cues to action that influence vaccine hesitancy in older adults toward the herpes zoster vaccine. Vaccination reduces the risks related to infectious disease among more vulnerable groups such as older adults. Due to decreased immunity resulting from advanced age and greater likelihood of chronic health conditions, older adults are more susceptible to shingles complications such as PHN.

PHN is the most common shingles complication that can cause severe chronic pain and can be crippling for older adults. Gaining a deeper understanding of the reasons behind shingles vaccine hesitancy may provide insight for future life-course immunization programs that may improve the uptake of vaccines in this population. Vaccine compliance supports healthy aging and reduces morbidity, mortality, and loss of quality of life related to vaccine preventable diseases. The herpes zoster (HZ) vaccine is highly recommended for older adults to prevent HZ infection and related complications. The proportions of vaccine hesitancy are influenced by various factors including knowledge, individual perceptions, and lived experiences. The current study identified factors that influence vaccine hesitancy in older adults. Findings may be useful in planning effective immunization strategies that target vaccine hesitancy to promote vaccine compliance and prevent shingles infection and its related complications. This may contribute to positive social change by improving the quality of life for older adults and promoting healthy aging that improves societal well-being.

Major topics addressed in this section include the background addressing previous research on shingles vaccine hesitancy, identifying the gap in current knowledge about the factors that influence vaccine hesitancy, and explaining the purpose and the theoretical framework of this study. The research question, scope and delimitation, and limitations of this study are also addressed in Section 1.

Background

Previous research related to shingles vaccine hesitancy in older populations has focused on sociodemographic factors and shingles literacy. The last study completed in

2009 in the United States analyzed the data from the 2007 National Immunization Survey-Adult (NIS-Adult) restricted to individuals age 60 and older to estimate national herpes zoster (shingles) vaccination acceptance and reasons for not receiving the herpes zoster vaccine (Lu et al., 2009). Lu et al. (2009) found the key reasons for the lack of vaccine acceptance were lack of awareness of the herpes zoster vaccine, the perception of not being at risk, and lack of trust in physicians' recommendations.

Worldwide, there have been meta-analyses on the factors that have influenced poor shingles vaccine uptake, and they have been narrowed down to a few key factors: education level, gender, and age (Lam et al., 2017). More recent qualitative research in the United Kingdom explored older adults' views and perceptions of a government-funded vaccine program that consisted of the influenza, shingles, and pneumococcal vaccines (Silvonen et al., 2023). Through interviews with 56 respondents in 13 focus groups, Silvonen et al. (2023) explored the influence of previous experiences and interpersonal interactions in explaining vaccine decisions. Silvonen et al. found that a lack of vaccination recommendation, a lack of information, and a lack of opportunities to discuss vaccines with health care professionals were factors that influence compliance.

The gap my study filled was to explore through the lens of phenomenology the perceptions, personal experiences, and views of U.S. adults over 50 who do not accept the shingles vaccine, and to interpret the results through the health belief model. This study was needed to provide valuable insight on ways that public health professionals can improve shingles vaccine uptake among older adults in the United States. Population aging is a global trend, and as life expectancy increases there are considerable time spans

that are lived in poor health that influence the quality of life for individuals and place a burden on the health care system (Curran et al., 2023). As individuals age, immune function progressively declines resulting in a higher prevalence of infectious diseases such as shingles. Herpes zoster infection (shingles) and complications such as PHN can be prevented through effective adult immunization programs. Prevention of shingles through vaccination could reduce morbidity, enhance quality of life, and reduce the costs of increased health care utilization, providing economic and social benefits for older adults (Curran et al., 2023). Understanding the factors that influence shingles vaccine hesitancy through the lived experiences of older adults is crucial for public health professionals to increase confidence/acceptance of the RZV vaccine and support efforts to achieve high vaccine coverage (Baldwin et al., 2023).

Problem Statement

The specific research problem was shingles vaccine hesitancy among U.S. adults over age 50. The aim of this research was to better understand the reasons for shingles vaccine hesitancy using the health belief model. An examination of the methods and design of previous studies revealed that they focused mostly on the well-known determinants of health-seeking behavior such as sociodemographic and health literacy factors. Given the previous sociodemographic research on the topic, the current study was the next logical step in understanding the experiences, views, and perceptions of adults over 50 who are vaccine hesitant. The research consensus was that understanding the factors that influence vaccine hesitancy in adults is relevant because the social and economic burden of vaccine-preventable diseases in U.S. adults is high despite

recommendations from the CDC and the ACIP (Talbird et al., 2021). In 2020, uptake of at least one dose of the RZV vaccine in the United States among individuals over 50 was 7.3% and 17% in adults over 60 (Singer et al., 2023).

One study demonstrated the potential public health impact of increased RZV vaccination coverage on the burden of herpes zoster in adults over 50 by using a model that compared real-world vaccination coverage for U.S. adults over age 50 compared to scenarios assuming higher coverage (Singer et al., 2023). The outcomes that were measured were cases of HZ and complications avoided, quality-adjusted life years, and societal costs (Singer et al., 2023). The model utilized a cohort of 42,756,488 adults based on U.S. census data from 2020 (Singer et al., 2023). The model projected that increasing adult vaccination coverage by 20%, from 7.3% to 27.3%, 1,382,105 additional cases of shingles would be avoided (Singer et al., 2023). The 20% increase in coverage would prevent an additional 269,381 cases of complications such as PHN and other HZ complications (Singer et al., 2023). With a 20% increase in vaccine coverage, the quality-adjusted years of life (QALY), which measures the quantity and quality of life received from an intervention such as a vaccine, would increase by 14,330 years (Singer et al., 2023). Total societal costs, which include the direct cost of treating cases of HZ and the indirect cost of reduced productivity, would be reduced by \$391,943,286 (Singer et al., 2023). Increasing RZV vaccine coverage in U.S. adults over age 50 has the potential to reduce the clinical and financial burden of HZ and maintain the quality of life at a healthier level for longer.

The aim of a meta-analysis in 2023 was to examine the herpes zoster vaccination willingness rate and identify factors associated with vaccine uptake willingness across all World Health Organization regions (Wang et al., 2023). Through this worldwide meta-analysis, Wang et al. (2023) found commonalities in factors that influenced vaccine uptake. The perception of herpes zoster severity and susceptibility was positively associated with vaccination willingness. The perceived barriers or main reasons for unwillingness included low trust in the effectiveness of the herpes zoster vaccine, concerns about safety, financial concerns, and being unaware of the vaccine's availability. Older individuals, those having lower education, or those having lower income levels were less willing to be vaccinated. This research was relevant because it identified similar variables (age, education level, perceived susceptibility) as influencing herpes zoster vaccine acceptance.

The authors of a research paper on preventing infectious diseases in the aging population gave a background on the herpes zoster virus and how vaccines like the shingles vaccine can be utilized to effectively prevent infectious diseases in the older population (Wagner & Weinberger, 2020). In many cases, researchers found that post-herpetic neuralgia (pain) that occurs with shingles has a substantial impact on quality of life. Prevention of herpes zoster is therefore an important goal in maintaining functional ability to enable well-being and thus improve the quality of life for the older population (Wagner & Weinberger, 2020). Reducing the disease burden of shingles and its complications also helps to relieve health care and social systems (Wagner & Weinberger, 2020) This research demonstrates the importance of understanding vaccine

hesitancy to improve uptake of the existing RZV vaccine in order to protect the vulnerable, older population and reduce its burden on the healthcare system (Wagner & Weinberger, 2020).

In 2021, Draper and Stergiopoulos completed a quantitative study to understand Massachusetts residents' knowledge, attitudes, behaviors, and barriers to obtaining a shingles vaccination (Draper & Stergiopoulos, 2021). This research was based on a state survey of adults who responded to the Massachusetts 2012 Behavioral Risk Factor Surveillance System (Draper & Stergiopoulos, 2021). The results showed that a significant number of unvaccinated adults nonvaccinated older adults (50+) were unaware of the shingles vaccine (Draper & Stergiopoulos, 2021). Those who were aware of the shingles vaccine reported concerns about safety and efficacy and underestimated their risk of developing shingles (Draper & Stergiopoulos, 2021).

The results provide evidence that a significant segment of the adult population is unaware of the shingles vaccine and does not understand the incidence and severity of shingles (Draper & Stergiopoulos, 2021). This research emphasizes the need for education to raise shingles awareness/knowledge, and dispel misinformation about the shingles vaccine to improve vaccine coverage (Draper & Stergiopoulos, 2021).

To explore and understand perspectives of individuals who are hesitant to accept the RZV vaccine, a Canadian qualitative, cross-sectional study interviewed 12 health care providers and 21 patients to identify barriers and facilitators to completion of the two-dose shingles vaccine (George et al., 2024). Researchers identified cost, lack of insurance coverage, and misinformation about the shingles vaccine were barriers to completion of

the vaccine series (George et al., 2024). Respondents identified education, recommendations, reminders from health care professionals and convenient vaccine processes as facilitators of vaccine acceptance and completion (George et al., 2024). This research is relevant in understanding what influences vaccine hesitancy because it identifies the barriers and facilitators to vaccine uptake from a patient and provider perspective. This underscores the importance of identifying the factors that influence vaccine intentions to guide public health decision-making on adult immunization campaigns related to increasing herpes zoster vaccine coverage (George et al., 2024).

In contrast to previous studies, this research will frame the problem to understand the lived experiences of vaccine hesitant adults and the factors that shape their vaccine decision making with a special focus on applying the Health Belief model as a lens for interpreting the influences that shape their vaccine intentions. The topic of shingles vaccine hesitancy has not been previously explored using a qualitative phenomenological approach that explores the lived experiences of vaccine hesitant older adults and interprets results through the application of the Health Belief model constructs. Lived experience refers to the firsthand involvement and choices of a given person and the knowledge that they gain from their experience (Gupta et al., 2023). Understanding and representation of an individual's personal views, life experience, choices and options can help public health professionals to understand how this influences an individual's perception of knowledge based on their own life and determining their health needs (Gupta et al., 2023). This is necessary to understand health seeking behavior regarding vaccine hesitancy. Public health policy making is guided through the information gained

from research that engages individuals with lived experience and identify factors that can meaningfully and effectively support health seeking behavior such as improving shingles vaccine coverage in a vulnerable older adult population (Gupta et al., 2023).

Purpose of the Study

The purpose of this qualitative study is to use phenomenology as the qualitative tradition to examine the reasons why U.S. adults over 50 are vaccine hesitant. The field-based products resulting from this study fill the gaps in the data by identifying what factors drive health seeking behaviors through the lived experiences of individuals who are vaccine hesitant, shed light into new factors and provide insight into existing data that influence vaccine hesitancy, and provide researchers with a deeper understanding of the experiences and perspectives of adults regarding the shingles vaccine. The insights gained from this study can outline ideas that inform public health communication and management strategies to facilitate vaccine compliance in older adults.

Research Questions

RQ1: What are the experiences and views of U.S. adults over 50 who are vaccine hesitant?

RQ2: How does individual perception of the benefits, barriers, susceptibility and severity of shingles influence vaccine intentions?

RQ3: How would a recommendation from a healthcare provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?

Theoretical Framework

The theory that grounds this study is the Health Belief Model. The constructs of the Health Belief Model address individual perceptions of susceptibility and severity, modifying factors such as age, shingles knowledge, views of the shingle vaccine, and cues to action such as following a physician's recommendations and knowing a close acquaintance who has had Shingles previously (Kan & Zhang, 2018). The Health Belief Model is relevant to the research question because it is a theory that seeks to explain and predict how individual perception of the benefits, barriers, susceptibility and severity of a condition can influence preventive health behaviors such as vaccine intentions (Zampetakis & Melas, 2021). It also can serve to identify cues to action that may facilitate and support shingles vaccine acceptance (Zampetakis & Melas, 2021). This framework guides my research into identifying an association between these factors and vaccine intentions among U.S. adults based on personal interviews detailing their lived experiences. Through ten, one hour-long interviews with vaccine hesitant adults over age 50, this model serves as a lens for interpreting how their lived experiences influence their views on the shingles vaccine.

Shingles Etiology, Clinical Presentation, and Adverse Health Outcomes

Shingles is a viral infection which causes a painful rash of blisters to appear most commonly around the torso. In many cases this rash occurs around one side of the head, involving the face, neck and eyes (Yamaoko-Tojo & Tojo, 2024). Shingles is caused by the reactivation of the varicella-zoster virus also known as the chickenpox virus, which after initial exposure remains dormant in the nerve ganglion of spinal and cranial nerves

(Patil et al., 2022). As immunity declines due to age, stress and existing health conditions (ex. pregnancy, diabetes, cancer, HIV infection, autoimmune disease) reactivation of the dormant varicella zoster virus within the nerve ganglia of the host causes this virus to reemerge as the herpes zoster virus (Patil et al., 2022). Herpes zoster virus (HZ) is the reactivation of the varicella zoster virus (VZV) and is the etiologic agent of the shingles infection (Patil et al., 2022).

VZV is a form of human herpes virus that has an affinity for nerve tissue. VZV causes initial infection resulting in chickenpox and HZ represents the reactivation of the dormant VZV infection. VZV is acquired through respiration of aerosolized droplets and through physical contact with varicella and herpes zoster vesicles (Patil et al., 2022). Incubation period of VZV is between 7-21 days and is contagious 4 days prior to the breakout and until full clearance of the chickenpox rash (Patil et al., 2022).

After primary infection, the VZV virus retreats to nerve tissue to become dormant (Patil et al., 2022). VZV primarily lies latent in the dorsal root ganglia of the spine and the cranial nerve ganglia of the head and neck region (Patil et al., 2022). The dormant phase of VZV is controlled by a healthy and fully functional immune system through cell-mediated immunity. The reactivation of the dormant VZV is caused by a decline in the immune system. Risk factors that cause a decline in immune function include a weakened immune system from advancing age, stress, and chronic health conditions such as diabetes, cancer, HIV infection, autoimmune disease, and end stage kidney disease (Yamaoko-Tojo & Tojo, 2024). While VZV vaccination in youth prevents chickenpox, it does not appear to reduce HZ risk during aging (Patil et al., 2022).

Once reactivated as HZ, the virus multiplies in nerve cells and initiates the development of a unilateral, painful rash in the corresponding skin (Patil et al., 2022). This rash known as shingles is made up of multiple, red, inflamed blisters that cause pain and tingling in the area affected by the rash. The pain resulting from the rash is caused by inflammation of the nerves affected by the HZ virus. The areas most affected by the shingles are the torso, head, face, neck and the eye. The clinical course of HZ consists of 4 stages: prodromal, acute, sub-acute and chronic (Gabutti et al., 2014). The prodromal stage occurs before any visible rash appears. Symptoms include pain, tingling, numbness, a burning sensation, fever, malaise, and headache that lasts 1-5 days before the onset of rash (Gabutti et al., 2014). The acute stage is characterized by a painful burning rash of fluid filled blisters on the skin that corresponds to the nerves involved. The rash typically appears on one side of the body and lasts for 7 to 10 days (Gabutti et al., 2014). Pain in the acute stage can be continuous or intermittent and can occur with itching, tingling or numbness. A significant number of patients in the acute stage suffer with pain from a stimulus which does not normally provoke pain such as a touch or clothing contact on the skin (Gabutti et al., 2014). The sub-acute stage which lasts between 30- 90 days is the period when the blisters begin to dry out and form scabs (Gabutti et al., 2014). The scabs usually fall off within a few weeks. This stage in immunocompetent individuals marks the start of the healing process (Gabutti et al., 2014). In immunocompromised patients, this stage usually comes before the chronic stage of complications from HZ infection such as post herpetic neuralgia (PHN) (Gabutti et al., 2014). The Chronic phase is characterized by PHN, with moderate to severe chronic pain where the rash occurred that

can last from months to years. PHN is a frequent complication of HZ infection that is characterized by long term, intense pain lasting over weeks, months or years (Yamaoko-Tojo & Tojo, 2024). This can include pain resulting from stimuli that normally does not provoke pain. Examples include feeling pain from brushing hair, wearing clothes, a light touch on the skin, and experiencing exaggerated pain from mild temperature changes that would normally cause slight discomfort. Severe pain resulting from PHN can be debilitating and is the leading cause of pain-related suicide among older adults (Yamaoko-Tojo & Tojo, 2024). PHN is higher in women and the risk of PHN goes up with increasing age and existing comorbidities (Yamaoko-Tojo & Tojo, 2024).

In immunocompromised patients, HZ infection can lead to severe complications that can involve the cranial nerves, particularly the trigeminal nerve, the facial nerve and the vestibulocochlear nerve (Tsau et al., 2020). Herpes zoster ophthalmicus (HZO), and Ramsay Hunt syndrome are the most common complications related to cranial nerve involvement (Gabutti et al., 2014).

HZO, the most common cranial nerve complication, affects the ophthalmic branch of the trigeminal nerve (CN V) which innervates the eyes, forehead/scalp, and meninges (Patil et al., 2022). HZO can cause inflammation of the conjunctiva, retina, cornea and ocular vasculature (vasculitis). Ocular inflammation can lead to loss of sensory nerve function to the cornea and be a risk factor for vision loss (Patil et al., 2022). HZO induced inflammation of the meninges, protective membranes that line the brain and spinal cord can lead to neurological complications (Patil et al., 2022). An elevated but temporary risk

of stroke has been associated in individuals with HZO resulting from inflammation of the cerebral nerves and surrounding vasculature (Lapi et al., 2023).

Ramsay Hunt syndrome, characterized by facial paralysis, involves complications with the facial and vestibulocochlear cranial nerves (Patil et al., 2022). The facial nerve (CN VII) innervates the muscles of the face, ears, tongue and salivary glands. The vestibulocochlear nerve (CN VIII) innervates the muscles in the ear responsible for hearing and balance. Ramsay Hunt syndrome can affect one or both cranial nerves. This can lead to unilateral facial paralysis (palsy), ear pain, painful blisters in the ear and auditory canal, dizziness, ringing of the ears, hearing impairment and permanent hearing loss.

Herpes zoster infection (shingles), post herpetic neuralgia, herpes zoster ophthalmicus and Ramsay Hunt syndrome lead to significant complications that can impact an individual's quality of life.

Shingles Epidemiology

In the United States, it is estimated that over one million cases of shingles (HZ infection) occur each year (Curran et al., 2021). The incidence of HZ goes up with age, with a range of 1.2 to 3.4 per 1000 persons in adults under age 65 and a range of 3.9 to 11.8 per 1000 persons in adults over age 65 (Nair & Patel, 2021). A systematic review of studies from 2002- to 2018 of the worldwide incidence rates of Herpes Zoster, estimated the cumulative incidence is between 2.9 to 19.5 cases per 1000 individuals of a population with HZ predominantly affecting females (Van Oorschot et al., 2021). A 2021 meta-analysis of studies taken from PubMed, Cochrane Database, Embase, and

Cumulative Index to Nursing until January 2021, found that patients with diabetes mellitus had a higher risk of HZ infection (Huang et al., 2021). The relative risk: 1.38% with a 95% confidence interval (CI): 1.21-1.57 (Huang et al., 2021).

In the United States, a retrospective observational cohort study using de-identified Medicare and commercial insurance health data of patients from 1994 to 2018 identified an increased incidence of HZ in adults aged 31-60, and a higher risk for HZ infection in individuals over the age of 60 (Thompson et al., 2021). Researchers examined a total of 63 million individual patients encompassing 121 million patient years (Thompson et al., 2021). HZ incidence data was stratified according to age, gender and race/ethnicity (Thompson et al., 2021). The incidence rate increased from 286.0 (95% CI: 259.1, 312.8) cases per 100,000 person years in 1994 to 579.6 (95% CI: 554.2, 605.0) cases per 100,000 person years in 2018 (Thompson et al., 2021). The rate of HZ incidence was 395.6 (95% CI: 388.1, 402.4) in men and 556.1(95% CI: 547.2, 565.2) in women per 100,000 person years. The incidence rate of HZ infection in whites was higher than in blacks, Hispanics and Asians. Among whites, incidence rates were 507.4 (95% CI: 498.8, 515.9), compared to an incidence rate of 418.7 (95% CI: 410.4, 426.5) in blacks, 388.8 (95% CI: 377.8, 410.3) in Hispanics and 372.1 (95% CI: 360.4, 384.5) in Asians per 100,000 person years (Thompson et al., 2021).

The median age of HZ disease in this study cohort was 56.3 years old (Thompson et al., 2021). If incidence rates continue to climb in the 31-60 age group, the median age of HZ infection may go down, prompting a re-examination of age-based vaccine recommendations (Thompson et al., 2021). Although HZ risk went up with age, this can

be due to age related decline of the immune system (immunosenescence) (Thompson et al., 2021).

A systematic review of 62 studies that examined risk factors for HZ found that women were 30% more likely to acquire HZ infection than men (Kawai & Yawn, 2017). The relative risk of HZ was 1.3 times greater in women than in men (Kawai & Yawn, 2017). It has been hypothesized that differences in hormone patterns and immune responses to dormant viral infections may explain the gender differences in HZ risk (Thompson et al., 2021).

The identical meta-analysis of 62 studies found the relative risk of HZ in black individuals was 0.54 compared to 0.69 for whites (Kawai & Yawn, 2017). This supports previous research that suggest that whites have a higher incidence rate compared to racial minorities which have lower vaccination uptake rates (Thompson et al., 2021). Differences in HZ incidence and risk among racial/ethnic groups may result from differences in genetics, access to healthcare, trust in healthcare professionals and health care seeking behaviors (Thompson et al., 2021).

