

## Original Article

# Assessment of Knowledge, Attitudes, and Practices of Herpes Zoster Vaccination Among the General Population in Al-Ahsa, Saudi Arabia

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### Abstracts

**Introduction:** Herpes zoster (HZ), or shingles, arises from the reactivation of the varicella-zoster virus (VZV), particularly prevalent among the elderly and immunosuppressed. Despite the global trend of increasing HZ incidence, its prevalence in Saudi Arabia is not well established. Vaccination remains a key public health strategy, yet vaccine uptake varies widely, influenced by sociodemographic, cultural, and religious factors. This study aims to assess the knowledge, attitudes, and practices regarding HZ vaccination among individuals aged 50 and over in Al-Ahsa, Saudi Arabia, addressing a significant gap in current research.

**Methods:** This cross-sectional study was conducted in Al-Ahsa, Saudi Arabia. The target population consisted of Saudi nationals aged 50 years and older. Data were collected using an adapted questionnaire distributed via Google Forms, following ethical approval from King Faisal University. The responses were analyzed using SPSS version 21, with knowledge assessment based on correct responses and categorized into 'poor' and 'good' knowledge levels.

**Results:** Out of 345 participants, the majority had poor knowledge about HZ and its vaccine. Only 53% had heard about the shingles vaccine, and 87% demonstrated overall poor knowledge. The primary sources of information were other persons, the internet, and physicians. Most participants (83.5%) were not vaccinated against shingles, with reasons including disbelief in vaccines, perceived healthiness, and lack of awareness. Interest in learning more about the disease and willingness to vaccinate upon doctor's recommendation were also noted.

**Conclusion:** The study highlights a significant gap in knowledge and low vaccine uptake among the target population in Al-Ahsa. It underscores the need for educational initiatives and awareness programs to improve understanding and acceptance of the HZ vaccine. These findings can inform healthcare providers and policymakers in developing strategies to enhance vaccination coverage and ultimately improve public health outcomes in the region.

**Keywords:** *Herpes Zoster, vaccine, knowledge, attitude, practice, Saudi Arabia*

**Introduction**

Herpes zoster (HZ), commonly referred to as shingles, results from the reactivation of the varicella-zoster virus (VZV). This is the identical pathogen responsible for varicella, also known as chickenpox. Initially, VZV infection leads to varicella. Subsequently, post-varicella, VZV enters a dormant state within the dorsal root ganglia. As individuals age or experience immunosuppression, their cell-mediated immunity to the VZV diminishes, leading to the reactivation of VZV and the onset of zoster, or shingles, which can manifest anywhere on the body. Zoster can give rise to a range of complications including chronic pain known as postherpetic neuralgia, cranial nerve palsies, zoster paresis, and various neurological conditions such as meningoencephalitis, cerebellitis, and myelopathy. It may also result in multiple ocular disorders and vasculopathy, which can present with symptoms similar to those of giant cell arteritis. Importantly, these neurological and ocular complications can develop even in the absence of a rash (1).

Although the exact prevalence of HZ in Saudi Arabia is not well-documented, there is a global trend of increasing incidence, especially among the elderly population (2). The global incidence rate of HZ shows variation among different age demographics. In younger, healthy populations, the annual rate of HZ cases is estimated to be between 1.2 to 3.4 per 1000 individuals. This rate increases in adults, with a notable escalation in individuals aged over 50. The incidence further intensifies among those aged 65 and above, with annual rates ranging from 3.9 to 11.8 cases per 1000 individuals (3). Its prevalence and severity underscore the importance of effective vaccination strategies.

Vaccination against HZ has emerged as a crucial public health intervention. In the Kingdom of Saudi Arabia, the prophylactic HZ vaccine which has been licensed is the recombinant subunit glycoprotein E vaccine which is called SHINGRIX. The vaccine for HZ is recognized as both safe and effective in preventing shingles and its associated complications. It is advised for individuals aged 50

years and older, with a two-dose regimen recommended to achieve maximum protection. (4). In Saudi Arabia, this vaccine is provided at no cost to individuals who are 50 years of age or older. Current vaccines have demonstrated efficacy in reducing the incidence and severity of HZ and its complications, including postherpetic neuralgia (5).

Despite the availability of these vaccines, their uptake varies significantly across different populations and geographic regions. Studies have shown that various factors influence vaccine uptake, including sociodemographic factors, such as age, gender, education level, income, and access to healthcare services. Cultural and religious beliefs may also influence vaccine acceptance (6, 7). Acceptance of vaccines may also be influenced by cultural and religious views. A recent study in Saudi Arabia that aimed to assess the vaccination rates against HZ showed that only 4.5% of people have gotten the HZ vaccine (8). In addition, prior research has concentrated on particular regions or risk categories (4, 9), emphasizing the need for a more thorough assessment of Saudi Arabians' knowledge and attitudes on shingles and its vaccine. This low percentage of vaccinations and the decreased awareness of the Saudi Arabian population regarding the HZ virus and its vaccinations signify the need to educate the general population and increase their awareness. Thus, to evaluate the general public's knowledge, attitude, and practice about HZ immunization in Al-Ahsa, Saudi Arabia, we carried out this cross-sectional survey.

While the importance of vaccination is well-recognized globally, limited research has been conducted on the public's KAP towards HZ vaccination in Saudi Arabia, particularly in regions like Al-Ahsa. This study aims to fill this gap by providing insights into the local population's understanding and acceptance of the HZ vaccine. The findings are expected to inform healthcare providers, policymakers, and public health practitioners, facilitating the development of strategies to increase vaccination coverage and ultimately improve public health outcomes in the region.

## Materials and Methods

### *Study Design*

This research is a cross-sectional study conducted in Al-Ahsa City, Saudi Arabia. The study period extended from [start date] to [end date]. It aimed to assess the knowledge, attitudes, and practices regarding HZ vaccination among individuals aged 50 years and older in this region.

### *Study Area and Settings*

Al-Ahsa, a city in Saudi Arabia, served as the setting for this study. This area was chosen due to its unique demographic composition and healthcare landscape, which provided a relevant context for examining the research objectives.

### *Study Population*

This study targeted a specific demographic: individuals aged 50 years and older residing in Al-Ahsa, Saudi Arabia. The inclusion criteria were restricted to Saudi Arabian nationals who were 50 years of age or older and residents of Al-Ahsa. In contrast, the exclusion criteria encompassed non-Saudi citizens and individuals under the age of 50 years, to maintain a focus on the local aging population's knowledge and attitudes towards HZ vaccination.

To ensure statistical robustness and representativeness, the sample size was meticulously calculated using the Richard Geiger equation. The calculation indicated that a total of 385 participants would provide an optimal sample size. This figure was derived considering a margin of error of 5%, a confidence level of 95%, and an assumed response proportion of 50%. These parameters were selected to capture a comprehensive and accurate representation of the targeted population's perspectives.

Despite concerted efforts to achieve the calculated sample size, the actual response rate culminated in 345 eligible participants. While this figure falls slightly short of the initial target, it nonetheless constitutes a significant sample size. This volume of data is deemed adequate for robust analysis and

interpretation, providing valuable insights into the study's objectives.

### *Data Collection Method*

Following ethical approval from King Faisal University, data were collected using an online questionnaire distributed via Google Forms. The questionnaire, adapted from a previous study conducted in the western region of Saudi Arabia, featured closed-ended questions, including true/false, multiple-choice, and Likert scale items (9). These questions were designed to gather demographic information and assess participants' knowledge, attitudes, and practices regarding HZ and its vaccination. Informed consent was obtained from each participant before administering the questionnaire.

### *Statistical Analysis*

The final responses were compiled and initially reviewed in an Excel file, after which the data was transferred to version 21 of the Statistical Package for Social Sciences (SPSS). Regarding knowledge assessment, each correct response was assigned a point, and the total score for all individual items was calculated. The overall knowledge score was classified into two categories: 'poor knowledge level' for scores less than 60% of the total possible score, and 'good' for scores ranging from 60% to 100% of the total score. A descriptive analysis of the study variables, encompassing participant demographics, medical data, and history of HZ disease, was performed using frequency distribution and percentage calculations. Additionally, the participants' knowledge about HZ, their attitudes and practices regarding the vaccine, were tabulated. The overall knowledge level and sources of information were represented graphically. For the cross-tabulation of variables related to participants' knowledge of HZ disease and vaccination, the Pearson chi-square test and the exact probability test for small frequency distributions were utilized. All statistical analyses conducted were two-tailed, with an alpha level set at 0.05. Significance was assessed based on P values equal to or less than 0.05.