The incidence of HZ infection in the United States adult population has also increased with time. A US observational cohort study based on insurance claims data examined incidence rates among subgroups such as age, sex, and immunocompromised status in three large cohorts of adults aged 19 to 85 for HZ and PHN from January 2019 to May 2021. Researchers found that standardized annual incidence rates from 2019 to 2021 were 542 to 685 per 100,000 person-years for HZ infection and 35 to 38 per 100,000 person -years for PHN (Marcum et al., 2024). Over the three-year study period, incidence

rates were higher for older adults (over 50), females, individuals with comorbidities and individuals who are immunocompromised (Marcum et al., 2024). For example, the cohort from 2019 included 38,471,527 participants (Marcum et al., 2024). The average age was 56 for those with HZ and 63 for those with PHN. Of those who had HZ infection, 68,953 were male and 119,291 were female (Marcum et al., 2024). Of the participants with existing comorbidities, those who used tobacco products, were obese, had cancer, cardiometabolic, cerebrovascular, lung, kidney, and autoimmune diseases, had higher incidence rates for HZ and PHN when compared to those who did not have HZ or PHN (Marcum et al., 2024). Individuals in this cohort who had existing immunocompromised conditions such as HIV infection, blood/organ/stem cell transplant, immunosuppressive therapy and primary immunodeficiency had higher incidence rates for HZ and PHN than participants who did not have HZ or PHN (Marcum et al., 2024).

In conclusion, the epidemiological evidence suggests that HZ infection is associated with a high disease burden in the United States and is most frequently observed among older adults, women, whites and immunocompromised individuals.

Aging Population and Shingles

Healthy aging is the process of maintaining and improving functional, mental, and social wellbeing (Curran et al., 2023). It is the ability to independently care for basic needs, sustain relationships, and thrive. Healthy aging aims to keep the quality of life at a consistently high level for a more extended period. This approach can enhance the amount of time spent in good health even if the overall lifespan doesn't increase (Curran et al., 2023). Beyond the individual benefit of enjoying a better quality of life, older

adults who live healthier for longer can also contribute more significantly to their communities and families. They can also alleviate some of the pressures on healthcare systems by reducing the demand for healthcare services (Curran et al., 2023).

The quality of life and overall functionality generally decrease as people get older. As the immune system naturally ages (immunosenescence), the incidence and impact of infectious disease escalates (Curran et al., 2023). This occurs because of declining immunity, existence of chronic disease, increased risk of disease severity, and ensuing complications (Nicholls et al., 2021). Aging is also linked to a condition known as inflammaging, characterized by chronic, low-level inflammation. Evidence suggests that exposure to infection may promote biological responses that increase generalized systemic inflammation (Curran et al., 2023). This signals a higher risk of mortality and contributes to the development of chronic illness which suggests that infections might trigger inflammatory responses that accelerate the aging process (De Gomensoro et al., 2018). Part of a triad of interventions to prevent inflammaging aging includes diet, exercise, and prevention of infectious disease through vaccination (De Gomensoro et al., 2018). In the United States, adult vaccination programs over a 30-year period that addressed pneumococcal disease, influenza, pertussis, and HZ were estimated to prevent 65 million cases of infectious disease (Curran et al., 2023).

Life expectancy is growing in North America and according to 2020 US Census data, 1 in 4 individuals will be 65 years of age or older in 2050 (Curran et al., 2023). The burden of vaccine preventable disease in older US adults goes up with age (Talbird et al., 2021). This contributes to morbidity, mortality and rising healthcare utilization costs

(Talbird et al., 2021). In the United States vaccine coverage for adults has been low compared to children. This is due to few vaccine promotion campaigns targeted at older adults and lack of insurance coverage for adult vaccines (Talbird et al., 2021). Research into this phenomenon has demonstrated a positive relationship between increased out-of-pocket-costs for patients and a reversal of vaccination claims (Talbird et al., 2021). The economic burden of vaccine preventable diseases such as shingles, in the United States over 50 population, is projected to increase from \$35 billion to \$49 billion dollars over the next 30 years (Curran et al., 2023).

Shingles (HZ) infection is prevalent in older adults and can negatively influence quality-of-life outcomes (Nicholls et al., 2021). Shingles is a vaccine preventable disease. The incidence of HZ increases with age and population aging in the United States is projected to cause a significant rise in cases of HZ (Curran et al., 2023). In the United States, over 1 million cases of HZ occur each year (Curran et al., 2023). In a global meta-analysis of 59 studies, researchers noted that HZ incidence increased with age and went up over time. Estimates demonstrated 14.9 million cases occurred globally in adults over 50 in 2020, was predicted to increase to 17 million by 2025, and 19.1 million cases by 2030 (Curran et al., 2023).

(PHN) which causes pain that lasts over 3 months is the most Post herpetic neuralgia common complication related to HZ infection in older adults (Thompson et al., 2021). The risk of PHN goes up with age and in most cases, resolves within one year (Thompson et al., 2021). In rare cases, it can last several years. PHN can interfere in the long term with the functional ability of older adults to carry out daily activities and

leading to a loss of independence (Thompson et al., 2021). Other complications of HZ such as herpes zoster ophthalmicus (HZO), HZ oticus and Ramsay-Hunt Syndrome can cause vision loss, eye sensitivity, hearing loss, dizziness, facial palsies, and neurological complications (Tsau et al., 2020). There is also an immediate but temporary risk of stroke following HZ infection in older adults with existing cardiovascular comorbidities (Parameswaran et al., 2023).

HZ and PHN are associated with higher healthcare costs and lower productivity which creates a significant economic burden. An exploratory study based in the United States, developed a population-based model that accounted for the impact of population aging and estimated the economic burden of four vaccine preventable diseases (Talbird et al., 2021). The four diseases were pertussis, influenza, HZ, and pneumococcal disease. The population were US adults over 50 years of age. Over a 30-year period, the projected annual medical and societal costs of all four diseases ranged from 35 billion dollars in year 1 to 49 billion dollars by year 30 (Talbird et al., 2021). These estimates include the increases in direct medical costs (53% increase) and increases in societal costs (40% increase) over a period of 30 years (Talbird et al., 2021). The burden of disease is substantial when compared with the projected 36% increase in the population of US adults over 50 during the 30-year period (Talbird et al., 2021).

Given the burden of shingles in the US aging population, the impact on quality of life and the economic burden on the US healthcare system, cost effective strategies that prevent HZ infection such as immunization should be considered a public health solution that enables individuals to remain active as they age.

Current Vaccine Development

Worldwide, there are currently two herpes zoster vaccines available. One is an attenuated live vaccine, Zoster Vaccine Live (ZVL). The second vaccine is a recombinant zoster vaccine (RZV). To prevent HZ infection and complications such as PHN, the US based Advisory Committee on Immunization Practices (ACIP,) in 2006, recommended the ZVL vaccine (Zostavax; Merck) for adults over the age of 60 (Harbecke et al., 2021). Nonetheless, in 2018, based on emerging data that demonstrated better short and long-term efficacy of RZV (Shingrix; Glaxo Smith Kline) in immunocompetent and immunocompromised individuals, the ACIP began recommending the RZV vaccine as the preferred vaccine against HZ and PHN (Harbecke et al., 2021). In 2021 the ZVL vaccine was discontinued and is no longer available in the United States (Harbecke et al., 2021).

The ZVL vaccine (Zostavax) has been studied over the last twenty years to evaluate efficacy and safety of the ZVL vaccine in the general population (Marra & Lalji, 2022). The evidence has demonstrated the effectiveness of the ZVL vaccine in preventing HZ infection. Interesting to note, that the effectiveness of ZVL for prevention of PHN severity and duration was higher than the vaccine effectiveness for the prevention of HZ infection (Marra & Lalji, 2022). This vaccine also was effective at preventing the incidence of herpes zoster ophthalmicus (HZO) (Marra & Lalji, 2022). Researchers noted that the reduction in the severity of PHN and HZO was significant in patients who were hospitalized for shingles infection (Marra & Lalji, 2022).

The Shingles Prevention Study was a double-blind clinical trial that followed 38,546 immunocompetent adults over age 60 that were given either a placebo or the zoster vaccine live (ZVL) (Marra & Lalji, 2022). The outcome was the burden of illness (incidence of HZ and associated pain) that was prevented by the ZVL compared to a placebo (Marra & Lalji, 2022). The secondary endpoint observed was the incidence of HZ and PHN and the impact on quality of life. The zoster vaccine live reduced the burden of illness by 61.1%, the incidence by 51.3% and the incidence of PHN by 66.5% by the end of follow up which was 3.2 years (Marra & Lalji, 2022). The ZVL vaccine reduced the impact on quality of life by 50% (Marra & Lalji, 2022). However, the efficacy of ZVL in preventing HZ infection decreased with age. In the group aged 60-69, the efficacy was 64% compared to the 41% efficacy in the 70-79 age group, and 18% in adults over 80 years of age (Marra & Lalji, 2022). Based on the evidence of this clinical trial and the availability of this vaccine, the ACIP initially recommended using the zoster vaccine live in adults over 60 years (Marra & Lalji, 2022). Safety and efficacy studies of ZVL in individuals with existing comorbidities such as cardiometabolic disease and chronic kidney disease demonstrated similar effectiveness in prevention of HZ and reported minor localized adverse events at the injection- site such as pain. In a 10 year surveillance study on safety of ZVL, 93% of adverse events were non-serious in immunocompetent patients, however there was a rare (less than 1%) incidence of disseminated HZ infection and this occurred in 38% of immunocompromised patients (Marra & Lalji, 2022). Two recent Australian safety surveillance studies of ZVL on adults 70-79 years found that most adverse events post vaccination were related to pain at

the injection-site, however, there were 3 cases of death from disseminated HZ following the vaccination with ZVL and they were in individuals with immunocompromised conditions such as chronic lymphocytic leukemia and a patient with rheumatoid arthritis being treated with methotrexate and corticosteroids (Marra & Lalji, 2022).

The duration of the ZVL vaccine was followed by observational studies for up to 11 years post immunization. The evidence demonstrates a decline in effectiveness by 6 years post vaccination, effectiveness against HZ is less than 35% and less than 45% for PHN (Marra & Lalji, 2022). After 7-8 years post vaccination, effectiveness against HZ drops to 21-32% (Marra & Lalji, 2022). One observational study that followed patients for up to 11 years found no significant effectiveness against HZ in patients 9-11 years post vaccination (Marra & Lalji, 2022).

The most recent vaccine to prevent herpes zoster in older adults is the two dose adjuvant recombinant zoster vaccine (Shingrix). The recombinant zoster vaccine (RZV) induces strong and continuous cell-mediated and humoral immune responses. The efficacy of RZV in prevention of HZ has been demonstrated in two clinical trials (ZOE-50 and ZOE-70) in immunocompetent adults over age 50 and immunocompetent adults over age 70 (Curran et al., 2023). The efficacy of prevention of HZ infection was over 90% in immunocompetent adults in both age groups (Curran et al., 2023). After a 10 year follow up in both clinical trials, the estimated vaccine efficacy was 84.2% 8 years post vaccination, 72.7 % 9 years post vaccination, and 73.2% 10 years post vaccination in both age groups of immunocompetent adults (Curran et al., 2023). By reducing the incidence of HZ, RZV additionally provided protection against PHN (Curran et al.,

2023). Important to note that in both ZOE-50 and ZOE-70 clinical trials, 95% of participants received the two doses of RZV (Curran et al., 2023).

Data from the ZOE-70 clinical trials found that RZV reduced the impact and the burden of HZ in individuals over 70. In studies that examined the real-world effectiveness of RZV, the second dose completion rate was 70-80%. A large cohort study in the US in adults over 65 years of age estimated the effectiveness of preventing HZ to be 70.1% from two dose completion and 56.9% from one dose completion (Patil et al., 2022). In this cohort study, the two dose vaccine effectiveness against PHN was 76% (Patil et al., 2022). An insurance claims-based control trial in the US on adults ages 50-79 estimated the incidence of HZ to be 258.8 per 100,000 person years compared to 893.1 in the unvaccinated control group (Patil et al., 2022). In a retrospective cohort study of US Medicare enrollees, researchers demonstrated evidence of RZV effectiveness in adults over age 50 (Sun, Kim, et al., 2021). A total of 4,769,819 individuals who completed two doses of RZV were followed for 7 months. The total RZV effectiveness in RZV recipients between 50-79 years of age was 85.5% (Sun, Kim, et al., 2021). The two dose RZV recipients over age 80 had a vaccine effectiveness of 80.2% (Sun, Kim, et al., 2021). A similar study using the Hawaii Kaiser Permanente database followed similar methodology and followed 78,356 adults over the age of 50, median age was 61 (Sun, Jackson, et al., 2021). The RZV vaccine effectiveness was 83.5% against and 93.3% against HZO (Sun, Jackson, et al., 2021). The lower vaccine effectiveness compared to the ZOE-50 and ZOE-70 clinical trials may be due to patients with existing comorbidities, immunocompromised individuals, and vaccine uptake (Marra & Lalji,

2022). The clinical trials used immunocompetent adults and 95% of participants received two doses (Curran et al., 2023).

The duration of protection for the RZV vaccine was followed by Boutry et al., in a long term follow up study of the original participants enrolled in the ZOE-50 and ZOE-70 clinical trials for the RZV vaccine (Boutry et al., 2022). Researchers followed 7423 participants for 8 years after patients received the two dose RZV vaccine in the trials. In this cohort, after one year the vaccine efficacy was 97.7%, after 3 years it dropped to 92.4% and during year 8 the vaccine had an efficacy of 84.1% (Boutry et al., 2022).

The United States Vaccine Adverse Event Reporting System (VAERS), a vaccine surveillance system published data in 2019 that was based on 3.2 million doses of RZV and found 4381 adverse events. Most common reports were fever (23.6%), injection site pain (22.5%) and injection site redness (20.1%). The side effects that were classified as serious occurred in 3% of the US population. The adverse events for the RZV vaccine were not different for the other vaccines in the VAERS database (Marra & Lalji, 2022).

The CDC conducted a safety study based on 2,113,758 Medicare beneficiaries who received 3,729,863 vaccinations (two-dose completion) and found an association of Guillain- Barre syndrome (GBS) with the RZV vaccine. They followed this population for 42 days looking for hospitalizations related to GBS. They used a control window of 43-183 days post vaccination. The researchers found an attributable risk of 3.13 (95% CI: 0.62-5.64) of cases per million doses administered during the 42 days following vaccination. Investigators evaluated the risk according to the number of doses completed and found that the risk did not increase with the second dose. The CDC's Advisory

Committee on Immunization Practices (ACIP) acknowledged the association of GBS with RZV and that this association was also observed with other vaccines, it did not establish a causal link to GBS. The ACIP continues to recommend the RZV vaccine for preventing HZ in immunocompetent and immunocompromised persons because the public health benefits outweigh the small risk of GBS.

As the US population ages, maintaining an independent and healthy senior population is necessary as this provides improved quality of life and reduces the burden on the health care system. Prevention is a strategy that addresses (Marra & Lalji, 2022) the largest risk factor for shingles, which is advancing age. The use of vaccines such as the live attenuated vaccine (ZVL) and the adjuvated recombinant vaccine (RZV) can prevent HZ infection in older adults. The vaccine effectiveness is lower for the ZVL vaccine than for the RZV vaccine in adults over 50, the RZV has proven to provide a longer duration of protection against HZ infection, and the RZV vaccine can safely be administered to the most vulnerable immunocompromised patients (Marra & Lalji, 2022). Currently, the RZV vaccine is the only vaccine against shingles available in the United States. The CDC recommends that adults over the age of 50 receive the two-dose RZV vaccine to confer long-term immunity (Marra & Lalji, 2022). This is based on evidence from the clinical trials and real-world studies that demonstrate the RZV vaccine effectiveness at 85% for nearly a decade post-vaccination (Marra & Lalji, 2022). The RZV vaccine is safe with adverse events being minor and localized in most patients (Marra & Lalji, 2022).

Current Health Education and Promotion Efforts

In the United States, the Centers for Disease Control (CDC) takes the lead in educating the public on shingles prevention. The CDC website, CDC.gov provides education on what shingles disease is and recommends the two-dose Shingrix vaccine for prevention in adults over 50 years of age (Singer et al., 2024). The CDC follows guidelines set by the ACIP. The ACIP has recommended the RZV vaccine for the prevention of herpes zoster (HZ) in immunocompetent adults over 50 years of age since 2018 (Singer et al., 2024). In 2022, the ACIP began recommending RZV vaccination for immunodeficient/immunosuppressed adults over 19 years of age (Singer et al., 2024).

US shingles vaccine promotion and education is primarily provided to the public by pharmacists and primary care physicians during medical consultations. Data taken from the Behavioral Risk Factor Surveillance System (BRFSS) in the United States, demonstrates that shingles vaccine awareness among older adults is lower when compared to the influenza vaccine (Vogelsang & Polonijo, 2022). This points to an association between education and vaccination uptake. This suggests that education provided by physicians and pharmacists during medical visits can be an important predictor of vaccine uptake (Vogelsang & Polonijo, 2022).

In March 2022, a cross-sectional internet-based survey in the United States evaluated 613 physician specialists' (dermatologists, rheumatologists, oncologists, gastroenterologists, infectious disease specialists) knowledge of the ACIP RZV vaccination recommendations, attitudes toward shingles vaccination, and current shingles vaccination practices/barriers (Singer et al., 2024). Researchers found that 84% of

specialists surveyed correctly identified the ACIP shingles vaccine recommendations for adults over age 50, 67% correctly identified the current recommendations for immunocompromised adults over the age of 19, 29% were aware that the RZV vaccine is recommended for adults who have previously received the live herpes zoster vaccine (Zostavax), and out of 613 specialists surveyed, 18% knew all current ACIP RZV vaccine recommendations (Singer et al., 2024). Regarding provision of the shingles vaccine, 36% of 613 specialists provided the RZV vaccine to their patients citing patients were obtaining vaccinations from pharmacists (Singer et al., 2024). Barriers to vaccination that were identified in this survey included prioritizing time with patients to address more urgent issues, lack of appointment time, and lack of patient willingness (Singer et al., 2024). Findings from this survey of physician specialists indicate that knowledge of the ACIP HZ vaccination recommendations was low and identified the need for educating health care professionals, particularly physicians, on the shingles vaccine to improve knowledge and compliance (Singer et al., 2024).

Among the general population over age 50 in the United States, there appears to be low health literacy about vaccine effectiveness and how vaccines work (Nicholls et al., 2021). Low vaccine literacy among older adults can be compounded by inconsistent and infrequent public health messaging campaigns (Nicholls et al., 2021). In the absence of shingles vaccine information campaigns, individuals may perform their own “research”. In many cases, this leads to misinformation which leads to misconceptions that result in vaccine hesitancy (Nicholls et al., 2021). One study examined the lower awareness of the shingles vaccine to the flu vaccine and found that individuals may underestimate the

vaccine's importance (Vogelsang & Polonijo, 2022). For example, in the case of influenza (and COVID-19), this research demonstrated that the American general population has been persuaded to accept these vaccines through perception of susceptibility to the worst health outcomes associated with the flu and COVID-19 (Vogelsang & Polonijo, 2022). Applying this type of "worst case scenario" to shingles vaccine campaigns by public health officials may be a successful approach in promoting vaccine uptake (Vogelsang & Polonijo, 2022). Public health campaigns can focus on the serious effects that accompany shingles such as blisters, pain, fever, and side effects such as postherpetic neuralgia, facial paralysis, vision/hearing loss and neurological side effects that can negatively influence quality of life outcomes (Vogelsang & Polonijo, 2022). The perception of susceptibility to these potentially negative health outcomes may drive shingles vaccine uptake.

In the US, there is less public health promotion for the shingles vaccine, when compared to the COVID-19 and influenza vaccines . There may also be less physician direction. While public health officials and healthcare professionals (physicians, nurses, pharmacists) have heavily promoted COVID-19, and flu vaccine campaigns, the shingles vaccine is currently not as heavily promoted in the US. Research demonstrates the necessity to increase public awareness of the importance of shingles prevention, and the safety/efficacy of the RZV vaccine, to counteract misinformation and increase vaccine uptake in US adults over age 50.

Challenges to Prevention Efforts

Immunization is viewed as the best strategy to mitigate HZ infection in adults over 50, however, vaccine uptake in the United States is not optimal(Singer et al., 2023). In 2020, adults aged 50–59 years with at least one dose of the recombinant zoster vaccine (RZV- Shingrix) was estimated at 7.3 % in adults 50–59 years compared with 17.9 % in adults ≥ 60 years of age (Singer et al., 2023). Currently the burden of shingles and the low vaccine coverage in the adult population over age 50 demonstrates the need to address this challenge to public health prevention efforts in the United States.

Shingles vaccine acceptance may be associated with health literacy, insurance coverage and out of pocket costs for many adults in the United States. Currently, the most expensive vaccine in the United States is the shingles RZV vaccine(Kang et al., 2023). Researchers who examined data from a nationally representative survey of US adults over age 50 in the Health and Retirement Study years 2006-2016 found that receiving a recommendation from a healthcare professional increased the likelihood of shingles vaccine uptake (Kang et al., 2023). However, access to preventive visits with healthcare professionals may not be equitable based on socioeconomic status. Individuals from lower socioeconomic backgrounds may not have access to preventive visits for health screenings and vaccinations. This would require that public health professionals develop vaccine education campaigns that are targeted at adults over age 50 that educate on shingles prevention, dispel misinformation of vaccine risks that can influence vaccine refusal, and provide the RZV vaccine to all adults over 50 despite their financial circumstances(Kang et al., 2023).

A cross sectional qualitative study analyzed barriers and facilitators to completion of the two-dose RZV vaccine in Canada (George et al., 2024). In this study, researchers interviewed healthcare providers and patients to gain an in depth understanding of the challenges to vaccine uptake and what factors may be useful in facilitating vaccine acceptance in Canadian adults over age 50 (George et al., 2024). Barriers to vaccine uptake identified through interviews with healthcare professionals named high out-of-pocket costs, inconvenient processes in stocking and offering the RZV vaccine, patient forgetfulness/lack of reminders for the second dose, and scheduling factors resulting from older adults travelling or living out of state for months (George et al., 2024). Barriers to vaccine uptake identified by patients through interviews named high out- of-pocket costs, receiving unreliable or confusing information about the RZV vaccine, notable side effects from the first dose, lack of insurance coverage and healthcare professionals' lack of knowledge/experience with the RZV vaccine(George et al., 2024). Facilitators identified from interviews with healthcare professionals were providing education on the RZV vaccine, reminders to obtain the second dose, help with the cost of the vaccine, and more convenient methods to obtain the vaccine (George et al., 2024). Facilitators identified by patients included self-motivation, second dose reminders, desire to gain protection from shingles, support with cost of the vaccine and convenience in obtaining the vaccine (George et al., 2024).

Public health interventions can target the challenges in shingles vaccine uptake faced by individuals by addressing the most common barriers to obtaining and completing the two dose RZV vaccine, such as cost, access and misinformation. Potential

interventions can focus on developing a system of automated reminders for all patients, educating healthcare professionals on the benefits, dosing schedule, potential side effects and importance of completing the two doses of the RZV vaccine, simplifying the process of obtaining the RZV vaccine despite socioeconomic status, and providing support for the cost of vaccines through insurance coverage and government subsidies that secure access for all adults over the age of 50.

Vaccine Hesitancy in Older Populations

Despite the ACIP recommendation of the two-dose RZV vaccine in the US over 50 population, vaccine coverage is not optimal (Singer et al., 2023). The National Health Interview Survey identified adults as vaccine hesitant if they never received a single dose of either the zoster live vaccine or the recombinant zoster vaccine (Singer et al., 2023). According to statistics from the National Health Interview Survey (NHIS) 2019-2020, vaccine coverage with one dose among adults over 50 was estimated to be 7.3% compared with 17.9% in adults over 60 (Singer et al., 2023). In 2022, the NHIS estimated the proportions of adults with compromised immune systems who ever received the herpes zoster vaccine and found that 18% of adults over 50, 21.4% of adults over 60 and 22% of adults over 65 received two-doses of the RZV vaccine (NHIS, 2022). Considering the less-than-optimal coverage for the adult population and the health and financial burden of HZ, it is imperative to address the public health impact of health outcomes associated with increasing RZV coverage in this population. (Singer et al., 2023)

In 2023, one study in the United States used real-world estimates to model the change in health outcomes associated with modest increases in one-dose RZV vaccine completion in adults over age 50 (Singer et al., 2023). The model projected the public health impact of increasing RZV coverage in immunocompetent individuals by 5%, 10% and 20% from the NHIS survey estimates of 7.3% of adults in 2020 (Singer et al., 2023). Researchers projected that a 5% increase in RZV coverage (7.3% to 12.3%), a 10% increase (7.3% to 17.3%), and a 20% increase (7.3% to 17.3%) would prevent an additional 345,526- 1,382,105 cases of shingles, 28,820 – 115,280 Postherpetic neuralgia cases, and 38,525- 154,101 cases of shingles associated complications (Singer et al., 2023). In quality adjusted life years (QALY) which is a measure that translates health outcomes into years lived with quality of life, the model projected a gain of respectively 3,582-14,330 discounted QALY's (Singer et al., 2023). Although the cost to administer the RZV vaccine would increase to \$803-3,212 million, there would be a reduction in direct costs(prevention of HZ cases and complications) \$495-1,978 million and indirect costs (loss of productivity) \$407-1,626 million (Singer et al., 2023). The cost savings to society was projected to be respectively \$98-392 million dollars (Singer et al., 2023).

The necessity of protecting individuals between the ages of 50-59 in the United States is important because they are of working age and there are indirect costs associated with shingles. For example, a telephone survey of working US adults aged 50-64 reported that of those who developed shingles, half reported missed work and loss of productivity, each HZ episode led to 116 hours of missed work and loss of productivity (Singer et al., 2023). A cross sectional survey of US adults between the ages of 50-64 with an HZ

insurance claim reported that 43% missed one full day of work and 29% missed half day of work (Singer et al., 2023). This research underscores the benefits of vaccination to avoid the indirect costs associated with productivity loss (Singer et al., 2023).

A modest increase in RZV coverage in the over 50 population, as recommended by the ACIP can reduce the health burden of shingles. This leads to cost savings on a societal level and improved quality of life. Although the research calculated values and models based on immunocompetent adults, increased vaccine coverage in immunocompromised adults can result in improved health outcomes, reduced health care costs, and improved quality of life.

The efforts to address vaccine hesitancy in older adults requires targeted public health interventions on a patient and healthcare provider level. One study that examined shingles vaccine hesitancy in older adults found that a concern for others' health (social responsibility) was influential in vaccine uptake (Nicholls et al., 2021). Public health messaging can address the societal benefits of vaccine coverage (Nicholls et al., 2021). Another key finding from this study was a lack of information on the shingles vaccine (Nicholls et al., 2021). Public health interventions that raise awareness of shingles can positively influence vaccine uptake. For example, targeted public health messaging on television/magazine ads, social media, and physicians' offices can educate on shingles symptoms, severity, risks and prevention. Finally, developing interventions that focus on educating primary health care providers on the effectiveness of the shingles vaccine (Nicholls et al., 2021). One method would be providing continuing education courses that enhance primary healthcare providers' (physicians, nurses, pharmacists) knowledge of

shingles infection/risk, current ACIP recommendations for US adults over 50, providing vaccine recommendations and administering the shingles vaccine at office visits (Nicholls et al., 2021).

Gap in Literature

Although researchers have investigated the issue of vaccine hesitancy toward shingles, the topic has not been explored using a phenomenological approach. The last cross-sectional study completed in 2009 in the United States analyzed the data from the 2007 National Immunization Survey-Adult (NIS-Adult) restricted to individuals aged ≥ 60 year to estimate national herpes zoster (shingles) vaccination acceptance and reasons for not receiving the herpes zoster vaccine (Lu et al., 2009). The researchers found the key reasons for the lack of vaccine acceptance were lack of awareness of the herpes zoster vaccine, the perception of not being at risk, and lack of trust in physicians' recommendations (Lu et al., 2009).

Worldwide, there have been meta-analyses on the factors that have influenced poor Shingles vaccine uptake, and they have been narrowed down to a few key factors. These are: education level, gender, and age (Lam et al., 2017).

In 2023, a qualitative study in the United Kingdom explored older adults' views and perceptions of a government funded vaccine program that consisted of the influenza, shingles and pneumococcal vaccines (Silvonon et al., 2023). Through interviews of 56 respondents in 13 focus groups, researchers explored the influence of previous experiences and interpersonal interactions in explaining vaccine decisions (Silvonon et al., 2023). Researchers found that a lack of vaccination recommendation, a lack of

information and a lack of opportunities to discuss vaccines with healthcare professionals, are factors that influence compliance (Silvonon et al., 2023).

The gap my study fills is to examine through the lens of phenomenology, the perceptions, personal experiences and views of U.S. adults over 50 who are hesitant to receive the shingles vaccine and interpret the results through the Health Belief Model. For my research, I am defining shingles vaccine hesitant any adult over the age of 50 who has not received the RZV vaccine. The Health Belief Model grounds this study because it is a theory that seeks to explain and predict how individual perception of the benefits, barriers, susceptibility and severity of a condition can influence preventive health behaviors such as vaccine intentions (Kan & Zhang, 2018). The Health Belief Model can be used to predict health behavior based on six constructs of perception, they are risk susceptibility, benefits to action, risk severity, self-efficacy, barriers to action, and cues to action.

Previous studies have used the Health Belief Model constructs to study vaccine intentions toward different vaccines (influenza, COVID-19, pertussis, pneumococcal vaccines) in older adults. One study used the Health Belief Model to interpret vaccine intentions towards the influenza vaccine based on patient perspectives, risk perception and health behavior of older adults (Kan & Zhang, 2018).

Previous research has examined on a global scale the willingness to receive the HZ vaccine. Results have demonstrated an association between vaccine uptake and willingness to vaccinate (Wang et al., 2023). Across various nations the willingness to receive the HZ vaccine has ranged from 17% in China to 90% in Australia (Wang et al.,

2023). Researchers found that vaccination willingness differs according to region and is influenced by sociodemographic, cognitive, perspectives on politics/culture, and individual perceptions of disease susceptibility (Wang et al., 2023).

The purpose of this qualitative study using phenomenology as the qualitative tradition, is to examine the reasons why U.S. adults over 50 do not accept the shingles vaccine. Through interviews with ten adults over age 50 who are vaccine hesitant, this study serves as a framework for interpreting how lived experiences influence views on the shingles vaccine. Using the constructs of the Health Belief Model, this research interprets the influence of individual perceptions of susceptibility and severity, modifying factors such as age, shingles knowledge, views of the shingle vaccine, and cues to action such as following a physician's recommendations and knowing a close acquaintance who has had Shingles previously. Given the previous sociodemographic research on the topic, this study is the next logical step in understanding the experiences, views and perceptions of adults over 50 who are vaccine hesitant. The findings identify perceived barriers and cues to action that influence vaccine hesitancy towards the herpes zoster vaccine.

Shingles (herpes zoster) causes substantial morbidity, especially among older adults. The CDC recommends two doses of the RZV (Shingrix) vaccine for immunocompetent adults aged 50 years and older regardless of a reported prior episode of herpes zoster (CDC, 2019). According to the CDC, in 2019, 26.1% of adults aged ≥ 50 years had ever received a shingles vaccination (CDC, 2019). There is a need to better understand the reasons behind low vaccination rates among US adults over 50 given associated risks for infection and adverse health outcomes to improve their quality of life.

Vaccination reduces the risks related to infectious disease among more vulnerable groups, such as older adults. Due to decreased immunity resulting from advanced age and greater likelihood of chronic health conditions, older adults are more susceptible to shingles complications such as postherpetic neuralgia. Postherpetic neuralgia is the most common shingles complication that can cause severe chronic pain and can be crippling for older adults. Gaining a deeper understanding of the reasons behind shingles vaccine hesitancy provides insight for future life-course immunization programs that improve the uptake of vaccines in this population. Vaccine compliance can support healthy aging and reduce morbidity, mortality and loss of quality of life related to vaccine preventable diseases. The herpes zoster (HZ) vaccine is highly recommended for older adults to prevent HZ infection and related complications. The proportions of vaccine hesitancy are influenced by various kinds of factors, including knowledge, individual perceptions and lived experiences. The findings from this research are useful in planning effective public health strategies that target vaccine hesitancy to promote vaccine compliance in older adults. Increasing vaccine uptake will prevent shingles infection and its related complications. This contributes to positive social change because it improves the quality of life for older adults and promotes healthy aging which improves societal well-being.

Previous Studies Using the Current Methodology

Throughout the COVID pandemic trust in vaccines has emerged as a major concern for public health professionals. In 2022, a systematic review of vaccine acceptance rates used a phenomenological perspective to examine the 4 Cs of vaccine complacency that relate to trust in the COVID-19 vaccine (Kattumana, 2022). These are:

complacency, confidence, context and communication (Kattumana, 2022). Based on 60 studies, this paper identified two indicators of trust in vaccines that emerged from the COVID pandemic, the health care professional's reaction to patient concerns and the loss of personal freedom in relation to vaccine mandates (Kattumana, 2022). Results related to influencing trust among vaccine hesitant individuals encourage health care professionals to be clear about the risks, acknowledge and respect a patient's hesitancy, and avoid explaining vaccines as a quick solution (Kattumana, 2022). Regarding mandates to vaccinate, hesitant individuals view vaccines in terms of trust and feel it is reasonable to have the freedom to decide if they want to take the risk or not (Kattumana, 2022). This information may support the notion that vaccine mandates are counterproductive to overcoming vaccine hesitancy and vaccine risks, although remote, must be clearly explained to patients (Kattumana, 2022).

A phenomenological study in Turkey, involving twelve undergraduate nursing students who did not want to be vaccinated against COVID-19 recommended increasing awareness on infectious diseases (Adibelli & İLaslan, 2022). In this study, purposive sampling was used to recruit 12 senior nursing students who did not want to receive the COVID-19 vaccine (Adibelli & İLaslan, 2022). Data was collected through twelve face-to-face interviews and analyzed based on emergent themes that were coded for descriptive analysis (Adibelli & İLaslan, 2022). Results demonstrated that although most students were concerned about disease transmission they did not consider themselves to be at high risk of contracting COVID-19, considered the vaccine unsafe and had doubts about its effectiveness (Adibelli & İLaslan, 2022). The results of this research

demonstrated vaccine rejection in individuals with a professional undergraduate education, this emphasizes the need to increase epidemiological education in undergraduate health care training programs.

A study in Malaysia, used the phenomenological approach to examine the lived experiences of individuals who had close experiences with COVID-19 vaccine hesitant family members, and friends (Chan et al., 2022). The snowball sampling technique was used to recruit 59 participants for seven focus group interviews ranging in length from 90 to 150 minutes per interview session (Chan et al., 2022). Many participants were volunteers in churches, or temples and active in community service organizations (Chan et al., 2022). Interviews were transcribed and analyzed for emerging and similar ideas and phrases. Emerging ideas formed the basis for themes that were coded. To reduce bias, there was an analysis of the research process and researcher relationships with participants through briefings/debriefings held before and after each focus group interview (Chan et al., 2022). Results from the interviews showed incongruence between vaccine goals and implementation, a lack of trust between health authorities and government officials, and lack of communication between official media and social media (Chan et al., 2022). Logistical issues with vaccine implementation and access were identified as barriers that influenced hesitancy. This includes having to travel long distances to obtain the vaccine and having to wait in long lines which is a hardship for elderly patients who are the most vulnerable to COVID-19 (Chan et al., 2022). Using the 3C model of vaccine hesitancy, researchers identified a lack of confidence in the effectiveness and safety of vaccines, complacency in the necessity of the COVID-19

vaccine, and communication of misinformation on the safety and efficacy of the vaccine as major factors that influenced vaccine hesitancy and refusal (Chan et al., 2022). This phenomenological approach identified gaps in the implementation of community vaccination programs and health communication strategies that must be mitigated to increase vaccine uptake (Chan et al., 2022). An important finding from this research identified the significant role of media communication in influencing vaccine hesitancy through its role in disseminating misinformation (Chan et al., 2022).

The above examples of previous research in examining vaccine hesitancy through the phenomenological approach provide a template for understanding the factors that drive shingles vaccine hesitancy in older US adults. The phenomenological approach allows an in-depth understanding of the lived-world experiences of human beings as they exist in their own social, political, and historical contexts and interpret the results to the outside world (Chan et al., 2022). Using a structured interview process with qualitative methods of data analysis such as looking for common themes and coding ideas that consistently emerge is a method for understanding the complexities of vaccine refusal (Adibelli & İLaslan, 2022). Incorporating reflexivity (briefing/debriefing) into the interview process is important as it is useful in reducing researcher bias that can cloud a comprehensive understanding of the drivers of shingles vaccine hesitancy (Chan et al., 2022).

Nature of the Study

Qualitative Interpretative Phenomenology is the study design that is used to investigate the phenomenon of shingles vaccine hesitancy in older adults. The rationale

for selection of this specific design is to explore the lived experiences of individuals who are hesitant to accept the shingles vaccine. The phenomenon of vaccine hesitancy results from a complex mix of personal experiences and views that influence the ability to understand and apply health information (Nicholls et al., 2021). Lived real-world experiences are shaped by social, cultural, political, and religious belief systems. The aim of this study is to apply the life-world concept to offer new insights on shingles vaccine hesitancy. Applying a phenomenological method to studying vaccine hesitancy is a powerful tool to integrate the science of disease prevention with the life-world perception of individuals to give public health professionals deeper insight into the factors that influence a reluctance to accept vaccines (Adibelli & İLaslan, 2022). This type of phenomenological research that uses the constructs of the Health Belief Model to interpret the experiences, perceptions, and views of vaccine hesitant individuals has not been given much attention in the literature. The results from this research offer valuable understanding into the factors that drive vaccine hesitancy, why they are so influential and how to mitigate their influence.

The primary data for this research was collected through one-on-one personal interviews with ten adults over age 50 who are vaccine hesitant. For this research, vaccine hesitancy is defined as not having received at least one of the two-dose herpes zoster vaccine (Shingrix). An invitation to participate in this research was posted on Instagram and Facebook social media platforms. Since the number of participants was not reached through this invitation, the snowball method was used to solicit the help of the participants who have agreed to participate to attract more participants to join the

study. Once the primary data has been collected from completion of the ten interviews, thematic analysis was applied to the recorded and transcribed interviews to identify common themes, ideas, patterns and meanings that repeatedly emerge. Data was examined on demographics such as age, gender, marital status, education, race, employment status and income. Data on shingles literacy such as what is shingles, what virus causes shingles, how is it passed, who is at risk, and is shingles painful, and does a shingles vaccine exist was collected. Data was collected on perception of shingles risk, severity and prevention, such as can shingles cause serious illness, can shingles cause death, is shingles treatable, is shingles preventable, how to prevent shingles, perception of safety and efficacy of the shingles vaccine, and perception of individual shingles risk. Potential cues to action was evaluated, such as knowledge of anyone who had shingles, knowledge of anyone who received the shingles vaccine, has a healthcare professional ever recommended the shingles vaccine, willingness to receive the shingles vaccine, willingness to learn more about the vaccine, and what would change your decision to receive the shingles vaccine. Identified themes were interpreted through the application of the constructs of the Health Belief Model to provide an in-depth analysis of the data emerging from these interviews. The results provide an insightful and comprehensive explanation behind why these individuals are hesitant to receive the shingles vaccine.

Literature Search Strategy

The keywords and databases searched included the Walden Library, PubMed, EBSCO, PLOS (Public Library of Science), Google Scholar, Biomed Central, Dryad, Science Direct, SCOPUS, CINAHL Complete AND Loma Linda University Library. The

key search terms that I used were: *herpes zoster, shingles, vaccine hesitancy in older adults, healthy aging and vaccines, postherpetic neuralgia, epidemiology of shingles, varicella zoster infection, vaccine hesitancy, recombinant zoster vaccine, complications of shingles, public health impact of shingles vaccine, phenomenology, qualitative studies on shingles vaccine hesitancy, phenomenology and vaccine hesitancy*. The scope of literature in terms of years was limited within five years of 2024.

Due to a lack of research using phenomenology to explore herpes zoster vaccine hesitancy, research that used a similar approach to explore COVID-19 vaccine hesitancy was utilized to develop a research template. Research that used phenomenology to explore the perspectives of adults who had COVID-19 vaccine hesitant family members was utilized to model this research on herpes zoster vaccine hesitancy (Chan et al., 2022). For example, a study in Malaysia, used the phenomenological approach to examine the lived experiences of individuals who had close experiences with COVID-19 vaccine hesitant family members, and friends (Chan et al., 2022). The snowball sampling technique was used to recruit 59 participants for seven focus group interviews ranging in length from 90 to 150 minutes per interview session (Chan et al., 2022). Many participants were volunteers in churches, or temples and active in community service organizations (Chan et al., 2022). Interviews were transcribed and analyzed for emerging and similar ideas and phrases. Emerging ideas formed the basis for themes that were coded. To reduce bias, there was an analysis of the research process and researcher relationships with participants through briefings/debriefings held before and after each focus group interview (Chan et al., 2022). This phenomenological approach identified

gaps in the implementation of community vaccination programs and health communication strategies that must be mitigated to increase vaccine uptake (Chan et al., 2022). An important finding from this research identified the significant role of media communication in influencing vaccine hesitancy through its role in disseminating misinformation (Chan et al., 2022).

The above example of previous research in examining vaccine hesitancy through the phenomenological approach provided a template for understanding the nuances in factors that drive shingles vaccine hesitancy in older US adults. For example, this research will utilize a similar snowball sampling technique to recruit participants. Although focus groups were not used, it incorporated a structured interview process with qualitative methods of data analysis such as looking for common themes and coding ideas that consistently emerge is a method for understanding the complexities of vaccine refusal (Chan et al., 2022). The idea of incorporating reflexivity (briefing/debriefing) into the interview process is important as it is useful in reducing bias that can cloud a comprehensive understanding of the drivers of shingles vaccine hesitancy (Chan et al., 2022).

Definitions

Advisory Committee on Immunization Practices (ACIP): A committee within the United States Centers for Disease Control and Prevention (CDC) that provides advice and guidance on effective control of vaccine-preventable diseases in the U.S. civilian population (Marra & Lalji, 2022).

Ganglia: An encapsulated collection of bodies of nerve cells found on the outside of the brain and the spinal cord. These bundles of nerve cells play the role of nerve signal relay stations (Patil et al., 2022).

Health belief model (HBM): A theory that seeks to explain and predict how individual perception of the benefits, barriers, susceptibility and severity of a condition can influence preventive health behaviors such as vaccine intentions (Kan & Zhang, 2018).

Herpes zoster (HZ): Herpes zoster virus (HZ) is the reactivation of the varicella zoster virus (VZV) and is the etiologic agent of the shingles infection (Patil et al., 2022).

Herpes zoster ophthalmicus (HZO): A viral infection of the eye caused by herpes zoster activation in the eye. This condition can lead to vision loss, eye sensitivity, hearing loss, dizziness, facial palsies, and neurological complications (Tsau et al., 2020).

Immunosenescence: Age related decline of the immune system (Thompson et al., 2021).

Meta-analysis: A statistical process that combines the results from multiple studies to develop a conclusion (Wang et al., 2023).

Phenomenology: A type of research that seeks to explain the nature of a topic through the way people experience them (Chan et al., 2022).