### Ethical Considerations

The study was conducted after receiving ethical clearance from King Faisal University with institutional review board approval number: KFU-REC-2023-NOV-ETHICS1539. Participant confidentiality was a priority, with data securely stored on a password-protected device accessible only to the principal investigators and authorized personnel. All participant information was anonymized and handled with strict confidentiality.

### Results

The study was completed by 345 eligible participants, with ages ranging from 50 to over 65 years, and an average age of  $57.2 \pm 11.1$  years. Of these, 221 (64.1%) were female, and 217 (62.9%) were not healthcare workers, while 33 (9.6%) were. A significant majority, 334 (96.8%), were non-Saudi. Educational backgrounds varied: 99 (28.7%) had completed secondary education, 56 (16.2%) were university students, 69 (20%) held university degrees, and 36 (10.4%) had post-graduate qualifications. In terms of chronic health conditions, 113 (32.8%) had hypertension, 127 (36.9%) had diabetes, and 111 (32.3%) reported various other chronic diseases. HZ was prevalent in 111 (32.2%) participants (**Table 1**).

Regarding awareness of HZ, 232 participants (67.2%) had heard of the disease. Among risk factors, 44 (19.7%) identified age as a factor, 99 (28.7%) knew that a history of chickenpox increases HZ risk, and 83 (24.1%) mistakenly believed they couldn't contract the disease from an infected person. Seventy-seven (22.3%) were aware that HZ is treatable. Awareness of HZ as a treatable disease was low, with only 22.3% acknowledging this fact. While most participants correctly identified the elderly (67%) and immunocompromised (38.3%) as susceptible groups. Knowledge about HZ complications varied, with skin rash (71.3%) and fever (49.9%) being the most recognized, but less awareness about other serious complications such as neuropathy and blindness. (**Table 2**).

**Table 1: Demographic and Clinical Characteristics of Participants**

Bio-demographic data	No	%
<b>Age in years</b>		
50-55	198	57.4%
56-60	77	22.3%
61-65	42	12.2%
> 65	28	8.1%
<b>Gender</b>		
Male	124	35.9%
Female	221	64.1%
<b>Work field</b>		
Not working / retired	95	27.5%
Non-health care field	217	62.9%
Health care field	33	9.6%
<b>Nationality</b>		
Non-Saudi	334	96.8%
Saudi	11	3.2%
<b>Education</b>		
Below secondary	85	24.6%
Secondary	99	28.7%
University student	56	16.2%
University graduate	69	20.0%
Others	36	10.4%
<b>Chronic diseases</b>		
HTN	113	32.8%
DM	127	36.9%
Others	111	32.3%
Hypercholesterolemia	36	10.5%
Rheumatoid arthritis	23	6.7%
Hypothyroidism	15	4.4%
Depression	12	3.5%
Asthma	12	3.5%
Gout	10	2.9%
COPD	9	2.6%
Coronary artery disease	5	1.5%
Bone disease	3	.9%
<b>Did you have HZ disease</b>		
Yes	111	32.2%
No	234	67.8%

Table 2: Participants' awareness and knowledge about herpes zoster diseases		
HZ awareness	No	%
<b>Heard about HZ diseases</b>		
Yes	232	67.2%
No	113	32.8%
<b>Risk factors for herpes zoster</b>		
Age	44	19.7%
Unhealthy diet	21	9.4%
Chronic diseases	44	19.7%
Not getting enough sleep	3	1.3%
Sex	3	1.3%
Stress and tiredness	25	11.2%
Immune deficiency	81	36.3%
Mobile use	2	.9%
<b>If someone had history of chickenpox , he/she will be at risk of HZ :</b>		
True	99	28.7%
False	44	12.8%
I don't know	202	58.6%
<b>I could have HZ if contacted with diseased person</b>		
True	103	29.9%
False	83	24.1%
I don't know	159	46.1%
<b>HZ is a treatable disease</b>		
True	77	22.3%
False	122	35.4%
I don't know	146	42.3%
<b>Susceptible group to HZ</b>		
Children	32	9.3%
Old age	231	67.0%
Immunocompromised	132	38.3%
Males	47	13.6%
Female	49	14.2%
Pregnant	31	9.0%
All of them	73	21.2%
<b>Complications of HZ</b>		
Skin rash	246	71.3%
Blisters	162	47.0%
Cough	78	22.6%
Fever	172	49.9%
Neuropathy	14	4.1%
Blindness	23	6.7%
Others	131	38.0%
Sore throat	69	20.0%

Regarding the shingles vaccine, 183 participants (53%) were aware of it. Furthermore, 172 (49.9%) knew the vaccine could reduce disease incidence by over 50%, but 25.2% incorrectly thought it couldn't treat shingles. A total of 102 (29.6%) believed vaccination was necessary even for those previously infected with smallpox, and 91 (26.4%) understood the need for vaccination even after having shingles. 197 participants (57.1%) were aware that the vaccine is recommended for those over 50 years old. Protective measures against HZ infection were misunderstood by some; 161 (46.7%) believed avoiding physical contact like hugs or handshakes was necessary, and 170 (49.3%) thought they shouldn't use the same objects as an infected person (Table 3).

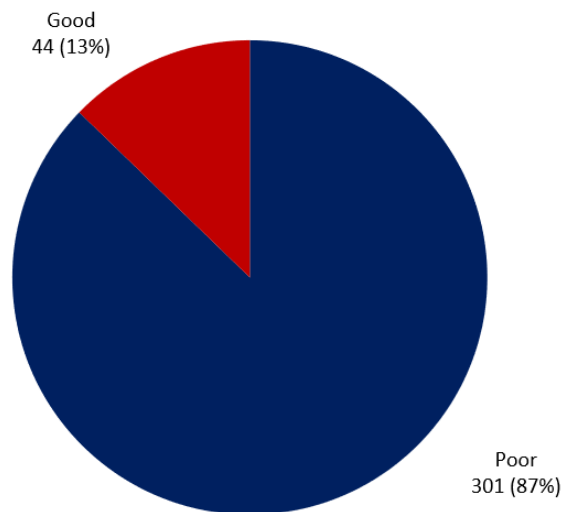


Figure 1: Overall knowledge and awareness about herpes zoster disease and vaccine

Overall, 301 participants (87%) demonstrated poor knowledge about HZ and its vaccine, while only 44 (13%) had a good level of knowledge (Figure 1). The most common sources of information were other individuals (40.1%), the Internet (35.7%), physicians (32.2%), patients (24.2%), and personal experience with the disease (9.3%) (Figure 2).

A majority of participants (83.5%) had not been vaccinated against shingles. Reasons for not being vaccinated included disbelief in vaccines (27%), perceived low risk due to good health (25.2%), lack



of awareness about the vaccine (21.2%), concerns about side effects (17.1%), and a preference for treatment only when sick (7.2%) (Table 4).

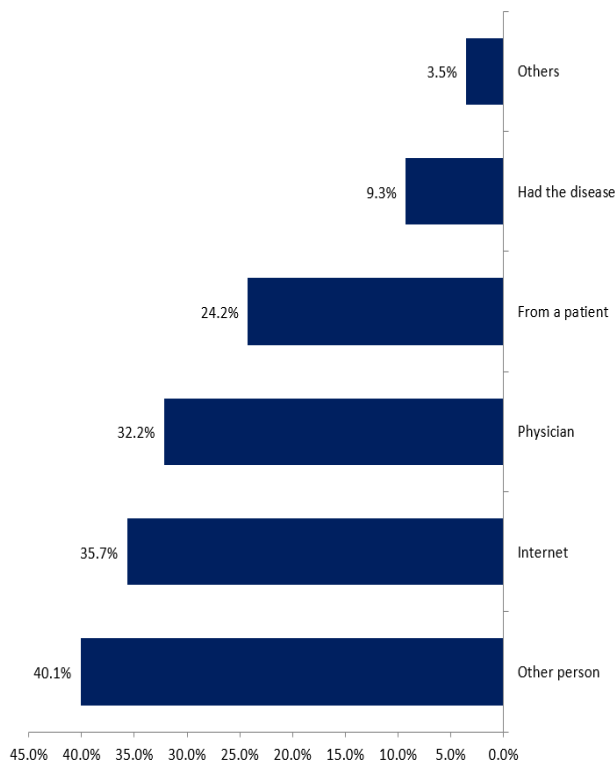


Figure 2: Participants source of information about herpes zoster disease and vaccine

Interest in learning more about HZ was expressed by 69.3% of participants, and 61.2% would consider vaccination if recommended by a doctor. Additionally, 59.5% believed HZ significantly impacts health, and 34.2% expressed concern about contracting the disease (Table 5).