Postherpetic neuralgia (PHN): Chronic nerve pain that occurs after a shingles outbreak and causes pain that lasts over 3 months is the most common complication related to HZ infection in older adults (Thompson et al., 2021).

Qualitative: A type of research that aims to gather and analyze non-numerical data to gain an in-depth understanding of individuals' attitudes, beliefs, and motivation. This type of research collects data through personal interviews, focus groups, or field observations (Adibelli & İLaslan, 2022).

Quality adjusted life years (QALY): A measure that translates health outcomes into years lived with quality of life (Singer et al., 2023).

Quantitative: A type of research that uses statistics to test hypotheses pertaining to the observation of phenomena. It gathers data that is in a numerical form to explain and quantify a relationship that is observed (Draper & Stergiopoulos, 2021).

Ramsay Hunt syndrome (RHS): A complication that occurs when a shingles outbreak affects the facial and vestibulocochlear cranial nerves near the ear. Ramsay Hunt syndrome is characterized by facial paralysis and hearing loss (Patil et al., 2022).

Recombinant zoster vaccine (RZV): A vaccine that prevents shingles or herpes zoster and is administered in a two dose schedule. It goes by the name Shingrix and is produced by Glaxo Smith Kline (Harbecke et al., 2021).

Shingles: A viral infection, caused by the varicella zoster virus which re-emerges as the herpes zoster virus and causes a painful rash of blisters to appear most commonly around one side of the torso, head, face, neck and eyes (Yamaoko-Tojo & Tojo, 2024).

Vaccine adverse event reporting system (VAERS): A United States vaccine surveillance system managed by the CDC and the FDA which monitors vaccine safety by collecting information on reported adverse side effects that occur after administration of vaccines (Marra & Lalji, 2022).

Varicella zoster (VZ): Virus that causes chickenpox. After the chicken pox infection, this virus retreats to the nerve ganglia. The reactivation of the dormant varicella zoster virus in the nerve ganglia causes it to reemerge as the herpes zoster virus (Patil et al., 2022).

Zoster vaccine live (ZVL): A single dose live virus vaccine that prevents the herpes zoster virus and is no longer available in the United States (Harbecke et al., 2021).

Assumptions

The purpose of this research was to gain a deeper understanding of how sociodemographic, personal belief systems and personal experiences shape the health decisions of vaccine hesitant adults. One assumption critical to the meaningfulness of this study is that the variables that influence vaccine hesitancy are complex, interwoven, and difficult to measure (Smith & Osborn, 2015). Adult perspectives on vaccine uptake are shaped through lived experiences which are subjective and unique to the individual. Hypothesis that suggests sociodemographic factors such as education level, income level, marital status, political affiliation and race are a sole influence on vaccine hesitancy cannot not easily proven because the influence these factors exert may be different for each person and not limited to sociodemographic factors. Personal experiences can influence health seeking behavior. For example, knowing a close acquaintance that had shingles, and receiving a healthcare professional's recommendation to get a shingles vaccine. Personal belief and health literacy can shape vaccine hesitant behavior such as views of the safety and efficacy of the shingles vaccine and perception of risk for shingles infection. Everyone that is vaccine hesitant may be influenced by one or more of

these factors or by factors that have not been previously assumed to impact hesitancy toward the shingles vaccine.

An interpretive framework that employs phenomenological methods will be used to examine the lived experiences of U.S. adults over age 50 and to identify factors that influence vaccine hesitancy in this population. The interpretative phenomenological method is a qualitative approach designed to deliver in-depth insights into personal lived experiences (Smith & Osborn, 2015). Personal one-on-one interviews provide an account that reflects these experiences on their own terms, this method captures the essence of what individuals go through to arrive at their health decisions. This method acknowledges that interpreting experiences is a natural human inclination, as we are driven to interpret and understand our own unique life experiences (Smith & Osborn, 2015). In understanding the phenomenon of vaccine hesitancy, which is complex, ambiguous, and loaded with emotional significance, this approach is adept at providing an in depth understanding of the nuances of human experiences and perspectives (Smith & Osborn, 2015).

Scope and Delimitations

There is a need to better understand the reasons behind the low shingles vaccination rates among U.S. adults over 50 given the associated risks for infection, substantial morbidity, and adverse health outcomes that can reduce their quality of life and create a preventable burden on the healthcare system. The specific focus is on understanding the factors that influence vaccine hesitancy in this population.

The boundaries of this research were set to include adults, male and female, between the ages of 50 - 90 living in Riverside County, CA to capture various life experiences and perspectives within the older adult population. For this study, “vaccine hesitant” will be defined as any adult over the age of 50 who has not received a single dose of the two-dose shingles vaccine (Shingrix) available in the United States. Populations who were excluded from participation in this study are adults over the age of 50 with existing medical conditions that prevent them from receiving the shingles vaccine.

The theory used to interpret the results of this qualitative interpretative phenomenological study is the Health Belief Model. The Health Belief Model with its constructs based on individual perception of susceptibility, severity, benefits, barriers, self-efficacy and cues to action is a powerful tool to understand what influences vaccine hesitancy (Zampetakis & Melas, 2021). The Health Belief Model has been used recently to address public health concerns such as COVID-19 vaccine hesitancy and has been applied to a wide range of preventive health behaviors (Siu et al., 2022). However, this model has not been applied to understanding shingles vaccine hesitancy among older adults living in Riverside County, California, using an interpretive phenomenological approach.

There is great potential of transferability of the results from this study in terms of gaining a deeper insight into understanding the complexities of vaccine hesitancy in older adults and whether these results converge or diverge from current scientific literature. The findings can advance understanding on the diversity of factors that influence vaccine

hesitancy in the U.S. This is relevant in view of the growing public distrust of science, government and healthcare institutions. The findings from this research can inform public health professionals on how to more effectively communicate with the public about how vaccines work, their benefits and combat widespread vaccine misinformation. This study deepens our understanding of the causes of vaccine hesitancy, what interventions are most effective at minimizing vaccine hesitancy and the roles of healthcare professionals in addressing vaccine hesitancy.

Limitations

One limitation of this study that can affect transferability is the small number of participants that were interviewed and the sampling technique. Phenomenological research generally works with small groups, this study had a small sample size of eight respondents selected through convenience sampling. This has limited the generalizability of the study findings. Since the size is small and the sampling non-random, it can be difficult to claim the results are reflective of the general population (Leung, 2015). One method to address this limitation is to incorporate questions into the interview that elicit detailed responses and basic questions that yield less diverse responses to compare observed similarities and differences between all ten interviews (Leung, 2015).

Subjectivity is another limitation, establishing reliability and validity of the approach can be a challenge that makes subjective research difficult when examining feelings, opinions, and preferences that comprise a person's beliefs and values (Leung, 2015). Addressing subjectivity in this type of research would require reflexivity on the part of the researcher (Leung, 2015). Reflexivity involves continuous self-awareness and

critical self-reflection by the researcher on their preconceptions, and biases towards the research (Leung, 2015). Reflexivity is particularly important in the data analysis and interpretation stages of phenomenological research.

A third limitation of phenomenological research is limiting researcher bias. As a public health professional, having an advanced level of education and understanding of the benefit of vaccines can influence how questions are asked to respondents and can influence the understanding of what respondents are truly saying. As a researcher, this limitation can be minimized by being aware of personal assumptions and not letting personal feelings, stereotypes, or assumptions influence the wording of research questions, the way data is collected, recorded and interpreted. For example, when developing and asking questions, being aware of not leading the participants in the direction of the researcher's hypothesized outcomes. This may result in biased answers and not provide insight into the lived experience of the respondent.

In the digital world, it is easy for health data to be hacked and respondents to be identified if the data are not adequately stored and kept confidential. The anonymity of the research is critical. Therefore, to avoid these types of data breaches, the researcher must be attentive to information that can reveal the identification of participants and take measures to store all data securely through data encryption to maintain data confidentiality.

Significance

This study is significant in that it has identified perceived barriers and cues to action that influence vaccine hesitancy in older adults towards the herpes zoster vaccine.

Vaccination reduces the risks related to infectious disease among more vulnerable groups, such as older adults. Because of reduced immunity and greater likelihood of chronic health conditions resulting from advanced age, older adults are more susceptible to shingles' complications such as postherpetic neuralgia. Postherpetic neuralgia is the most common shingles complication, and it can cause severe chronic pain and can be crippling for older adults. Gaining a deeper understanding of the reasons behind shingles vaccine hesitancy could potentially provide insight for developing life-course immunization programs in the future that could improve the uptake of vaccines in this population. Vaccine compliance can support healthy aging and reduce morbidity, mortality and loss of quality of life from vaccine preventable diseases. The herpes zoster vaccine is highly recommended for older adults to prevent infection and related complications. The numbers of vaccine hesitant adults are influenced by various kinds of factors, including knowledge, individual perceptions and lived experiences. This research has identified factors that influence vaccine hesitancy in older adults, information which could be useful in planning effective immunization strategies targeting vaccine hesitancy to promote vaccine compliance to prevent shingles infection and its related complications. This could potentially contribute to positive social change by lengthening the years of life lived in good physical condition, thus improving the quality of life for older adults, thereby promoting healthy aging and as a result improved societal well-being.

Summary and Conclusions

Shingles (herpes zoster) is a latent viral infection that causes substantial morbidity among older adults (chronic nerve pain, vision loss, hearing loss, facial paralysis) and in rare cases, mortality resulting from complications such as brain inflammation and stroke (Patil et al., 2022). A two-dose schedule of Recombinant adjuvanted Zoster Vaccine (RZV/Shingrix) has been recommended in the United States by the ACIP (Advisory Committee on Immunization Practices) to prevent shingles in adults over 50 (Singer et al., 2024). The CDC recommends that adults over the age of 50 receive the two-dose RZV vaccine to confer long-term immunity (Marra & Lalji, 2022). This is based on evidence from the clinical trials and real-world studies that demonstrate the RZV vaccine effectiveness at 85% for nearly a decade post-vaccination (Marra & Lalji, 2022). The RZV vaccine is safe with adverse events being minor and localized in most patients (Marra & Lalji, 2022).

Despite the recommendations of the RZV (Shingrix) vaccine for protection against herpes zoster by public health professionals, vaccine uptake among adults over age 50 remains negligible (Singer et al., 2023). Considering the less-than-optimal coverage for the U.S. adult population and the health and financial burden of HZ, it is imperative to address the public health impact of health outcomes associated with increasing RZV coverage in this population (Singer et al., 2023).

Previous research related to studying shingles vaccine hesitancy in older populations have focused on sociodemographic factors and shingles literacy. The last study completed in 2009 in the United States analyzed the data from the 2007 National

Immunization Survey-Adult (NIS-Adult) restricted to individuals aged ≥ 60 year to estimate national herpes zoster (shingles) vaccination acceptance and reasons for not receiving the herpes zoster vaccine (Lu et al., 2009). Key reasons for the lack of vaccine acceptance were lack of awareness of the herpes zoster vaccine, the perception of not being at risk, and lack of trust in physicians' recommendations (Lu et al., 2009).

Worldwide, there have been meta-analyses on the factors that have influenced poor Shingles vaccine uptake, and they have been narrowed down to a few key factors. These are: education level, gender, and age (Lam et al., 2017). Recent qualitative research in 2023, in the United Kingdom explored older adults' views and perceptions of a government funded vaccine program that consisted of the influenza, shingles and pneumococcal vaccines (Silvonen et al., 2023). Researchers found that a lack of vaccination recommendation, a lack of information and a lack of opportunities to discuss vaccines with healthcare professionals, are factors that influence compliance (Silvonen et al., 2023).

What is unknown is how personal lived experiences influence shingles vaccine hesitancy among U.S. adults over 50 despite sociodemographic factors, and professional recommendations. Do lived experiences influence individual perception of disease susceptibility and severity, perception of vaccine benefit, perception of barriers to obtaining the shingles vaccine, and ultimately cues to action and self-efficacy in vaccine seeking behavior? In contrast to previous studies, this research has framed the problem to understand the lived experiences of vaccine hesitant adults and the factors that shape their vaccine decision making with a special focus on applying the Health Belief model as a

lens for interpreting the influences that shape their vaccine intentions. The topic of shingles vaccine hesitancy has not been previously explored using a qualitative phenomenological approach that explores the lived experiences of vaccine hesitant older adults and interprets results through the application of the Health Belief model constructs.

Given the previous sociodemographic research on the topic, the gap this study has filled is to provide insight into the experiences, views and perceptions of shingles vaccine hesitant adults over 50, living in Riverside County, California. This qualitative study using phenomenology as the qualitative tradition, is to examine the reasons why adults over 50 who live in Riverside County, California do not accept the shingles vaccine. Riverside County, California has been selected as the demographic area for this research because according to the Public Policy on Aging Report published in 2022, Western states like California have among the highest proportions (23%) of unvaccinated older minority adults (Hispanic and African American) followed by the second highest proportion (14.8%) of unvaccinated older White adults (Mathis & Rooks, 2022). This is a significant proportion of unvaccinated adults and makes this a population of interest to glean an understanding of the factors that influence vaccine hesitancy in this group. Through interviews with eight adults over age 50 who are vaccine hesitant, this study has served as a framework for interpreting how lived experiences influence views on the shingles vaccine. Using the constructs of the Health Belief Model, this research has interpreted the influence of individual perceptions of susceptibility and severity, modifying factors such as age, shingles knowledge, views of the shingle vaccine, and cues to action such as following a physician's recommendations and knowing a close

acquaintance who has had Shingles previously. The findings have identified perceived barriers that influence hesitancy and cues to action that influence acceptance towards the herpes zoster vaccine.

Gaining a deeper understanding of the reasons behind shingles vaccine hesitancy provides insight for future life-course immunization programs that improve the uptake of vaccines in this population. Vaccine compliance can support healthy aging and reduce morbidity, mortality and loss of quality of life related to vaccine preventable diseases. The findings from this research are useful in planning effective public health strategies that target vaccine hesitancy to promote vaccine compliance in older adults.

Section 2: Research Design and Data Collection

The purpose of this qualitative phenomenological study was to explore the reasons why adults over 50 living in Riverside County, California are vaccine hesitant regarding the shingles vaccine. The field-based products resulting from this study may fill the gaps in the data by identifying what factors drive health-seeking behaviors through the lived experiences of individuals who are vaccine hesitant, may reveal new factors and insight into existing data that influence vaccine hesitancy, and may provide researchers with a deeper understanding of the experiences and perspectives of adults regarding the shingles vaccine. The insights gained from this study may inform public health communication and management strategies to facilitate vaccine compliance in older adults. Major topics addressed in this section include the research design, the role of the researcher in relation to the participants, how biases were managed, the participant selection criteria, data collection instruments, procedures for pilot studies, data analysis plan, issues of trustworthiness, and ethical procedures to gain IRB approval. IRB number 07-15-25-1117517.

Research Design and Rationale

The following research questions were addressed in this study:

RQ1: What are the experiences and views of adults over 50 living in Riverside County, California who are shingles vaccine hesitant?

RQ2: How does individual perception of the benefits, barriers, susceptibility, and severity of shingles influence vaccine intentions?

RQ3: How would a recommendation from a health care provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?

The central phenomenon that was explored was the lived experiences of adults over age 50 living in Riverside County, California who are hesitant to accept the shingles vaccine. The phenomenon of vaccine hesitancy results from a combination of personal experiences and views that influence the ability to understand and apply health information (Nicholls et al., 2021). The current qualitative study applied an interpretive approach and used the tradition of phenomenology to gain a deeper understanding of how lived experiences influence vaccine hesitancy. Data were interpreted through the application of the constructs of the health belief model. The rationale for selecting phenomenology was because this approach would provide a deeper understanding of the lived experiences of individuals who are hesitant to accept the shingles vaccine. Lived real-world experiences are shaped by social, cultural, political, and religious belief systems. Applying a phenomenological method to studying vaccine hesitancy would integrate the science of disease prevention with the life-world perception of individuals to give public health professionals deeper insight into the factors that influence a reluctance to accept vaccines (Adibelli & İLaslan, 2022). The aim of the current study was to explore the lived experiences of vaccine-hesitant adults to offer new insights on shingles vaccine hesitancy.

Role of the Researcher

My role as the researcher was to conduct virtual one-on-one interviews with eight adult participants who reside in Riverside County, California. In the role of interviewer, I participated as an observer with the opportunity to understand how other people experience the world. As an observer participant, I was an active listener as eight, 45-minute, semi-structured interviews are conducted through Zoom, a virtual platform. I had no pre-existing personal or professional relationships with participants. This is necessary to avoid bias in research and to maintain professional rapport with no power exerted over study participants. All interviews began with asking participants about their perceptions on the shingles vaccine before asking supplementary questions (See Appendix A). Through encouraging the participant to express their views without leading questions, this made the participant feel at ease in expressing their true beliefs and experiences. Through active listening, this allowed me to establish rapport with participants and obtain more authentic data.

To maintain subjectivity, I used personal and interpersonal reflexivity. Personal reflexivity considers that the researcher inevitably influences, and is influenced, by their education, interviews and results (Braund et al., 2024). In qualitative research, it is difficult to remove researcher influence. As a researcher, by acknowledging that it exists and accounting for it, this has contributed to a more authentic research process. Interpersonal reflexivity considers the dynamics between researchers and participants that can influence the study (Braund et al., 2024). As a researcher, by ensuring that

participants are unknown prior to selection, this has eliminated power dynamics and their potential impact on data collection and interpretation.

Methodology

The study population is adults, male and female, between the ages of 50 – 90 living in Riverside County, California who have not received at least one of the two-dose herpes zoster vaccine (Shingrix). The approximate number of participants for this study, the sample population, were eight adults over the age of 50 who have not received the shingles vaccine. I interviewed participants until I reached saturation. Initially, I am anticipating ten participants for this study, but have recruited eight participants, to reach saturation.

Eight interviews were sufficient for collecting thematic data in this study to reach saturation, if not more participants would have been interviewed until saturation has been reached. Results from recent studies on saturation levels in qualitative research using empirical data reached saturation with a minimum of nine interviews and a maximum of seventeen interviews (Hennink & Kaiser, 2022). This was demonstrated in studies with relatively homogenous study populations and narrowly defined objectives (Hennink & Kaiser, 2022). This study had a homogenous population; adults who have not received the shingles vaccine, and the objective of this study is narrowly defined; to examine the influence of their experiences on vaccine hesitancy. For this reason, eight interviews have sufficed to reach saturation, but I did not know until I began data collection. Once data was collected, I determined along with my Committee Chairperson, the number of interviews needed to reach saturation.

I recruited participants through social media and through the snowball method of sampling. I posted an advertisement on social media to solicit participants who are over age 50 and vaccine hesitant regarding the shingles vaccine. The social media advertisement asked my social media connections to refer individuals who fit this description and may be interested in participating in my research. Utilizing the snowball method of sampling through posting an ad on social media platforms has solicited participants who are willing to sit for a forty-five-minute interview over Zoom (See Appendix A). This type of sampling is justified because I did not directly recruit participants which can be laden with bias but gains access to specific susceptible populations through references from social media contacts (Naderifar et al., 2017). Studies on snowball sampling have considered this an effective strategy when working on public health-based research (Naderifar et al., 2017).

Participants were recruited via private messaging on social media platforms to secure contact information. Information such as email, phone number and mailing address were collected so that communication could be facilitated between the participant and me. Once I am in contact with potential participants, I explained the topic of the study, the interview process and time constraints, inquire if the participant meets the criteria of not having received a single dose of the shingles vaccine, and ask if the participant feels comfortable being recorded on Zoom as they share their experiences. If participant consents to be interviewed, then communication established through cell phone and email. Below is a list of the protocol steps that I followed in my research:

- advertise via social media platforms such as Facebook and Instagram

- establish first contact and confirm eligibility to participate
- arrange for the interview data
- administer informed consent and store records
- administer demographic survey
- conduct interview with audio recording
- contact participants for clarification if needed during data analysis phase

Instrumentation

The data collection instrument for this study is the virtual semi-structured one-on-one interview to collect primary data. Zoom was used as the virtual platform on which all eight interviews were conducted, recorded and transcribed.

RQ1: What are the experiences and views of adults over 50 living in Riverside County, California who are vaccine hesitant? Data Instrument: Primary Data from virtual one-on-one interviews. Data Source: Semi-structured virtual interviews with ten participants.

RQ2: How does individual perception of the benefits, barriers, susceptibility and severity of shingles influence vaccine intentions? Data Instrument: Primary Data from virtual one-on-one interviews. Data Source: Semi-structured virtual interviews with ten participants.

RQ3: How would a recommendation from a healthcare provider or an acquaintance who had shingles influence the uptake of the shingles vaccine? Data Instrument: Primary Data from virtual one-on-one interviews. Data Source: Semi-structured virtual interviews with ten participants.

The semi-structured virtual one-on-one interview is sufficient for collecting qualitative phenomenological data because it relies on asking questions within a predetermined thematic framework, but the questions are not set in a pre-determined order. This is important as the first question asked was used to obtain the individual participant's lived experience regarding the shingles vaccine. I allowed the participant to steer the order in which questions are asked through their own responses. However, the researcher was cautious in asking questions so as not to lead or pressure the participant to answer a certain way. That is why the first question asked was open ended to solicit the respondent's purest perspective of the shingles vaccine. Semi-structured interviews are effective in collecting phenomenological data because they often use open-ended questions which allows for flexibility (Oerther, 2021). Having less structure can help researchers observe patterns, while still allowing for comparisons between respondents without the limitations that a pre-determined set order of questions provides (Oerther, 2021). The nature of phenomenology is exploratory as it examines lived experiences, so a semi-structured virtual one-on-one interview allows participant responses to guide future questions without asking questions that could lead participants to respond in a way that is not representative of their personal experience. This method of using a semi structured interview is relevant to phenomenological research whose purpose is to understand how personal background and interpersonal concerns shape vaccine hesitancy (Oerther, 2021). I have sought consensus and content validity for my questions from my committee and a panel on 3 experts on the topic. I do not need IRB approval to do this.