Educational level influenced knowledge; 27.8% with post-graduate degrees showed good knowledge, compared to 9.4% with lower education levels (P = .002). Among healthcare workers, 30.3% had good knowledge, versus 8.4% in other professions (P = .004). Vaccine recipients demonstrated better knowledge (31.6%) compared to non-recipients (9%) (P = .001). Similarly, those informed by physicians showed higher knowledge (32.9%) than those relying on other sources (12.5%) (P = .001) (Table 6).

Table 3: Participants' awareness and knowledge about shingles vaccine

Shingles vaccine awareness		No	%
<b>Have you heard about the shingles vaccine?</b>			
Yes	183	53.0%	
No	162	47.0%	
<b>The shingles vaccine can reduce the incidence of the disease by more than 50%.</b>			
True	172	49.9%	
False	19	5.5%	
I don't know	154	44.6%	
<b>The shingles vaccine can treat shingles</b>			
True	80	23.2%	
False	87	25.2%	
I don't know	178	51.6%	
<b>There is no need to take the vaccine if a person was infected with smallpox as a child</b>			
True	46	13.3%	
False	102	29.6%	
I don't know	197	57.1%	
<b>The shingles vaccine is no longer needed if a person has had shingles</b>			
True	55	15.9%	
False	91	26.4%	
I don't know	199	57.7%	
<b>The shingles vaccine should be given to</b>			
Neonates	8	2.3%	
Children	13	3.8%	
Adults	39	11.3%	
Elderly above 50 years	197	57.1%	
All age groups	88	25.5%	
<b>When you contact a person with shingles, how do you protect yourself?</b>			
Wear mask	85	24.6%	
Don't share food	120	34.8%	
No hugs or handshakes	161	46.7%	
Do not use the same tools	170	49.3%	
Have medications	99	28.7%	
Have the vaccine	109	31.6%	
Do nothing	61	17.7%	

Table 4: Participants' practice about shingles vaccine

Practice	No	%
<b>Have you ever taken a vaccine against shingles?</b>		
Yes	57	16.5%
No	288	83.5%
<b>What prevents you from getting the shingles vaccine?</b>		
I don't believe in vaccines	93	27.0%
I am not at risk of contracting it because I am healthy	87	25.2%
I didn't know about the vaccine	73	21.2%
I am concerned about the side effects of the vaccine	59	17.1%
I prefer to take medicine when I am sick	25	7.2%
I think it's a waste of money	5	1.4%
Not covered by health insurance	3	.9%

## Discussion

This study in Al-Ahsa, Saudi Arabia, aimed to assess the understanding, attitudes, and behaviors regarding HZ and its vaccine among individuals aged 50 and above. Our findings reveal considerable gaps in knowledge and low vaccine uptake, a trend consistent with global observations but accentuating specific regional challenges.

Awareness of HZ in our cohort was moderate at 67.2%, but misconceptions about transmission and prevention were common. Knowledge about the shingles vaccine was limited, with only 53% awareness and an overall poor knowledge level in 87% of participants. These results align with other Saudi studies, which also report limited awareness about HZ and its vaccine, though regional variances exist.

Table 5: Participants' attitude and perception towards shingles vaccine

Attitude	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	No	%	No	%	No	%	No	%	No	%
<b>I'm worried about getting shingles</b>	41	11.9%	71	20.6%	115	33.3%	75	21.7%	43	12.5%
<b>Shingles disease greatly affects health</b>	11	3.2%	22	6.4%	107	31.0%	132	38.3%	73	21.2%
<b>I am interested to learn more about this disease</b>	8	2.3%	27	7.8%	71	20.6%	139	40.3%	100	29.0%
<b>I will take the vaccine if the doctor recommends it</b>	11	3.2%	39	11.3%	84	24.3%	129	37.4%	82	23.8%

For instance, a study conducted in Saudi Arabia with citizens aged 50 and older reported mean knowledge scores of 28.6% for HZ and 37.1% for the vaccine. This indicates a general lack of awareness, which is consistent with our findings. Despite a claimed awareness rate of 51.6% regarding the HZ vaccine, only 31.6% demonstrated comprehensive understanding. This study also highlighted the influence of factors like gender, previous chickenpox infection, and educational attainment on knowledge levels and vaccine acceptance (10).