For Researcher-Developed Instruments

The basis for development of the interview questions was existing research from Glaxo Smith Kline, Baalbaki et al., 2019, and Draper & Stergiopoulos, 2021. The “Global Survey on Shingles Misconceptions Amongst Adults Aged 50 and Over Data Report” published by Glaxo Smith Kline in 2023 documented the misconceptions that adults over 50 had about shingles and the shingles vaccine. The Shingles Misconceptions Survey was an online survey conducted across 12 countries of 3,500 adults aged 50 and over (GSK, 2023). Data was collected through a survey of 18 questions covering shingles awareness and misconceptions (GSK, 2023). Questions included sociodemographic factors such as gender, age, marital status, and employment status (GSK, 2023). The questions taken from the Glaxo Smith Kline Misconception Survey provide validity to this research because they inquire about respondents’ levels of health literacy and trusted sources of health education (GSK, 2023). For example, questions used as a foundation for this study’s interview questions inquire about knowledge on how the immune system functions, familiarity with shingles, risk factors for shingles, prevention of shingles, perceived personal risk of developing shingles, and knowledge of a close acquaintance getting shingles (GSK, 2023). The content of these questions was paraphrased to answer the three research questions for this study that aim to understand and interpret the lived experiences of ten adults over the age of 50 who are vaccine -hesitant (defined as: have not received a single dose of the herpes zoster vaccine, Shingrix).

The research from Baalbaki et al., 2019, “A Community-Based Survey to Assess Knowledge, Attitudes, Beliefs and Practices Regarding Herpes Zoster in an Urban

Setting” surveyed 381 participants over the age of 50 living in Detroit, Michigan from June to August of 2018. Survey questions inquired about willingness to accept the shingles vaccine based on existing shingles knowledge, cues to action such as receiving a recommendation by a healthcare provider and gaining a better understanding of the herpes zoster vaccine (Baalbaki et al., 2019). The content of these questions was paraphrased to answer the three research questions for this study.

The research from Draper & Stergiopoulos, 2021, “Shingles Vaccination Uptake in Massachusetts Adults Aged 50 Years and Older” performed a telephone survey to a stratified sample of Massachusetts residents over age 50 who responded to the 2012 Massachusetts Behavioral Risk Factor Surveillance System with the goal of identifying factors that were associated with receiving the shingles vaccine. Survey questions focused on respondents’ knowledge about shingles, their attitudes toward risk and prevention of shingles, perceived barriers and behaviors with receiving a shingles vaccination (Draper & Stergiopoulos, 2021). The sample was stratified into sociodemographic groups that included age group, sex, race, education, employment, general health, and income level (Draper & Stergiopoulos, 2021). The content of these questions was paraphrased to answer the three research questions for this study.

Interview questions that answered all three research questions were developed based on the questions from the three above-mentioned research papers. The sufficiency of the questions used in this research was demonstrated by basing it on questions from recent published research that inquired into understanding respondents’ existing knowledge about shingles, attitudes, beliefs, behaviors, perceived risks, perceived

barriers, cues to action and health literacy. In addition, this research addressed sociodemographic factors that can influence lived experiences. Collectively, this has provided an accurate interpretation using the constructs of the Health Belief Model to understand the phenomenon of vaccine hesitancy toward the shingles vaccine in U.S. adults over age 50.

Procedures for the Pilot Study

The procedure for recruitment, participation and data collection associated with the pilot study used the exact protocol from the main study. For my planned research design, I needed to recruit adults over 50 living in Riverside County, California who have not received a single dose of the Shingles vaccine. An interview protocol was developed to address the problem and purpose of the study. The interview guide was developed with the purpose of driving a meaningful discussion with each interview participant to understand what factors may influence vaccine hesitancy. One participant was recruited through snowball sampling on social media who is over the age of 50 and has not received a single dose of the shingles vaccine. I established first contact and confirm eligibility to participate. I arranged for the interview data. I administered informed consent and stored records. I conducted a demographic survey. I conducted an interview with audio/visual recording through Zoom. If clarification is needed, I confirmed that I could contact the participant during the data analysis phase. This allowed me to make changes to my recruitment process and interviewing process if needed. I completed thematic analysis and use NVIVO software to organize my data for the analysis. The interview was analyzed to identify emerging themes. The emergent themes were coded

and used to identify patterns in responses that were recorded. The recorded patterns were interpreted through the application of the Health Belief Model to understand the factors that influence vaccine hesitancy.

The main study recruited at least eight adults over age 50 who have not had a single dose of the shingles vaccine through the snowball sampling technique. An advertisement was placed on social media platforms Facebook and Instagram to solicit the researcher's social media contacts for referrals of acquaintances for participation in this research. Participants agreed to a recorded 45-minute virtual interview over the Zoom platform.

All data from the virtual interview were recorded and transcribed through Zoom. Data was analyzed by me and I used NVIVO software to organize the data for thematic analysis. Reflective thematic analysis developed by Braun and Clarke was the approach that was used to analyze all interviews (Jowsey et al., 2021). Key points about Reflexive thematic analysis are that it addresses researcher bias through researcher reflexivity (explicitly considering my own biases when interpreting data), allows for the researcher to deeply engage with the data (actively reflect on understanding emerging themes), and provides an iterative process (continuously refine how the researcher's perspective influences the analysis) (Jowsey et al., 2021). Braun and Clarke's six step process for Reflexive thematic analysis includes: the researcher becoming familiar with the data, developing initial codes, identifying themes, reviewing themes, redefining and naming themes and producing the results (Jowsey et al., 2021). Reflexive thematic analysis is appropriate for phenomenological research because it allows me to explore the nuances

and complexities of vaccine hesitancy while acknowledging my own biases and critically examine my own assumptions as I identify themes, attach meaning to themes and interpret the data (Jowsey et al., 2021). The emergent themes were coded and used to identify patterns in responses that were recorded. The recorded patterns were interpreted through the application of the Health Belief Model to understand the factors that influence vaccine hesitancy.

The relationship of the pilot study to the main study is to do a trial run prior to the beginning of the main study to flush out any issues that may skew the results of the main study. The pilot study was a small-scale preliminary study that tested the feasibility and design of the larger main study (Hassan et al., 2006). It is viewed as a trial run to identify issues with methods and procedures to assess whether a larger study will be practical and will answer all research questions (Hassan et al., 2006). The pilot study was used to identify and solve problems prior to conducting the main study. The results of the pilot study were not used to draw conclusive results (Hassan et al., 2006).

Procedures for Recruitment, Participation, and Data Collection

Participant Recruitment

The study recruited eight adults over age 50 living in Riverside County, California who have not had a single dose of the shingles vaccine through the snowball sampling technique. An advertisement was placed on social media platforms Facebook and Instagram to solicit the researcher's social media contacts for referrals of acquaintances for participation in this research. Upon receiving a reference for a potential participant, I established first contact and confirmed eligibility to participate. Participants

agreed to a recorded 45-minute virtual interview over the Zoom platform. I administered informed consent and stored records.

Interview Protocol

I arranged for the interview time with each participant. I conducted a demographic survey. Demographic information that I inquired about were age, sex, marital status, race, education level, employment status, political views, and income level (see Appendix A Demographic Survey). Once informed consent was signed by the respondent and their participation is confirmed I emailed the participant the demographic survey to be completed and returned to me prior to the interview. After the demographic survey has been completed and received, I conducted a 45-minute interview with audio/visual recording through Zoom. The interview process was a one-on-one discussion covering 16 questions and follow-up questions that inquire of participant's knowledge about shingles and their perspectives on the shingles vaccine. If clarification is needed, I could contact the participant during the data analysis phase. All data from the virtual interview was recorded and transcribed through Zoom.

Data Collection Process

Data was collected through eight one-on-one interviews over Zoom. All data from the virtual interview was recorded and transcribed through Zoom. The data included responses from adults over 50 living in Riverside County, California who have not received a single dose of the Shingles vaccine to the interview questions regarding how their lived experiences with Shingles or its vaccine has influenced their decision to not vaccinate. Responses from participants were interpreted using the constructs of the

Health Belief Model. The constructs examined were attitudes, subjective norms, and perceived behavioral control. If clarification is needed, I arranged to contact the participant during the data analysis phase. Data was analyzed by me, and I used NVIVO software to organize the data for thematic analysis. Reflective thematic analysis developed by Braun and Clarke is the approach that was used to analyze all interviews (Jowsey et al., 2021). The emergent themes were coded initially and used to identify themes in responses that were recorded. All themes were reviewed for clarification and to check for researcher bias. This was done with the help of my committee. After review, themes needing redefinition were identified and redefined, all themes were named, and these themes produced the results. The results were interpreted through the application of the Health Belief Model to understand the factors that influence vaccine hesitancy. Details are provided below for each research question and data collection instrument.

Research Question 1: What are the experiences and views of adults over 50 living in Riverside County, California who are vaccine hesitant?

The type of data that was collected were primary data obtained through semi-structured 45-minute virtual interviews with eight individuals. The frequency of data collection was one virtual interview per week over a three-month period. A total of eight interviews were used for data collection in this research. The duration of each data collection interview was about 45 minutes. Data were recorded over the Zoom platform. The follow up plan for when participant recruitment falls short was to continue to use the snowball sampling technique which is to ask existing participants to refer an acquaintance who is interested in participating in this study.

Research Question 2: How does individual perception of the benefits, barriers, susceptibility and severity of shingles influence vaccine intentions?

The type of data that was collected were primary data obtained through semi-structured 45- minute virtual interviews with eight individuals. The frequency of data collection was one virtual interview per week over a three- month period. A total of eight interviews were used for data collection in this research. The duration of each data collection interview was about 45 minutes. Data were recorded over the Zoom platform. The follow up plan for when participant recruitment falls short was to continue to use the snowball sampling technique which is to ask existing participants to refer an acquaintance who is interested in participating in this study. as

Research Question 3: How would a recommendation from a healthcare provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?

The type of data that was collected were primary data obtained through semi-structured 45- minute virtual interviews with eight individuals. The frequency of data collection was one virtual interview per week over a three- month period. A total of eight interviews were used for data collection in this research. The duration of each data collection interview was about 45 minutes. Data were recorded over the Zoom platform. The follow up plan for when participant recruitment falls short was to continue to use the snowball sampling technique which is to ask existing participants to refer an acquaintance who is interested in participating in this study.

Participants exited the study once their interview was completed and data were reviewed for sufficiency. Immediately after the conclusion of the interview, the

researcher debriefed each participant through reflective listening. The researcher summarized the main points covered in the interview and using reflective listening asked each participant if the researcher's understanding of the interview responses was correct. Upon completion of this final review each participant exited the study. If follow up interviews were needed, then the participant would have been contacted, and a second virtual Zoom interview would have been conducted to collect data that was missed or required clarification from the initial interview.

Data Analysis Plan

The type of data that was collected were primary data from semi-structured virtual interviews with eight adult participants. Primary data were connected to research question 1 which answered, what are the experiences and views of U.S. adults over 50 who are vaccine hesitant? Primary data were connected to research question 2 which answered, how does individual perception of the benefits, barriers, susceptibility and severity of shingles influence vaccine intentions? Primary data were connected to research question 3 which answered, how would a recommendation from a healthcare provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?

The type of coding that was used in this study is thematic coding. Thematic coding focuses on identifying overarching themes that emerge from the data, helping to highlight common ideas and issues (Coates et al., 2021). Thematic coding was applied to the interview transcripts to identify common topics, ideas and patterns of meaning that come up repeatedly. Interview transcripts were analyzed to identify and record familiar themes, these themes were coded numerically, all identical numeric codes were grouped

into categories of themes, from these categories emerging themes were identified, reviewed, defined, given a title and written up (Coates et al., 2021). Following this coding system reduced confirmation bias which is the tendency to interpret and apply information in a way that is consistent with the researcher's existing beliefs (Coates et al., 2021). The software that was used to help organize the data for analysis for this qualitative thematic analysis is NVIVO.

Discrepant cases were actively sought out and included in this study because it is a way to ensure trustworthy research (Booth et al., 2013). Although qualitative thematic research looks to identify commonalities and similarities, including discrepant cases are a necessary part of synthesizing and interpreting the data because they can identify errors in the researcher's reasoning or hypothesis (Booth et al., 2013). These discrepancies can be used to add meaning by offering an alternate explanation of the findings. It enables the researcher to understand and define the limitations of their own research (Booth et al., 2013). This research is focused on interpreting the meaning of lived experiences, however, there were no discrepancies identified after data collection and analysis. This allowed the results from this study to provide a more in depth understanding of the factors that drive shingles vaccine hesitancy in U.S. adults and lends credibility to the research findings (Booth et al., 2013).

Issues of Trustworthiness

Trustworthiness is important to the credibility, dependability, confirmability and transferability of qualitative research and the four main keys to trustworthiness that I

have employed in my research are transparency, reflexivity, triangulation and variation in participant selection.

In providing transparency, I precisely explained my research methods and the theoretical basis for my study. By disclosing the research methods and the theoretical foundation for my research, I made it apparent to the reader how I developed my research questions, analyzed my data and arrived at my conclusions (Rose & Johnson, 2020). This is important in building trust in my research because the process of conducting qualitative research involves one researcher who collects and analyzes the data and interpreting qualitative data can be highly variable (Rose & Johnson, 2020). This makes it challenging to verify the results of my study. For this reason, it was vital that I explain my procedures, and justify why I selected those procedures because it is fundamental to evaluating the quality of evidence that emerges from my research (Rose & Johnson, 2020). This is also important in establishing dependability which is important if another researcher wants to duplicate my study.

Another way to provide transparency is to organize and present as much of the data and its analysis in table form in the manuscript (Cloutier & Ravasi, 2021). This visual representation provided the reader with a clearer understanding of how I arrived at my results. This transparency with my data makes the research process more trustworthy (Cloutier & Ravasi, 2021).

Reflexivity is key to assessing trustworthiness in qualitative research (Dodgson, 2019). Reflexivity is a form of intellectual honesty that is crucial to ensure confirmability (Dodgson, 2019). The effects of my personal views on the research participants and the

research topic can contribute to researcher bias and misunderstanding of the phenomenon being studied. I have applied reflexivity by continuously reflecting how my opinions may interfere with my ability to maintain confirmability. During all stages of this research I self-assessed, asked my committee chair to help me identify potentially problematic areas for bias and consciously tried to minimize areas where biases might obscure my objectivity (Dodgson, 2019). In the write up and explanation of my research results I have explained this process to the reader, making the study's trustworthiness more apparent (Dodgson, 2019). This improves the quality of my findings and makes the research results confirmable.

Triangulation is cross-checking research to make it more credible and dependable (Carter et al., 2014). There are a couple ways that I have employed triangulation, with assistance from my capstone committee and assistance from the study participants. Since I was working with a committee, my committee members have critically evaluated my research methods, data collection and data analysis (Carter et al., 2014). For example, after I transcribed my interviews, I asked my committee chair to evaluate my interview process and transcription methods to ensure consistency in interviewing techniques and transcription among all participant interviews. Another way of ensuring dependability is to have research participants provide feedback about the analysis of their interview to ensure that my understanding and conclusions from the transcription of their interview is accurate from their perspective (Carter et al., 2014).

Transferability, a necessary component of trustworthiness, refers to the extent to which the findings of a study can be applied to other contexts or populations outside of

the specific study (Drisko, 2025). One method for ensuring transferability is by selecting a sampling method that suits my research purpose and question (Drisko, 2025). Since I am researching shingles vaccine hesitancy in adults over age 50 living in Riverside County, California, I was justified in setting my criteria for participation to include adults over age 50 who live in Riverside County, California and who have not received a single dose of the shingles vaccine. In this study, I used the snowball sampling method which is a form of purposive sampling (Drisko, 2025). Through snowball sampling I systematically recruited potential participants through placing an advertisement on social media platforms. This allowed for a maximum variation in participant selection and capture a wide range of perspectives which enhances transferability (Drisko, 2025). I used the interview process to collect my data, thematic analysis to code, categorize and interpret my data and include multiple perspectives from my peers and participants to validate my findings and refine my understanding and interpretation (Drisko, 2025). I incorporated thick descriptions where I included quotes and narratives from my interviews to illustrate and contextualize my observations (Drisko, 2025). These strategies established transferability of my research results.

Ethical Procedures

Ethical procedures to gain access to participants included ensuring informed consent, maintaining confidentiality, respecting privacy, and allowing voluntary participation (Richards, 2002). Recruitment of participants was through social media advertisements (see Appendix B). Participants were fully informed about the purpose of the research, procedures, potential risks and benefits, and how the data from their

interviews would be used, prior to giving consent to participate in this research (see Appendix C) (Richards, 2002). Participants were informed that participation in this research is voluntary, they were free to choose whether to participate in this study and could withdraw anytime without penalty (Richards, 2002). Participants were assured that their information was kept confidential. In the digital world, it is easy for health data to be hacked and respondents to be identified if the data are not adequately stored and kept confidential (Richards, 2002). The confidentiality of the research is critical. To avoid these types of data breaches, I was attentive to any sensitive information that could reveal the identification of participants and take measures to collect, analyze and report my data without compromising the identities of the respondents (see Appendix C) (Richards, 2002). For example, I assigned a random number to each participant as an identifier (e.g., P1, P2, P3 etc.). I created a numerical code to serve as an identifier for each participant that allowed me to complete my research without using sensitive participant identifying information. IRB approval was secured prior to interviewing participants.

To prevent unauthorized people from gaining access to a private Zoom interview there are settings that I used to maximize privacy and confidentiality during data collection. I always created a new private meeting code for each meeting, instead of using my Personal Meeting ID and require a passcode for all interviews (Labinjo, 2021). When recruiting participants on social media, I did not disseminate interview details on a public forum. I emailed the participants with the details of the meeting directly. Passcodes were provided for participants separately from other meeting details (Labinjo, 2021). Prior to each interview session, I turned on Waiting Rooms. This feature ensured that I must

approve each attendee prior to them having access to the meeting (Labinjo, 2021). Once the participant enters the meeting, I locked each meeting, which did not allow new participants to join the interview (Labinjo, 2021). To reduce possible exposure of confidential information I disabled screen sharing for participants and Zoom file transfers (Labinjo, 2021).

During the recording of each Zoom interview, I followed specific guidelines to ensure ethical protection for the participant. All participants specifically consented to being recorded (Labinjo, 2021). I verbally let the participant know when the recording had begun. I informed all participants that they were not to record the interview themselves (Labinjo, 2021). To ensure this level of privacy, prior to each Zoom interview, I logged into my Zoom account from the web interface and modify settings to prevent unauthorized recording. Local recording setting was “on”. I did not give participants the permission to locally record, that setting was “off” (Labinjo, 2021). The automatic recording setting was “off” (Labinjo, 2021). The IP Address Access Control was “off” (Labinjo, 2021). I allowed only authenticated users to view cloud recordings, that setting were “on” (Labinjo, 2021). To ensure any cached recording files are deleted since I saved recordings locally, I set the Auto Delete for cloud recordings to be “on” with a one-week time range (Labinjo, 2021). The disclaimer for recording was set to “on” (Labinjo, 2021). Asking participants to consent was set to “on” (Labinjo, 2021). Asking the host to confirm was set to “on” (Labinjo, 2021). Collectively used, these settings ensured the protection of participant confidentiality.

Authorized individuals who had access to the data were myself and my capstone committee consisting of Dr. Richard Jimenez, Dr. Lee Caplan and Dr. Shanna Barnett. Ethical issues in the design and conduct of qualitative research are challenging because of the nature of qualitative research. The qualitative method is utilized to explain the meanings of lived experiences. One potential harm that can be inadvertently inflicted on participants in qualitative research is violating the right of privacy (Sanjari et al., 2014). Sometimes a conflict between the right to know and the right of privacy may occur (Sanjari et al., 2014). The main task in the phenomenological method is to transcribe individual experiences into words in data collection and attempt to understand those experiences based on recurring statements, and emerging themes (Sanjari et al., 2014). To prevent this information from inadvertently identifying a participant, it is essential to utilize secure data recording and storage methods, remove sensitive information that can identify participants such as biographical and personal details (Sanjari et al., 2014). Researchers have the responsibility of protecting all participants in a study from potentially harmful consequences that might affect them because of their participation. For example, participants in my study on shingles vaccine hesitancy may be subject to prejudices resulting from their personal views regarding the shingles vaccine. My documented plan of securing recorded material, removing sensitive identifying information, obtaining both written informed consent and oral consent prior to recording each interview was necessary to demonstrate that I provided reasonable measures in my research to protect participant confidentiality (see appendix C).

An ethical issue related to the personal nature of qualitative research is the development of personal relationships with study participants. During the process of interviewing participants, researchers can influence how participants respond, and participants can influence how researchers perceive their experiences (Råheim et al., 2016). Power dynamics between the researcher-participant relationships contain imbalances (Råheim et al., 2016). Participants view researchers as having authority on the subject matter, and expertise. This can influence participant responses and participants might respond with the researcher out of deference or a desire to please, rather than expressing genuine perspectives (Råheim et al., 2016). This can undermine trustworthiness in the research findings. To address this issue in my research, I applied reflexivity by continuously reflecting how my opinions could have interfered with my ability to maintain objectivity. During all stages of this research I have self-assessed, asked my committee chair to help me identify potentially problematic areas for bias and consciously tried to minimize areas where biases could have obscured my objectivity (Dodgson, 2019). Another way of addressing power imbalances is to have research participants provide feedback about the analysis of their interview to ensure that my understanding and conclusions from the transcription of their interview is accurate from their perspective (Carter et al., 2014). This makes participants feel that by checking with them on the accuracy of my understanding, their honest views are valued, heard, and respected. Applying reflexivity kept me objective in my understanding and interpretation of the data and influenced participants to be fully engaged in the interview process and to

share their honest views which ensured authenticity of the research findings (Råheim et al., 2016).

Summary

In conclusion, this qualitative research applied an interpretive approach and used the tradition of Phenomenology to gain a deeper understanding of how lived experiences influence vaccine hesitancy in adults over age 50 living in Riverside County, California. Data was interpreted through the application of the constructs of the Health Belief Model. The aim of this study was to analyze the lived experiences of vaccine hesitant adults to offer new insights on shingles vaccine hesitancy.

As the researcher, I conducted virtual one-on-one interviews with eight adult participants. The eight, 45-minute, semi-structured interviews were conducted through Zoom, a virtual platform. The study population is adults living in Riverside County, California, male and female, between the ages of 50 – 90 who have not received at least one of the two-dose herpes zoster vaccine (Shingrix). The approximate number of participants for this study were eight adults over the age of 50 who have not received the shingles vaccine.

I sought to recruit participants through social media and through the snowball method of sampling. I posted an advertisement on social media to solicit participants who are over age 50 and vaccine hesitant regarding the shingles vaccine. Upon receiving a reference for a potential participant, I established first contact and confirmed eligibility to participate. Participants agreed to a recorded 45-minute virtual interview over the Zoom platform.

The data collection instrument for this study was the virtual semi- structured one-on-one interview to collect primary data. Zoom was used as the virtual platform on which all eight interviews were conducted, recorded and transcribed. There were three research questions that were answered.

RQ1: What are the experiences and views of adults over 50 living in Riverside County, California who are vaccine hesitant?

RQ2: How does individual perception of the benefits, barriers, susceptibility and severity of shingles influence vaccine intentions?

RQ3: How would a recommendation from a healthcare provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?

Data from the virtual interviews were recorded and transcribed through Zoom. Data were analyzed by me, and I used NVIVO software to organize the data for thematic analysis. Reflective thematic analysis developed by Braun and Clarke was the approach that was used to analyze all interviews (Jowsey et al., 2021). The emergent themes were coded initially and used to identify themes in responses that were recorded. All themes were reviewed for clarification and checked for researcher bias. This was done with the help of my committee. After review, themes needing redefinition were identified and redefined, all themes were named, and these themes produced the results. The results were interpreted through the application of the Health Belief Model to understand the factors that influence vaccine hesitancy.

The field-based products resulting from this study filled the gaps in the data by identifying what factors drive health seeking behaviors through the lived experiences of

individuals who are vaccine hesitant, shedded light into new factors and provided insight into existing data that influence vaccine hesitancy, and provided researchers with a deeper understanding of the experiences and perspectives of adults regarding the shingles vaccine. The insights gained from this study have outlined ideas that inform public health communication and management strategies to facilitate vaccine compliance in older adults.

Section 3: Presentation of the Results and Findings

The purpose of this qualitative phenomenological study was to explore the reasons why U.S. adults over 50 and living in Riverside County, California do not accept the shingles vaccine. This study addressed three research questions:

RQ1: What are the experiences and views of U.S. adults over 50 who are vaccine hesitant?

RQ2: How does individual perception of the benefits, barriers, susceptibility, and severity of shingles influence vaccine intentions?

RQ3: How would a recommendation from a health care provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?

Section 3 addresses the pilot study, all components of the main study, and the study findings. The procedure of conducting the pilot study is discussed along with any aspects of the main study that were influenced by the pilot study. The number of participants, data collection instruments, and location and duration of data collection are described in detail. Unusual circumstances and variations in data are disclosed, as well as descriptions of the coding process and how themes were extracted from coded data. Methods to ensure data trustworthiness, such as credibility, transferability, dependability and confirmability, are discussed in detail in this section. Each of the three research questions is addressed along with its corresponding results and data samples to support the results.

Pilot Study

The pilot study was conducted with one female participant on July 19, 2025. The participant for the pilot study was recruited using the study advertisement over the social media platform Facebook. Once contact was made with the woman through email, informed consent was obtained, a date and time for the interview was scheduled, and a link containing the password to attend the Zoom meeting was emailed to the participant. Prior to the interview, the participant was emailed a demographic survey to complete and return. The participant was prompt in completing and returning the survey on the day of the interview. The security controls made it difficult for the participant to log into our session, and as a result we started 10 minutes late. However, she was able to enter the meeting once she saw the special entry code (password) for the meeting. The interview took place over Zoom, was 1 hour in length, and went smoothly. The participant was comfortable sharing her experiences with me regarding vaccines in general, her thoughts on the shingles vaccine, and her perceived risk of shingles.

The data that were collected as well as my observations of the participant through the interview process provided rich insight into the reasons for not accepting the shingles vaccine. I observed that this participant was strongly influenced by her grandmother's bad experience with the shingles vaccine. She indicated that her grandmother received the ZVL vaccine (attenuated live vaccine) back in 2000 and became very ill with shingles. This participant was also influenced by her own physical responses to different vaccines, such as the flu vaccine. She indicated that she became ill for 3 days after, and that she preferred to risk getting a disease and getting through it than immunizing,

because in her opinion her physical symptoms following immunization were worse than coping with the disease if she were to become infected.

This participant also indicated that pressure to immunize (loss of self-autonomy) influenced her to question the necessity of the vaccine. She felt a resentment toward mandates to vaccinate to keep her employment.

This participant indicated that she did her own research using Google and reading articles that she found online. She also enjoyed discussions with healthcare professionals such as nurses with whom she works in a nursing care facility. She felt that she learned relevant information which influenced her decision to avoid the shingles vaccine.

This participant mentioned that her distrust of the pharmaceutical industry and its influence on physicians' recommendations also influenced her views against accepting not only the shingles vaccine but any vaccine in general.

Finally, in her view, there would not be a single individual or information source that could influence her to accept the shingles vaccine. She based her decision primarily on her own physical experiences of getting very ill after immunization, and the experience of her grandmother becoming very ill with shingles after the ZVL vaccine. I mentioned to her that the new vaccine does not carry a risk of infection because it is not an attenuated live vaccine, but she indicated that this would not influence her to accept the shingles vaccine.

This participant was agreeable to a 20-minute follow-up to provide me with feedback regarding the information that I gleaned from the interview.

One way the pilot study prepared me for the main study was that it made me aware of the need to educate all participants beforehand that the Zoom interview had a password or code that needed to be entered in order to gain entry to the interview, and that this existed to ensure privacy and security for the participants. Because the security controls made it difficult for my pilot study participant to log into our session, resulting in a delayed start to the interview, I made it a priority to be clear in my instructions to participants that there is a specific code to use which allows entrance into the Zoom meeting when I sent out the Zoom links.

The pilot study also prepared me for the main study by making me realize the need to prepare ahead of each interview potential supplementary questions in case the participant was not particularly responsive, so that I could draw each participant out in a respectful manner and gain an understanding of his/her perspective. It made me aware of the need to ask additional questions focusing on all the other constructs of the Health Belief Model in addition to perceived risk. This could add depth to my results and help me interpret them.

Finally, the pilot study also prepared me for the main study by encouraging me to refresh my memory on the facts related to the development timeline (dates) of the two shingles vaccines (RZV and ZVL). In the pilot study interview, I struggled with remembering dates on vaccine development. However, I emailed my participant with the correct dates to ensure she received the answers to her question about the vaccine dates.

The pilot interview was successful, No major revisions had to be made to the proposed study protocol. The participant appeared comfortable and honest in her

responses. I felt comfortable speaking with her, as if we were having a conversation throughout the entire process. I conferred with my chair who reviewed my audio recording, and we agreed that I could proceed to the main study. Going into the main study, this experience provided me with confidence in my abilities as a qualitative researcher to draw out each participant and allowed me to focus on minor improvements that would increase my skillset in communication, active listening, and building rapport with participants.

Main Study

Data Collection

The data were collected over a period of three months (July to October, 2025) through virtual interviews with eight adults over the age of fifty that resided in Riverside County, California. The age range of the seven female and one male participant was 53 to 82 years of age. The participant sample consisted of five individuals identifying as white, one individual identifying as African American and two individuals who preferred not to disclose their race. Four of the participants were divorced, two participants were widowed and two were married at the time of their interview. Education level ranged from having some college education to having a doctoral degree. Income level was disclosed by only half the sample and ranged from \$60,000 dollars- \$120,000+ annually. Political identification was predominantly conservative , with three participants identifying as Republican and two identifying as Republican Independent and Conservative. Two participants identified as Democrat and one participant preferred not

to disclose this information. Table 1 below summarizes key demographic information about the participants.

Table 1

Selected Participant Demographic Characteristics

Age	Gender	Race	Marital status	Level of education	Annual gross income	Political view
82	Female	White	Widowed	Doctorate	\$90,000–119,999	Republican
82	Female	Basque	Married	Some college (no degree)	\$60,000–89,999	Republican independent
72	Female	White	Widowed	Bachelor's	Prefer not to answer	Other
68	Female	White	Divorced	Some college (no degree)	\$60,000–89,999	Republican
62	Female	Prefer not to answer	Divorced	Some college (no degree)	Prefer not to answer	Democrat
56	Female	White	Married	Associate's	\$120,000+	Republican
55	Female	White	Divorced	Some college (no degree)	Prefer not to answer	Conservative
53	Male	Black	Divorced	Some college (no degree)	Prefer not to answer	Democrat

Note. $N = 8$.

Each one-on-one interview was conducted virtually and recorded through Zoom and lasted between 30-60 minutes.

Data Analysis

Reflective thematic analysis developed by Braun and Clarke was the approach that I used to analyze all the interview data (Jowsey et al., 2021). Reflexive thematic analysis is appropriate for phenomenological research because it allows for exploring the nuances and complexities of vaccine hesitancy while acknowledging the interviewer's own biases and critically examining the interviewer's assumptions he/she identifies themes, attaches meaning to themes and interprets the data (Jowsey et al., 2021).

Upon completion of the eight interviews, the data transcripts from each interview was imported into NVIVO and transcribed into the English language using NVIVO

transcription software. Each interview transcription yielded Word documents ranging from 16 to 32 pages. Thematic analysis was then applied to the recorded and transcribed interviews to identify common themes, ideas, patterns and meanings that repeatedly emerged. The emergent themes were coded and used to identify common themes.

Based on common major themes that emerged in all eight of the interviews, larger parent codes were identified from the data. These parent codes included lifestyle measures to prevent shingles, reasons for not getting the shingles vaccine, severity of someone else's shingles experience, shingles prevention, thoughts on the shingles vaccine, views on COVID vaccine mandates contributing to hesitancy, influencers of shingles vaccine uptake, shingles personal experiences, views on vaccines in general, shingles knowledge, perceived shingles risk, in retrospect participant would not have immunized his/her own children and distrust of vaccine effectiveness and safety.

Parent codes were listed for each interview transcript, and smaller child codes were identified that provided support for the larger parent codes. All supportive child codes were listed under their corresponding parent codes. The following section will list the parent codes and the corresponding quotes from all eight interviews that support these emergent themes. I have incorporated thick descriptions where I include quotes and narratives from my interviews to illustrate and contextualize my observations (Drisko, 2025). This approach provides the reader with an in depth understanding of my findings and establishes transferability of my research results.

Findings

Although results from recent studies on saturation levels in qualitative research using empirical data reached saturation with a minimum of nine interviews and a maximum of 17 interviews (Hennink & Kaiser, 2022), I reached saturation at eight interviews. This study had a homogenous population, adults who had not received the shingles vaccine; and the objective of this study was narrowly defined, to examine the influence of their experiences on vaccine hesitancy. For this reason, I expected ten interviews to reach saturation, but after data collection began, it was determined with the guidance of my chair who reviewed my coding during data analysis that eight interviews reached saturation. After reviewing the themes that emerged from coding seven interviews, I found no new information, and together, we determined, that saturation was reached. Since this number was below the recommended number of ten interviews to reach saturation using empirical data, my chair recommended that I conduct one more interview to confirm that my research was not producing any new data. That is how I reached saturation with eight interviews. Listed below under each research question are the major themes and codes obtained from the data:

RQ1

RQ1: What are the experiences and views of adults over 50 living in Riverside County, California who are shingles vaccine hesitant?

Theme: Fear of Side Effects

Participants indicated that they were deeply concerned about potential vaccine side effects. The concerns of participant 1 and participant 5 are presented below:

Participant 1 - 20:43 “I would rather take the risk of not getting the vaccine since a, you know, there’s lots of, um, side effects.”

Participant 1 – 21:04 “Write down all the side effects. Obviously, there’s always, you know, injection site reactions, you know, all the right ones that you can also have reactions that are going on in your body, like the inflammation that you aren’t even ever aware of.

Participant 5 – 56: 16 “That’s another reason I don’t do the vaccine right. It could slow me down.

Participant 5 – 1:04:32 “I’m going to look it up. I need to look up everything about it. The side effects. It’s the side effects.”

Theme: Do Not Know What Is in Vaccines

Participants indicated that they did not know what substances are in vaccines that may potentially harm them, and that they did not trust vaccines as a result. The views of participant 2 and participant 4 are presented below:

Participant 2 - 01:22 “I don’t trust it because I don’t know what’s in it. And what I’m hearing now is there’s a lot of bad stuff in it. And people are having all kinds of repercussions and side effects. And I never did get Covid.”

Participant 2- 02:09 “I don’t know what’s in it. And you know, you try to find out and they really don’t tell you what is in it. And so, um, I’ve just never been a vaccine person, I guess, way back. I mean, I had the minimum amount when I was a kid, and I never had anything since.”

Participant 4- 13:58 “So how do we know what’s in these vaccines?”

Theme: Not Sufficiently Researched for Safety

Participants indicated concern about a lack of thorough long-term research on vaccine safety. The concern of participant 1 is presented below:

Participant 1- 21:42 “So how do we know what’s in these vaccines? That puzzles me because some you know, I’ve read I know one of my girlfriends can’t take any of them because she’s allergic to one of the components in them. So no, like a something she says is like, uh, propylene glycol or something like that.”

Theme: Discomfort With Putting Vaccines in the Body

Participants indicated that they were uncomfortable with putting vaccines in their bodies. The discomfort of participant 4, participant 6 and participant 7 with putting vaccines in their bodies are presented below:

Participant 4 - 16:57 “I’m hesitant because I just am against, you know, vaccines. I don’t like them in my body, I do. I don’t want to be, like having to get this vaccine here. This one? Here. That one. You know, it just seems like my body’s being filled up with stuff I don’t need. I don’t know. It’s just the feeling I get. I don’t like stuff being put in me any more than I already have.”

Participant 6- 08:24 “Placing something in your body that honestly, you have to have a lot of trust and faith in a doctor or nurse that comes in to give you administer a vaccine. That they’re giving you the right thing. Um, that’s always been a scary thought for me as an adult now. My kids are older. You know, when you go pick up a prescription, the pharmacies always ask if you want to vaccinate. Right. I’m like no, I’m good. But yeah, I wonder you know, how many errors are made.”

Participant 6- 39:44 “I would be afraid to get the vaccine because it is injecting that into your body.”

Participant 7- 28:18 “I don’t I don’t want to live forever and I don’t plan on it, so I don’t need to pump my body with preservatives to look good as a dead body”

Theme: Health Insurance/Cost Is a Barrier to Shingles Vaccine Uptake

Participants indicated that the high cost of vaccines and lack of health insurance influenced their ability to accept the shingles vaccine. Participant 5 and participant 8 mentioned these as significant barriers to vaccine uptake, as seen below:

Participant 5- 32:31 “the problem I’ve had now is I, my, um, I go through Loma Linda doctors and they no longer take my insurance. And I’ve been going to these doctors for 25 years. Oh, wow. And so now I have to find doctors that will take my insurance. Right.”

Participant 8- 32:43 “someplace that is probably easy to access because sometimes accessibility can be a barrier.”

Participant 8- 31:40 “It’s the availability at a price I can afford is what I’m looking for okay. Thank you. Yes, 100%.”

Theme: Lack of Trust in Pharmaceutical Companies and Government Oversight

Participants indicated a lack of trust in government regulatory agencies and pharmaceutical companies. Participant 3 and participant 7 explained their hesitancy, as seen below;

Participant 3-06:25 “You know, you’ve got your insurance companies, you’ve got the pharmaceutical companies, you’ve got all these people that are push, push, push

this product, push this product. And I've heard that stories from so many that I go, wow, you know we have to be our own advocate. And just because the FDA says you have to, we have to do our own research. And so that's kind of where I'm at right now."

Participant 3- 30:15 "It doesn't have to just because the FDA says it, or a physician that's been a physician for 50 years, you know, and, um, I question more now than I ever have. And a lot of it is because as we get older, we, you know, we realize, you know, you don't have to really believe everything you read or believe everything that somebody tells you, right? You go do your own research type of thing."

Participant 3- 33:02 "Because I think the dollar is attached to. Why wouldn't it be with that particular vaccine when it is with so many other drugs and different things that they are promoting out there? Because there's so much money tied to that."

Participant 7- 1:51 "I'm very hesitant. I'm not one of the ones who well, just do what, uh, the government tells us to do."

Participant 7 – 18:00 "the ones that I was listening to the names kind of gave me, but they're independent of large pharmaceutical companies of government entities, or those are the people I trust, because those of the people I know, I don't know the government and the government, people I do know, I don't trust them either, because I, you know, I do know some government folks."

RQ2

RQ2: How does individual perception of the benefits, barriers, susceptibility and severity of shingles influence vaccine intentions?

Theme: Low Perceived Shingles Risk

Participants indicated they felt that they were at low risk of contracting shingles. All participants explained that they did not view themselves as at risk for developing shingles, as seen below:

Participant 2- 01:41 “Yeah. Nope. I’m just too healthy.”

Participant 2- 11:37 “Not a concern. Not even a fear.”

Participant 2- 18:05 “Yeah. I’m pretty convinced it’s not going to reemerge. If it was going to, it would have by now.”

Participant 3- 24:13 “Maybe I’m am at risk. Or maybe I could be right or at risk. Right?”

Participant 4 - 22:39 “It’s just like any other vaccine that I wouldn’t want to take it. You know, I know it prevents a bad, you know, virus, but, um, I’m just banking on not ever getting it. Hoping.”

Participant 5- 56:55 “Well, I’ve had so much stress in the years from 2018 to 2020. The stress was unbelievable. And I told my friends, well, if shingles is caused from stress, if I didn’t get it in 2020, I probably never will get it.”

Participant 6- 34:41 “No, I’ve had it once. I didn’t know you could get it again. Am I going to worry about it? Will I get a vaccination? No, I’m just going to go with, you know, just my gut and say, you know, we’re just going to die.”

Participant 7- 26:09 “That’s a concern. Yeah. Um, I don’t live in fear of it, but, I mean, it’s definitely a concern. It’s concern, you know, like anything.”

Participant 8- 17:37 “Well, because I haven’t had the virus in my body, I was assuming I was safe because I’ve not been vaccinated. That was my understanding.”

Participant 1- 01:03 “I haven’t had an experience with shingles. I know people that have, but I personally haven’t had that. I know I haven’t had shingles.”

Theme: Limited Shingles Knowledge

Participants indicated that they had a limited knowledge about shingles and how it is transmitted and prevented. Participants 1, 2, 6 and 7 indicated that they were aware that the shingles virus was related to the chickenpox virus, as seen below:

Participant 1- 08:11 Well, it’s the one of the many like herpes zoster, herpes zoster viruses that you know from chickenpox. I think it’s from the chickenpox virus orbiting your spinal cord somewhere around there. Right, and all kinds of, you know, stress sometimes nothing, could be possibly eating a bunch of foods that are high in arginine. It could be eating. It could be, you know, a host of things or all of them together at once that could cause an outbreak.”

Participant 7- 14:32 “Which is also a part of a venereal disease. Is that correct?”

Participant 2- 17:03 “And that’s why one of the other reasons I never got the vaccine because I had chickenpox. So, to me, I’m immune to chickenpox.”

Participant 6- 03:48 “And I’m assuming it would not happen again. Um, because I felt that my case gave me a natural immunity as well, because it is just a, uh, chicken pox virus. It is part of that. So. And I did have chicken pox.”

Participant 7- 15:46 “I don’t know, I haven’t studied it, um, far enough, um, on a on my knowledge that since shingles wasn’t something I was really super looking into.”

Theme: Health Insurance Coverage Influences Vaccine Uptake

Participants indicated that a barrier to vaccine uptake was lack of health insurance coverage. Participant 8 explained that health insurance coverage is necessary to cover the costs of vaccine uptake and as such would influence his/her? acceptance of the shingles vaccine, as seen below:

Participant 8- 25:06 “I can’t afford health insurance. My employer is offering it, but for me it’s going to be 1300.”

Researcher asked participant 8- 25:54 “So if you had more coverage, do you think that would influence your decision to immunize?”

Participant 8- 26:00 “Absolutely. Uh and I elbowed people out of the way to pay 175 for my COVID-19 shot. I’m that girl.”

Researcher asking Participant 8- 30:33 “Let me ask you something. If I were to do some research on this and let you know about a source to get the shingles vaccine, would you be interested?”

Participant 8- 30:52 “Okay. Can we do it for under 200?”

RQ3

RQ3: How would a recommendation from a healthcare provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?

Theme: Legitimate Research Would Influence Vaccine Uptake

Participants indicated that legitimate research on the safety and efficacy of the shingles vaccine would influence their acceptance. Participants mentioned that they would have to trust the individuals who did the research, and that they would have to do

their own research to determine if accepting the shingles vaccine would bring benefits that were greater than any perceived risks, as seen below:

Participant 1- 28:50 “If I actually saw legitimate research. If I thought that I had risk and that something was legitimately research. Because I don’t think they’re legitimately research right now.”