Another study in Saudi Arabia showed higher awareness of the shingles vaccine at 57.2%. However, this contrasts with our findings, where a majority exhibited poor knowledge. This suggests that while national awareness may be moderately high, specific regions like Al-Ahsa lag behind in public knowledge and vaccine awareness. The vaccination rates in this study were also low, at just 7.7%, mirroring the trends observed in our study (11).

Table 6: Factors associated with participants' knowledge and awareness about herpes zoster disease and vaccine

Factors		Overall knowledge level				p-value
		Poor		Good		
		No	%	No	%	
<b>Age in years</b>	50-55	169	85.4%	29	14.6%	.190
	56-60	67	87.0%	10	13.0%	
	61-65	41	97.6%	1	2.4%	
	> 65	24	85.7%	4	14.3%	
<b>Gender</b>	Male	107	86.3%	17	13.7%	.690
	Female	194	87.8%	27	12.2%	
<b>Nationality</b>	Non-Saudi	292	87.4%	42	12.6%	.538
	Saudi	9	81.8%	2	18.2%	
<b>Education</b>	Below secondary	77	90.6%	8	9.4%	<b>.002*</b>
	Secondary	89	89.9%	10	10.1%	
	University student	54	96.4%	2	3.6%	
	University graduate	55	79.7%	14	20.3%	
	Others	26	72.2%	10	27.8%	
<b>Work field</b>	Not working / retired	87	91.6%	8	8.4%	<b>.004*</b>
	Non-health care field	191	88.0%	26	12.0%	
	Health care field	23	69.7%	10	30.3%	
<b>Did you have HZ disease</b>	Yes	97	87.4%	14	12.6%	.957
	No	204	87.2%	30	12.8%	
<b>Have you ever taken a vaccine against shingles?</b>	Yes	39	68.4%	18	31.6%	<b>.001*</b>
	No	262	91.0%	26	9.0%	
<b>Source of information</b>	Physician	49	67.1%	24	32.9%	<b>.001*</b>
	Other person	79	86.8%	12	13.2%	
	From a patient	47	85.5%	8	14.5%	
	Internet	64	79.0%	17	21.0%	
	Has the disease	14	66.7%	7	33.3%	
	Others	7	87.5%	1	12.5%	

P: Pearson X<sup>2</sup> test; ^: Exact probability test; \* P < 0.05 (significant)



A cross-sectional study in Al-Ahsa targeting diabetes patients reported approximately 56.7% HZ awareness. This rate, although somewhat aligned with broader awareness, contrasts sharply with the 87% poor knowledge rate in our study. The higher vaccination rate of 18.8% observed in the study could be attributed to the targeted population of diabetes patients, who might be more health-conscious or have better access to healthcare information (12).

Interestingly, in a larger study involving 500 adults over 50 in Saudi Arabia, 80% were aware of HZ, but 74% did not recognize the connection between varicella and HZ. This gap in understanding the full scope of the disease might be reflected in our study, suggesting a common area for improving public health education. The study also showed that while 55.8% were familiar with the HZ vaccine, there was a significant gap in actual vaccine uptake, with 94.6% not having received the vaccine. The Saudi Arabian study also revealed that 28.1% of participants expressed reluctance to take optional vaccines, while a substantial 77.4% indicated willingness to receive the HZ vaccine if recommended by a healthcare professional. This highlights the potential impact of healthcare provider recommendations on vaccine uptake, a factor that might also play a crucial role in our study region (9).

Another Saudi Arabian study conducted among diabetes patients in the Qassim region found that 25% accepted HZ vaccination, with predictors including male gender, belief in vaccine effectiveness, and awareness of higher HZ risk in immunocompromised individuals. Additionally, 74.2% expressed willingness for HZ vaccination upon physician recommendation, highlighting the influence of healthcare provider advice on vaccine uptake (13).

Our study, highlighting significant gaps in knowledge about HZ and its vaccine, presents a stark contrast to international findings. In a UAE study, 64.3% of participants were aware of HZ, though many failed to recognize the link between chickenpox and HZ, mirroring our findings.

Notably, being female, an Arab expatriate, or a healthcare professional positively influenced HZ knowledge, a dynamic we did not deeply explore. The UAE study's low familiarity with the HZ vaccine (14.8%) echoes the trends observed in our research, suggesting pervasive gaps in vaccine awareness across regions (14).