Participant 1- 29:42 “I would have to trust the people doing the research. And I would have to trust that it’s actually the studies were actually done how they’re supposed to be done, an actual scientific study done the proper way. I would have to and then I even if that was all the case, I would still have to do a risk benefit ratio on myself you know, is it worth the risk of putting in my body.”

Participant 7- 30:36 “once it’s tested, studied and gone through the proper channels, unlike some of these vaccines we now have done. Um, I think that would be a benefit to the entire world.”

Theme: A Family Member or Friend Would Influence Vaccine Uptake

Participants mentioned that a trusted family member would influence acceptance of the shingles vaccine. Participants mentioned that a trusted friend or relative could be influential in their acceptance of a vaccine, as seen below:

Participant 1- 28:42 “Um, probably just myself or my best friend.”

Participant 3- 28:19 “maybe a family member.”

Participant 6- 41:16 “Probably my daughter.”

Participant 8- 1:37 “I was raised by a nurse and I know better. I have seen, um, through my mom’s medical journals, the atrocities of unvaccinated and what it does, it’s, it’s harsh and heinous and it’s such an easily avoidable position to be in.”

Theme: A Pharmacist Would Influence Vaccine Uptake

Participants indicated that a trusted pharmacist would influence them to accept the shingles vaccine. Participants mentioned that they would value a pharmacist’s recommendation, as seen below:

Participant 4- 26:01 “I would even be almost more prone to ask the pharmacist, because I do ask him a lot of things. Whenever. Yeah, they give me something to take.”

Participant 8- 32:35 “Yes. If I could find a place also. Like if I could go to CVS and get it. I know where CVS is, and I trust everyone there.”

Theme: A Physician or Nurse Would Influence Vaccine Uptake

Participants indicated that a trusted physician would be influential in encouraging them to accept a shingles vaccine, as seen below:

Participant 3- 5:16 “My own hormone doctor, which I absolutely trust completely. If she were to say, you know, and of course she’s she, you know, she’s my hormone doctor. But if she said, Heather, you need to get the shingles vaccine, I probably would, based on her recommendation.”

Participant 4- 25:40 “Who would influence me the most? Yeah. If I received this, if I would receive it. Um. I guess I would talk to my physician.”

Participant 5- 01:03:45 “Yeah. My doctor pretty much kind of talked me into it when I saw her three weeks ago. And really, I, I thought, well, maybe I’ll do it.”

Theme: Personal Research Would Influence Vaccine Uptake

Participants indicated that their own research into the safety, potential side effects and effectiveness of the shingles vaccine would influence their acceptance, as seen below:

Participant 3- 30:15 “You know, again, just our having to do a lot of our own research and making sure that, you know, somebody that we really trust, you know, if they’re giving a recommendation on something, then, yeah, I will take that. But it doesn’t always come in the forms that we thought in the past. It doesn’t have to just because the FDA says it, or a physician that’s been a physician for 50 years, you know, and, um, I question more now than I ever have. And a lot of it is because as we get older, we, you know, we realize, you know, you don’t have to really believe everything you read or believe everything that somebody tells you, right? You go do your own research type of thing.”

Participant 7- 28:18 “I would have to find that on my own. Somebody else telling me X, Y, and Z. Now you can tell me your research and literature allowed me to look at it, but you can’t. I will just hear you, hear you, hear you and you’ll just be Bebe, Bebe, Bebe. Until I find it for myself, I won’t trust it. So, there’s no one. And the only person I trust in that is going to be my own research.”

There were no discrepant cases among the eight interviews. All codes that emerged along with their corresponding child codes identified similar factors that influence vaccine hesitancy as found in prior research. The two main factors that

influenced shingles vaccine hesitancy in this study were distrust of vaccines and lack of access to vaccines, both of which are aligned with existing literature (see Table 2).

Table 2

Major Themes by Research Questions

RQ1: What are the experiences and views of adults over 50 living in Riverside County, California who are shingles vaccine hesitant?	RQ2: How does individual perception of the benefits, barriers, susceptibility and severity of shingles influence vaccine intentions?	RQ3: How would a recommendation from a healthcare provider or an acquaintance who had shingles influence the uptake of the shingles vaccine?
Theme (Participants 1,2,3,4,5,6,7,8) Fear of side effects	Theme (Participants 1,2,3,4,5,6,7,8) Low perceived shingles risk	Theme (Participants 1,3,4,5,6,7,8) Legitimate research would influence vaccine uptake
Do not know what is in vaccines	Limited shingles knowledge	A family member or friend would influence vaccine uptake
Not sufficiently researched for safety Discomfort with putting vaccines in their body Health insurance/cost are barriers to vaccine uptake Lack of trust in pharmaceutical companies and government oversight	Health insurance coverage influences vaccine uptake	A pharmacist would influence vaccine uptake A physician or nurse would influence vaccine uptake Personal research would influence vaccine uptake

Evidence of Trustworthiness

Trustworthiness is important to the credibility, dependability, confirmability and transferability of qualitative research, and the four main keys to trustworthiness that were employed in this research are transparency, reflexivity, triangulation and variation in participant selection. I have demonstrated transparency by providing precise explanations of my research methods and the theoretical basis for my study. As mentioned in the data collection section, I used the Zoom platform to conduct eight virtual one-on-one interviews with eight adults living in Riverside County from a variety of backgrounds who are all shingles vaccine hesitant. Each Zoom interview was transcribed and coded using NVIVO software. The major category of themes that emerged served as the parent

codes. To follow up and support the parent codes, child codes were identified and organized under the corresponding parent codes of each interview transcription. The theoretical basis of my study was the Health belief Model, which was applied to explain and understand the phenomenon of shingles vaccine hesitancy. This model explains behavior change as being dependent on individual risk perception, with that perception being influenced by previous experiences, belief systems and fears. Through presentation of the data collected from the pilot study and all eight interviews, this research has shown transparency in presenting the various views of nine different adults who were vaccine hesitant for their own personal reasons. By disclosing the research methods, adjustments that I could have improved each interview, and the theoretical foundation for my research, I am making it apparent to the reader how I developed my research questions, analyzed my data and arrived at my conclusions (Rose & Johnson, 2020).

The interpretation of qualitative data can be highly variable and subject to the researcher's understanding of the phenomenon observed. This makes it challenging to verify the results of my study. For this reason, I have shared the methods that I employed for this study, adjustments that could have improved the interviews/questions, and the data from all eight interviews and the pilot study. This allows the reader to evaluate the quality of the resulting data, and it establishes dependability which is necessary if other researchers wish to duplicate my study (Rose & Johnson, 2020).

Transparency can also be demonstrated by organizing and presenting data in an organized fashion, so that the reader can identify the common parent themes and supportive child codes that emerged from all eight interviews, as well as in a table that

visualizes the demographic data of all eight participants. This visual representation will provide the reader with a clearer understanding of how I arrived at my results. This transparency with my results establishes trustworthiness with my research process.

Reflexivity is a form of intellectual honesty that is crucial to ensure confirmability in research. Reflexive journaling, audit trail, and personal debriefing were used as techniques for maintaining objectivity and transparency. These tools were useful in creating a documented history of my evolving thoughts which allowed me to perform an in-depth self-examination and to critically review my conclusions, strengthening the rigor and credibility of my research. Journaling documents my observations/assumptions, debriefing provides external validation, and audit trails log methodological changes, and all of these work together to ensure my findings are not my personal opinions but are grounded in a transparent process of observation, reflexive listening and documentation. Conducting this research has made me aware of how my personal views can lead to researcher bias and misunderstanding of the phenomenon being studied. Throughout the study, I have applied reflexivity by continuously self-assessing my views, identifying any prejudices, and asking my committee chair to determine whether my reactions and personal opinions would interfere with my ability to maintain confirmability. During all stages of this research, I have actively worked to identify and minimize any areas where bias could cloud my judgement and obscure my objectivity. I learned that as I coded the interview transcriptions, I became intimately acquainted with the experiences of each participant, and to my surprise, I was brought to tears in one case, and in all cases, I felt compassion and understood the humanity behind vaccine hesitancy in a way that I could

not have predicted. As a researcher with my own pre-existing beliefs, I began to understand why the participants were vaccine hesitant. I was humbled. My hope is that in completing this write-up that explains my results and how I used reflexivity to keep me unbiased which led to my humble understanding of a perspective that is opposite of my own views, that I have openly explained this process to the reader, making the study's trustworthiness more apparent, the quality improved, and the results confirmable.

Throughout this research, with the assistance of my committee chair and study participants, I used triangulation to maintain credibility and dependability. An example of this was that I asked my committee chair to evaluate my interview process and transcription methods to ensure consistency in interviewing techniques and transcription among all participant interviews after I conducted my interviews on Zoom and transcribed my interviews in NVIVO,. Another example of maintaining dependability is how I provided each participant with a review of what I understood were his/her individual reasons for being shingles vaccine hesitant and asked whether my interpretation was aligned with their perspective and views that they wanted to convey to me prior to ending the interview. All participants provided immediate feedback and confirmed that what I had understood was an accurate representation of their experience and views. In addition, I asked all the participants if I could contact them during the data analysis with further questions and whether they were interested in receiving the results of my research. All participants indicated that they were willing to answer further questions and were enthusiastic about receiving the results.

Summary

According to the emerging themes from eight virtual one-on-one interviews, shingles vaccine hesitancy in adults over age 50 living in Riverside County, California was influenced by distrust in vaccine safety/efficacy, high cost of vaccine access, perceived low shingles risk, absence of legitimate research on the testing of and ingredients in the vaccines, and distrust in pharmaceutical companies and government oversight. Section 4 will provide an interpretation of the study results and apply these results to better understand the reasons behind low shingles vaccination rates among adults over 50.

Section 4: Applications to Professional Practice and Implications for Social Change

The purpose of this qualitative phenomenological study was to explore the reasons why adults over 50 living in Riverside County, California do not accept the shingles vaccine. Through interviews with eight adults over age 50 who were vaccine hesitant, this research attempted to identify how lived experiences influence views on the shingles vaccine. Using the constructs of the health belief model, this research sought to gain a deeper understanding of how individual perceptions of risk versus benefit influence vaccine uptake. The findings are aligned with what the literature identified as perceived barriers and cues to action that influence vaccine hesitancy toward the herpes zoster vaccine.

The first barrier identified was lack of knowledge about the herpes zoster virus. Although most participants knew that the shingles virus was related to the chickenpox virus (*varicella zoster*), many did not understand the cause of shingles, its transmission, or how to prevent shingles. This may have influenced their views of their own personal risk and, ultimately, their vaccine intentions. The predominant view of seven of the adults interviewed in this study was a general distrust of vaccine safety/efficacy stemming from not knowing what is in vaccines, fear of side effects, discomfort with putting something they do not trust in their bodies, distrust of government oversight and pharmaceutical companies, and cost of vaccine uptake being prohibitive.

The participants did not indicate that they had a heightened risk of shingles. Although most knew someone who had experienced shingles, the general consensus was that their potential risk of shingles was not greater than their distrust of the vaccine.

Although some knew of individuals who had severe cases of shingles, this was not enough to influence shingles vaccine uptake in them.

The second barrier was cost of the vaccine. The cost of receiving the shingles vaccine for individuals with minimal health insurance coverage presented a formidable barrier. One participant indicated that she had a positive view of the shingles vaccine but had to prioritize receiving a COVID vaccine because she felt at greater risk of COVID than shingles.

The results demonstrate that despite knowing individuals who had shingles, having limited knowledge about shingles, and comparing their risk of developing shingles to that of other viruses because of the formidable cost of the shingles vaccine, participants did not feel the urgency to accept a shingles vaccine. Participants' perceptions of the benefits and barriers with respect to getting the vaccine, and of susceptibility to and severity of shingles in this study, align with the conceptual framework of the health belief model that explains health behaviors by assessing an individual's perception of threats, potential benefits, and motivation to act.

Out of the eight participants, four of them were adamant that no one, not even a health professional, could influence them to accept a shingles vaccine, while the other four felt that a physician, pharmacist or trusted family member could influence them to accept it. One theme that emerged in seven interviews was that legitimate research on vaccines would influence those participants to accept a shingles vaccine. Most respondents defined legitimate research as their own rigorous personal research. In disclosing their sources for health research, participant answers included websites related

to research universities, information provided by vaccine manufacturers, independent vaccine testing sites, cell phone searches, the dark web, independent health care professionals on social media who lost their jobs because of not accepting vaccines and sources that are not influenced by untrustworthy government agencies., Three of the participants did mention that the reason they did not accept a shingles vaccine was that it was not recommended to nor discussed with them by a health care professional. This suggests that a trusted health care professional providing a recommendation to get the shingles vaccine, along with background information and guidance on where to obtain additional trustworthy information on the safety/efficacy of the vaccine could potentially have some influence on a vaccine hesitant individual.

Interpretation of the Findings

The findings of this research confirm and extend the existing knowledge of the factors that influence vaccine hesitancy (. These findings indicate that certain factors strongly influence shingles vaccine hesitancy in older adults living in Riverside County, California including fear of side effects, concern that vaccines not being sufficiently studied for safety, discomfort with putting vaccines containing unknown substances into the body, health insurance/cost barriers to vaccine access, and lack of trust in government regulatory agencies/pharmaceutical companies.

A study on COVID-19 vaccine hesitant adults which used the phenomenological approach to examine how their lived experiences influenced vaccine uptake demonstrated a similar lack of trust in health authorities and government officials, and a lack of communication regarding the safety and efficacy of vaccines (Chan et al., 2022). The

researchers identified a lack of confidence in the effectiveness and safety of vaccines, complacency in the necessity of the COVID-19 vaccine and communication of misinformation on the safety and efficacy of the vaccine as major factors that influenced vaccine hesitancy and refusal (Chan et al., 2022).

In 2021, Draper and Stergiopoulos performed a quantitative study to assess Massachusetts residents' knowledge regarding, attitudes and behaviors towards, and barriers to obtaining a shingles vaccination (Draper & Stergiopoulos, 2021). by conducting a phone survey of adults who responded to the Massachusetts 2012 Behavioral Risk Factor Surveillance System (Draper & Stergiopoulos, 2021). The results showed that a significant number of nonvaccinated older adults (50+) who were aware of the shingles vaccine had concerns about the vaccine's safety and efficacy and underestimated their risk of developing shingles (Draper & Stergiopoulos, 2021).

The results of my research demonstrate similar factors influence shingles vaccine uptake in older adults living in Riverside County, California. My results support those of previous studies that a significant segment of the adult population is aware of the shingles vaccine and does not understand the incidence and severity of shingles (Draper & Stergiopoulos, 2021).

Similarly, in a Canadian qualitative, cross-sectional study which interviewed 12 health care providers and 21 patients to identify barriers and facilitators to completion of the two-dose shingles vaccine, the researchers identified cost, lack of insurance coverage, and misinformation about the shingles vaccine as barriers to completion of the vaccine series (George et al., 2024). Respondents identified education, recommendations and

reminders from health care professionals and convenient vaccine processes as facilitators of vaccine acceptance and completion (George et al., 2024). My research similarly demonstrated that lack of shingles knowledge, high cost and limited access were barriers to vaccine uptake. My findings were thus similar in demonstrating that trusted healthcare providers, such as a trusted physician or pharmacist, could influence vaccine uptake in hesitant individuals. This underscores the importance of providing affordable and easily accessible vaccines and of empowering healthcare professionals to provide information on shingles vaccine safety/efficacy, potential side effects, and shingles prevention education to their patients.

One strong theme that emerged from my study that I did not notice in the existing literature was the importance of doing personal research on the shingles vaccine. From the participants' perspective, doing personal research was a powerful way to vet that the research was legitimate in their perspective. This belief stemmed from the general distrust in pharmaceutical companies and government regulatory agencies that conduct research on vaccine safety and efficacy. One participant felt that the current administration under RFK jr. was in general doing a good job of ensuring the safety of vaccines in the United States, the overall sentiment was that personal research that examines and identifies all the potential side effects, ingredients in vaccines and effectiveness of the vaccine exerts powerful influence on shingles vaccine uptake.

Using the Health Belief Model to interpret the results of my research, I found that vaccine intentions were influenced by low perceived threat, high cost of vaccines, fear of side effects, and lack of information on the benefit of the shingles vaccine. By examining

the core constructs of the Health Belief Model, I was able to identify specific drivers of vaccine hesitancy such as constructs of the low perceived threat, high cost of vaccines, fear of side effects, and lack of information.

Perceived Susceptibility and Severity (Participants Viewed Shingles as a Low Perceived Threat)

Although participants knew acquaintances and family members who had shingles, they did not view themselves as being at high risk for contracting shingles. They perceived themselves as having low susceptibility to shingles, believing that their immune systems were strong enough to prevent shingles since they had not personally experienced shingles. This was apparent in the participants generally underestimated the potential consequences of shingles, such as post herpetic neuralgia, as not a single participant mentioned a fear of developing postherpetic neuralgia. The Health Belief Model explains that when individuals do not feel at risk or do not view the disease as dangerous, they are less likely to seek preventive measures such as vaccines.

Perceived Benefits Versus Perceived Barriers (High Cost of Vaccines and Fear of Side Effects)

Participants had a lack of trust in the high effectiveness of the shingles vaccine. The hesitancy stemmed from the perceived discomfort with potential side effects and concern that the high out-of-pocket costs outweigh the perceived benefit of the vaccine. Many knew that the virus that causes shingles was related to chicken pox, but they did not feel that the shingles vaccine was the best method of prevention. In fact, the majority of participants felt that the risk of potential adverse reactions (pain, fever, or fatigue) acts

as a significant barrier. In their view, this influenced the perceived benefit of the shingles vaccine. Cost is a major barrier, especially for those without adequate insurance coverage. One participant had to budget to pay for his/her vaccines and felt that his/her risk of contracting COVID-19 was greater than the risk of contracting shingles. These findings align with the constructs of the Health Belief Model because when the perceived barriers (cost, side effects, distrust) outweigh the perceived benefits (prevention of shingles), vaccine refusal occurs.

Cues to Action (Lack of Information)

Participants indicated that trusted healthcare professionals as well as trusted friends and family members could potentially influence their acceptance of the shingles vaccine. Participants indicated that they would value the advice of a trusted physician and/or pharmacist. In addition, participants indicated that a close friend or family member who held similar views and shared his/her research with them could potentially exert a lower level of influence on their acceptance of the shingles vaccine. Ultimately, participants felt that doing their own rigorous research that would fill what they perceived as a gap in vaccine information would be the strongest influence on their decision to accept the vaccine.

A crucial cue to action is a recommendation from a healthcare provider. This recommendation must include education on potential adverse reactions, a complete list of ingredients in the shingles vaccine and studies on long term safety and efficacy. Without this crucial information, participants indicated that they would perhaps not act. Participants indicated that their physicians made no recommendation to get the shingles

vaccine. Several participants indicated that they would be influenced to accept the shingles vaccine by a recommendation from a trusted physician. Information demonstrating that the vaccine was available, easily accessible and affordable, even for those without adequate health insurance coverage would be necessary to support vaccine uptake. One participant who was favorable to receiving the shingles vaccine indicated having an interest in receiving information on obtaining an affordable vaccine. The Health Belief Model explains that a cue to action is necessary for adopting a health preventive behavior like vaccine uptake. A lack of clear, trusted information about the vaccine's safety, effectiveness, affordability and accessibility contributes to hesitation.

Self-Efficacy (Confidence in Accessing the Shingles Vaccine)

Two participants indicated a lack of confidence in knowing how to find access to an affordable shingles vaccine. One individual indicated that he/she? would be interested in receiving information on how to access a cost-effective shingles vaccine, as he/she? lacked adequate health insurance coverage. According to the Health Belief Model, low self-efficacy decreases the likelihood of taking preventive action because it undermines the individual's belief in his/her own abilities to successfully manage challenges such as accessing a vaccine he/she feels will prevent shingles. Navigating the healthcare system successfully to find affordable, accessible vaccination options is a major cue to action in influencing positive health behaviors like vaccine uptake (see Table 3).

Table 3

Summary of Health Belief Model Constructs and Vaccine Hesitancy Factors

Health belief model constructs	Vaccine hesitancy factor
Perceived susceptibility	Not feeling at high risk for shingles
Perceived severity	Underestimating the complications of shingles
Perceived benefits	Disbelief in shingles vaccine effectiveness
Perceived barriers	Fear of side effects, prohibitive cost, lack of health insurance
Cues to action	Provider recommendation, recommendation from someone trusted
Self-efficacy	Low confidence in accessing shingles vaccine

Limitations of the Study

One major limitation of this study was the small sample size. Although saturation was reached after the completion of eight interviews and was confirmed by my committee chair after thorough review of all transcripts and coding, small sample sizes can limit trustworthiness by the potential to reduce generalizability. Since the sample size was eight adults, the external validity could be limited. This means that my findings may not reflect the perspectives or behaviors of a larger shingles vaccine hesitant older adult population that reside in Riverside County, California. This makes it challenging to broadly apply my results. Selection bias and representativeness can be an issue with a small sample size (Rose & Johnson, 2020). Small samples, in this case, obtained through my social media contacts, may be less likely to be randomly representative, and can have the potential to over-emphasize certain views or experiences (Rose & Johnson, 2020). This misses important variations in perspectives within the shingles vaccine hesitant adult population. This has potential to skew my findings as a result of interviewing individuals

within my social media network that possess unique personal perspectives not representative of the broader patterns found in the general population. This can lead to less reliable conclusions. However, the fact that my results pertaining to factors that influence vaccine hesitancy are in line with those of multiple earlier studies argues against these concerns. Recommendations to better understand shingles vaccine hesitancy would focus on refinements in methodology, targeted demographic and geographic focus.

A major strength of this study was my ability to interview individuals in a one-on-one setting that was private and allowed me as the researcher to tailor each interview to the unique experiences of the particular participant. Although a small sample size allowed in depth discussions, the localized focus of participant selection could restrict the generalizability of my findings and not capture all factors related to vaccine hesitancy (Rose & Johnson, 2020). Refinements to research methodology, such as including separate focus groups for vaccinated, unvaccinated, partially vaccinated, and immunocompromised participants, may be useful in identifying the many facets of hesitancy, allowing for more candid discussions and improving the generalizability of the findings (Borodovsky, 2022).

Since qualitative research does not use statistics to demonstrate trustworthiness, it must rely on the rigor of the interview process, the context of the discussions with participants the depth of the interview questions and the methods of analysis (Dodgson, 2019). Small samples can be challenging to trustworthiness because unique participant perspectives can dominate the results making it more challenging to identify broader themes and causing researcher bias from the distraction of a single dominant unique

perspective (Rose & Johnson, 2020). Demonstrating saturation is more challenging with fewer participants, but due to thorough data collection, writing debrief notes after all interviews and a complete in-depth review by my committee chair of all my interview transcripts and coding, saturation was confirmed. Despite the limitations of this study, its findings are relevant and useful in that they provide a deeper understanding of the complexities of the factors that influence individuals to become vaccine hesitant. For example, through eight one-on-one interviews, an in-depth understanding of the how lived experiences influence perception of risk, benefit, self-efficacy, barriers and cues to action that work synergistically to affect hesitancy in older adults was gained. Understanding the factors that drive vaccine hesitancy is necessary to inform future public health policy targeted at increasing shingles vaccine uptake.

Recommendations

Based on my findings, recommendations for public health practitioners would be to tailor vaccine education messaging to the needs of individuals. My research demonstrated that vaccine acceptance sits on a spectrum, whose reasons vary based on lived experiences. The spectrum ranges from those who strongly refuse all vaccines to those who are vaccine advocates but lack access to health care resources.

With influences and belief systems that are unique to each individual, education about the shingles vaccine should address specific concerns with evidence. Individuals need to be directed to credible sources of information so that they can find what they need to address their concerns. It is necessary to provide easy to understand information from reputable sources like the Centers for Disease Control or the World

Health Organization that debunks misinformation and highlights the rigorous testing of the shingles vaccine. It is also necessary to provide clear information on the risk factors for shingles and its potential complications, and also on the role of the shingles vaccine in preventing the disease and its potential side effects. By engaging with specific groups based on their concerns, discussions are more likely to be productive and less confrontational.

Healthcare providers play an important role in building trust and personalizing shingles vaccine recommendations for their patients. Study participants indicated that they could potentially be influenced to accept a shingles vaccine by a recommendation from a trusted physician or pharmacist. This demonstrates the importance of personalized recommendations from healthcare professionals. Healthcare professionals are in a position to have one-on-one conversations with their patients on the benefits of the vaccine. Communication that is respectful and empathetic can acknowledge a hesitant individual's concerns, validate his/her feelings and provide appropriate information on how the shingles vaccine can protect his/her health, stressing that it can help him/her to continue living independently and enjoy life with loved ones.

A further recommendation is to test and evaluate the effectiveness of potential cost-saving interventions to increase vaccine uptake, including government subsidies, increased and better health insurance coverage, and financial incentives. This study confirmed that cost and limited vaccine access are significant barriers to shingles vaccine uptake. Developing and evaluating interventions that have the potential to mitigate these

barriers can be valuable to the public health profession in attempting to bridge the gap that exists in the affordability of and the access to the shingles vaccine.

Simplifying access to vaccines can be an effective method of promoting uptake. Providing clear educational information about the shingles vaccine, where and when it will be provided, and how to reduce individual out of pocket costs, in addition to assistance with scheduling appointments, and transportation, and even providing mobile clinics in senior communities can potentially reduce barriers to uptake of the vaccine.

Summary

This qualitative study took a phenomenological approach to investigating how lived experiences influenced shingles vaccine uptake in adults over 50 living in Riverside County, California. Data were collected through eight recorded, virtual, one-on-one interviews, and reflective thematic analysis was used to analyze these data. The findings, which were interpreted through the constructs of the Health Belief Model, demonstrated that the participants did not perceive themselves as highly susceptible to shingles or to contracting a severe case if they did get the disease, indicating an underestimation of the risk and the potential complications of the disease. The factors that were identified as barriers to shingles vaccine uptake were fear of potential side effects, generalized distrust of regulatory agencies and pharmaceutical companies as well as the prohibitive cost of the vaccine. The factor that was identified as a potential cue to action was a recommendation from a trusted health care provider such as a physician or a pharmacist. Although most participants did not perceive the shingles vaccine as beneficial or

effective, they indicated that personal research on the safety and efficacy of the shingles vaccine would serve as a deciding factor in ultimately accepting the shingles vaccine.

The take away message for public health professionals is that vaccine hesitancy in older adults is driven by fear of potential harm, disbelief in the effectiveness of the shingles vaccine, and distrust in current vaccine information. Overcoming vaccine hesitancy in older adults involves patience, using personalized and empathetic communication from trusted sources (doctors, pharmacists, friends, family) focusing on individual risks/benefits (vaccine efficacy), addressing specific concerns (side effects) with evidence-based information, and ensuring affordable and easy access to vaccines. One conversation may not be enough to dispel hesitancy. Patience and respectfully following up on previous conversations by trusted healthcare providers can potentially be effective cues to action for hesitant individuals.

Peer influence/support from older adults in the local community can perhaps be effective in mitigating vaccine hesitancy. Health promotion programs can potentially be effective in providing community and social support to individuals who are hesitant about vaccine uptake by highlighting positive experiences from other older adults in the community who had successfully completed the two-dose shingles vaccine regimen without experiencing any deleterious side effects. Public health professionals can partner with senior centers, local religious groups, fitness centers, and health clinics to organize community question and answer sessions and vaccine drives to help vaccine hesitant populations by building trust, dispelling fear, and providing easy access to vaccines. Health promotion campaigns can provide a supportive environment that

respects individual autonomy, while providing the information needed to make informed health decisions, potentially leading to higher vaccination rates.

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Appendix A: Demographic Survey

1. How old were you on your last birthday?
(write in the number in years)

2. How do you self-identify by gender? (choose one answer by drawing a circle)
 - a) Male
 - b) Female
 - c) Non-binary
 - d) Prefer not to answer

3. How do you self-identify by race? (choose one answer by drawing a circle)
 - a) White
 - b) Black
 - c) Asian
 - d) Native Hawaiian/Pacific Islander
 - e) Native American
 - f) Hispanic or Latino
 - g) Other (please specify)
 - h) Prefer not to answer

4. What is your level of education? (choose one answer by drawing a circle)
 - a) Less than high school
 - b) High school (including GED)
 - c) Some college (no degree)

- d) Technical certification
- e) Associate degree (2-year)
- f) Bachelor's degree (4-year)
- g) Master's degree
- h) Doctoral degree
- i) Prefer not to say

5. What is your marital status? (choose one answer by drawing a circle)

- a) Married
- b) Widowed
- c) Divorced
- d) Separated
- e) Single
- f) Partnered but not married
- g) Prefer not to say

6. What is your employment status? (choose one answer by drawing a circle)

- a) Full-time
- b) Part-time
- c) Retired
- d) Unemployed
- e) Unable to work
- f) Other (please specify)
- g) Prefer not to say

7. What is your annual gross household income? (choose one answer by drawing a circle)

- a) 0-\$29,999

- b) \$30,000-\$59,999
- c) \$60,000-\$89,999
- d) \$90,000-\$119,999
- e) \$120,000+
- f) Prefer not to say

8. Which of the following groups do your political views align with? (choose one answer by drawing a circle)

- a) Democrat
- b) Republican
- c) Independent
- d) Other (please specify)
- e) Don't Know
- f) Prefer not to say

Appendix B: Interview Guide

Opening RQ1:

What has your experience with shingles been?

Could you say more about that? To make sure I am understanding, you said....is that correct?

Prompt or Follow Up RQs:

(Here I will ask specific questions on themes that were not mentioned by the participant in responding to the opening question and that I need to know to answer my own research questions).

What do you think about vaccines in general?

What can you tell me about your immune system? What is it and how does it function?

Without naming names, do you know anyone who has ever had shingles?

What would you say is the main symptom of shingles?

What do you believe is the most common complication of shingles?

From what sources have you received information about shingles in the past?

What lifestyle measures do you practice for reducing the risk of disease?

Do you think shingles can be prevented? If so, how?

Who do you believe is most at risk for shingles?

Are you concerned that you may get shingles in your lifetime? How serious do you think it could be?

What are your thoughts on the shingles vaccine?

What might keep you from getting the shingles vaccine?

Who would influence you the most to receive the shingles vaccine?

Ending Questions:

Later, as I go through the interview transcript, would it be ok for me to contact you if I need further clarification about anything you said?

Would you be interested in receiving a summary of my findings with no personal information about the participants once I complete the study?

As we end the interview, is there anything else you would like for me to know about your experience with vaccines or the shingles vaccine specifically?

Appendix C: Recruitment Post

CALL FOR PARTICIPANTS

Lived experiences of adults over 50 who are hesitant about vaccination against shingles.

A descriptive phenomenological study to understand what influences shingles vaccine hesitancy in U.S. adults over age 50. Recruiting participants for a 45–60-minute virtual interview.




- **Are you over 50 years of age?**
- **Have you received at least one dose of the shingles vaccine (Shingrix)?**
- **Would you be willing to share your perspective on the shingles vaccine in a recorded 45-minute virtual interview?**

All interviews are kept confidential, and participants' views respected.

There are no right or wrong answers. This study is approved by the Institutional Review Board at Walden University.

- **Contact Michelle Loomis at XXX@waldenu.edu to find out more about the study and your participation.**

Appendix D: CITI Certificate

		Completion Date 21-Jul-2023 Expiration Date N/A Record ID 57180467
This is to certify that:		
Michelle Loomis		
Has completed the following CITI Program course:		
Not valid for renewal of certification through CME.		
<p style="text-align: center;"> Student's <small>(Curriculum Group)</small> Doctoral Student Researchers <small>(Course Learner Group)</small> 1 - Basic Course <small>(Stage)</small> </p>		
Under requirements set by:		
Walden University		
<div style="text-align: right;">  Collaborative Institutional Training Initiative 101 NE 3rd Avenue, Suite#20 Fort Lauderdale, FL 33301 US www.citiprogram.org </div>		
Verify at www.citiprogram.org/verify/?wbfbcbfa-d511-47f5-8d30-2c359072f25a-57180467		

Appendix E: Field Product 1

Wake Up to the Risk: Understanding and Addressing Drivers of Shingles Vaccine Hesitancy

Shingles (herpes zoster) causes substantial morbidity, among older adults. The Shingrix vaccine for adults over age 50 is recommended (CDC, 2019). Despite these recommendations and high vaccine effectiveness, uptake of the shingles vaccine remain suboptimal. Given the burden of shingles in the US aging population, the impact on quality of life and the economic burden on the healthcare system, it is urgent to address the drivers of shingles vaccine hesitancy (De Gomensoro et al., 2018).

Almost one in three individuals in the United States will develop shingles during their lifetime, the incidence of shingles significantly increases as individuals age (Curran, 2023). Shingles is characterized by a painful, rash that lasts for weeks. Shingles impacts health outcomes by increasing the risk of debilitating chronic nerve pain. This also includes neurological issues, such as stroke, vision loss, hearing loss, and dementia (Curran, 2023). Due to an aging immune system, recovery is difficult. These complications limit the ability to live independently and lower the quality of life for older adults (De Gomensoro et al., 2018).

Current approaches to addressing shingles vaccine hesitancy in the United States rely on generic educational materials and citing statistics (Wang et al., 2024). Significant barriers persist, these include fears of side effects, questions about efficacy and a lack of perceived urgency among older adults (Talbird et al., 2021). No existing evidence demonstrates how lived experiences of vaccine hesitant individuals influence their health decisions.

Health promotion campaigns that address shingles education and provide vaccines can promote uptake among older adults. Providing educational information about the shingles vaccine, question and answer sessions, and providing mobile clinics in senior communities can mitigate barriers (Wang et al., 2024). A financial constraint could result from providing vaccines and mobile clinics, driven by personnel, vehicle, vaccine and fuel costs. Partnering with local public health clinics and pharmaceutical companies to implement this type of program can facilitate access and mitigate costs.

Stakeholders like local primary healthcare providers, local public health department, pharmaceutical companies, faith-based organizations, and senior centers can form a coalition to provide education/vaccines to individuals. Creating an environment that is less confrontational and more informative can increase acceptance (Wang et al., 2024). Health promotion campaigns can provide a supportive environment, that respects individual autonomy while providing the information needed to make informed health decisions, leading to higher vaccination rates.

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Appendix F: Field Product 2

Healthy Riverside County: Shingles is a Risk. Get Shielded!

Introduction

The health promotion program, “Get Shielded!”, is designed to address the specific barriers preventing adults over 50 from receiving the shingles vaccine. By providing shingles education, simplifying access to the shingles vaccine and improving vaccine logistics we can leverage community resources to close the immunity gap in Riverside County’s aging population.

Public Health Problem

The primary public health problem is shingles vaccine hesitancy and low vaccine completion rates for the shingles vaccine among adults aged 50 and older. Low completion rates lead to increased incidences of shingles and its debilitating complications, which lowers the ability for older adults to live independently and places a significant burden on Riverside County’s healthcare infrastructure (Curran, 2023).

Target Population

The target population is adults over age 50 residing in Riverside County, California. The Public Policy on Aging Report published in 2022 identified California as having the highest proportions (23%) of unvaccinated older minority adults (Hispanic and African American) followed by the second highest proportion (14.8%) of unvaccinated older White adults (Mathis & Rooks, 2022). This is a significant proportion of unvaccinated adults and makes this a population of interest to educate and empower in the importance and urgency of completing the two dose shingles vaccine series.

Key Findings

Key findings from my research suggest that participants living in Riverside County, California are influenced by factors such as fear of side effects, health insurance/cost barriers to vaccine access, and lack of trust in government regulatory agencies/pharmaceutical companies influence vaccine hesitancy in older adults living in Riverside County, California. My results confirm that when the perceived barriers (cost, side effects, distrust) outweigh the perceived benefits (prevention of shingles), vaccine refusal occurs (Talbird et al., 2021).

Participants who were vaccine hesitant indicated that trusted healthcare providers such as a trusted physician or pharmacist could influence them to accept the shingles vaccine. A direct recommendation from a personal physician or pharmacist is an effective cue to action for vaccine uptake, even among those who mistrust government or pharmaceutical entities. This underscores the importance of providing affordable and easily accessible methods to vaccine uptake and empowering healthcare professionals to provide information on shingles vaccine safety/efficacy, potential side effects, and prevention education to their patients.

Suggestions for Program Development

The “Get Shielded!” health promotion campaign targets vaccine hesitant adults over age 50 and provides a supportive non-confrontational environment, that promotes education and access to the shingles vaccine. This health promotion programs focused on addressing vaccine hesitancy on the individual and interpersonal levels and will be

effective in increasing shingles vaccine rates (Wang et al., 2024). Providing education that respects individual autonomy while providing individuals with credible sources of information needed to make informed health decisions, dispel vaccine misinformation, and adjusting cost/logistics to ease access to vaccines can lead to higher vaccination rates (Wang et al., 2024).

Riverside County Public Health Department will partner with senior centers, local religious groups, fitness centers, and health clinics to implement the “Get Shielded!” campaign. The goal is to help vaccine hesitant populations in cities throughout Riverside County, California build trust, dispel fear, and access vaccines.

Community senior centers will be utilized to host gatherings where adults who have received the shingles vaccine can positively influence uptake through sharing peer-to-peer experiences.

Health promotion programs like “Get Shielded!” will facilitate access to vaccines through logistics. This will be an effective method of promoting uptake. This campaign will provide transportation to medical clinics and information on reducing individual out of pocket costs which can mitigate the barriers to uptake. Mobile vaccine clinics in senior communities can further reduce the cost barrier to uptake and will be included in this campaign.

Suggestions for Implementation Strategies

Local healthcare providers, pharmacists, community leaders, faith-based organizations, and fitness centers will advertise question and answer symposiums on the shingles vaccine. Physicians and pharmacists will provide expert education and recommendations at these public meetings. Community members who have received the shingles vaccine will share their experiences with hesitant individuals. Forming a partnership with local city leaders to secure the use of community centers for these informational meetings will provide a reliable meeting venue.

To address fear of side effects, the “Get Shielded!” campaign will encourage adults to schedule their shingles vaccine on Fridays and provide a small care kit to validate concerns and manage potential side effects. The aftercare package will include a small ice pack, ibuprofen, and post vaccine care instructions, along with a sticker that has a positive health slogan such as, “I’m shielded from shingles-ask me how”.

Mobile outreach will be used as an efficient strategy for older adults that may have challenges with transportation or finances to access the shingles vaccine. In addition to offering the shingles vaccine, co-administration of vaccines that are important for older adults such as the flu, COVID-19, Pneumococcal, and RSV vaccines will be offered. Existing county health transport networks will be utilized to deliver this shingles vaccine outreach to senior centers in underserved areas of Riverside County.

Considerations to Fit Community Needs

The Hispanic population constitutes a significant percentage of the growing population living in Riverside County, California. Recent estimates indicate that the Hispanic population is the largest ethnic group, making up fifty percent (over 1.2 million people) of the total residents (Mathis & Rooks, 2022). For health promotion programs to successfully include the Hispanic population, public health professionals must address linguistic, trust, and cultural barriers (Ortiz et al., 2022). Information on the shingles

vaccine will be available in the Spanish language and translation will be provided at all question- and- answer public meetings. Content will use plain, everyday language rather than complex terminology to ensure comprehension for individuals with varying literacy levels. Due to the political climate in the United States, many Hispanic adults are fearful that receiving a vaccine or sharing personal information could impact their immigration status. Clear messaging in this campaign will indicate that vaccines are safe and at no cost, regardless of insurance or immigration status. To address cultural barriers, utilizing promotoras (community health workers) who can share their own vaccination experiences and provide education on the efficacy, safety and accessibility of the shingles vaccine will be available at question-and-answer meetings and on mobile clinics (Ortiz et al., 2022).

Key Takeaways

The key takeaways of the “Get Shielded!” campaign is to increase shingles vaccine uptake in adults over age 50 that live in Riverside County, California. The objectives are to create a non-confrontational environment to educate and empower vaccine hesitant adults to accept the shingles vaccine, provide the shingles vaccine at a reduced cost or no cost to older adults, simplify the logistics of accessing the shingles vaccine for older adults. The main messages of the “Get Shielded!” campaign, are that side effects are temporary, shingles may not be temporary, cost/transportation are no longer barriers, and the shingles vaccine is a powerful shield from the debilitating complications of shingles.

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Appendix G: Field Product 3

Visual Representation of the “Get Shielded!” Shingles Vaccine Program Framework

Intervention Components	Specific Elements	Mode of Delivery
<p>Provide education and resources of credible information on the shingles vaccine.</p>	<p>Question and answer sessions with healthcare professionals on safety, efficacy, side effects and how to locate credible sources of information on the shingles vaccine.</p> <p>Peer to peer discussions where adults share experiences on receiving the shingles vaccine.</p>	<p>Local healthcare providers, pharmacists, community leaders, faith-based organizations, and fitness centers will advertise question and answer symposiums on the shingles vaccine. Hold public meetings where adults who have received the shingles vaccine can positively influence uptake through sharing peer-to-peer experiences.</p>
<p>Leveraging cost to improve access to the shingles vaccine</p>	<p>Educate individuals on how to reduce vaccine out of pocket costs.</p> <p>Provide vaccines at no cost.</p>	<p>Education at question-and -answer sessions on understanding individual healthcare coverage and how to reduce vaccine out of pocket costs.</p> <p>Use health promotion campaign to provide the shingles vaccine at community centers on Fridays along with a</p>

		care pack to provide relief from side effects.
Facilitate logistics to obtaining the shingles vaccine	Use existing public health transportation for mobile clinics to provide vaccines in underserved areas.	Mobile vaccine clinics in senior communities can further reduce the cost barrier to uptake and will co-administer necessary vaccines for older adults.
**Special Community Needs: Vaccine Outreach to Hispanic Community	Reduce language, cultural, and trust barriers to increase shingles vaccine uptake in the Hispanic population.	Vaccine informational materials that are bilingual. Promotoras (community health educators) in attendance at all public meetings and vaccine clinics.

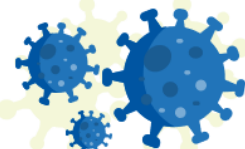
Appendix H: Field Product 4

What do you know about Shingles?



This fact sheet discusses information on shingles. It illustrates the key facts, who is at risk, key symptoms, common complications and prevention tips.

Shingles



Shingles (Herpes Zoster) is a viral infection that causes a painful blistering rash. It is caused by the reactivation of the Chicken Pox virus or Varicella Zoster virus.

Who is at risk?

- Adults over the age of 50
- Immuno-compromised
- Individuals with high stress levels

Women are more likely to develop shingles



How do you get shingles?



If a person has blisters they are able to spread shingles by coughing or sneezing



Anyone who has recovered from chickenpox can get shingles



Spread occurs by direct contact with fluid from blisters of a person with shingles



- ### Common Complications
- Long Lasting Nerve Pain
 - Brain Inflammation
 - Facial Paralysis
 - Blindness

How Is It Prevented?

- Vaccination – Get the highly effective two-dose Shingrix vaccine



What are the symptoms?

- Painful Rash
- Itchy skin
- Headache, fever, chills