In South Korea, a study reported high HZ awareness (85.7%) and 43.6% knowledge of HZ vaccination. This contrasts sharply with our study findings, indicating a more pronounced challenge in elevating public awareness. The South Korean study also identified demographic factors such as gender, age, and socioeconomic status as influencers of HZ awareness. Among those aware of HZ, 85.8% were willing to be vaccinated or to vaccinate their parents. However, barriers like perceived high costs and low risk perception led to a 60.2% acceptance rate (15).

In China, studies showed varied levels of vaccine awareness and willingness to vaccinate, with major barriers including cost concerns and lack of healthcare recommendations. These factors align with our findings, where similar challenges likely contribute to low vaccine uptake. A cross-sectional study by Lam AC et al involving 430 participants revealed only 37.8% familiarity with HZ vaccination, highlighting knowledge disparities. Despite interest in learning about HZ and preventive measures, 94.6% of those aware of the vaccine received no doctor recommendations. This study found HZ vaccination rates to be significantly lower than for influenza and pneumococcus, attributed to factors such as unawareness, limited promotion, cost concerns, and perceived good health. Approximately 17.2% indicated potential consideration for HZ vaccination in the future (16). Conversely, another study in China involving 2864 respondents at community health centers found that 42.67% intended to receive the HZ vaccine, 21.44% refused, and 35.89% were hesitant. Both quantitative and qualitative analyses identified influencing factors including personal characteristics, knowledge, attitudes, vaccine attributes, and considerations like pain tolerance and accessibility (17).

In the USA, a cross-sectional survey involving 381 participants aged 50 and older showed considerable awareness of HZ and its vaccine. Over 68% knew someone with HZ, and 13.3% of those 60 and older had personal experience with HZ. Knowledge about HZ being a nerve/skin disease, its recurrence, and non-person-to-person transmission was high. TV and internet ads were primary sources of vaccine information. Interestingly, perceptions of vaccine side effects varied with age: 62.7% under 60 believed in side effects, contrasting with 39.2% of those 60 and older, and about 35% were unaware of these effects (18).

These international insights underscore the urgency for comprehensive public health initiatives to enhance awareness, correct misconceptions, and promote HZ vaccination. Key recommendations include targeted educational campaigns facilitated by healthcare providers, addressing specific demographic and cultural influences, and overcoming financial barriers.

To bridge knowledge gaps, healthcare providers should play a pivotal role in disseminating accurate information about HZ and its vaccine. Tailoring interventions to address unique regional and demographic factors is crucial for maximizing the impact of awareness campaigns. Moreover, efforts should focus on dispelling misconceptions surrounding vaccine efficacy, addressing cost concerns, and emphasizing the importance of vaccination, particularly among high-risk populations.

Our study contributes valuable insights into the knowledge, attitudes, and practices surrounding HZ and its vaccine within the studied population. The identified gaps in awareness and vaccine uptake emphasize the need for targeted educational interventions to enhance understanding and promote vaccination among at-risk individuals. Additionally, the role of healthcare professionals is highlighted as central to disseminating accurate information and addressing misconceptions.

### ***Strength and Limitations***

Firstly, its targeted demographic approach, focusing on individuals aged 50 and older, is a significant advantage. This specificity allows for an in-depth understanding of HZ awareness and vaccination attitudes within a high-risk population, making the findings particularly relevant for public health interventions in similar demographics. The use of a structured online questionnaire, adapted from a previous study and distributed via Google Forms, ensures a comprehensive and systematic data collection process. This method not only facilitates a wide reach within the community but also allows for a detailed and nuanced assessment of knowledge, attitudes, and practices regarding HZ and its vaccine.

However, the present study encounters several limitations. Primarily, the use of social media platforms for survey distribution may lead to selection bias, as it inherently favors respondents with internet access, potentially omitting perspectives from less digitally engaged individuals. This method, coupled with the reliance on self-reported data, introduces risks of recall and social desirability biases, where participants may inadvertently or deliberately misreport their experiences or views. The study's cross-sectional nature further limits its scope, capturing only a snapshot in time and precluding the analysis of causal relationships or temporal changes in attitudes and awareness. Additionally, the assumption of a homogenous target population might overlook nuanced differences in knowledge and attitudes influenced by unaccounted factors like socio-economic or cultural diversity. Finally, the response rate, although considerable, did not meet the optimal sample size, potentially compromising the study's statistical robustness and the generalizability of its conclusions.

### ***Future research recommendations***

Future research should focus on developing targeted educational campaigns to enhance awareness and comprehension of HZ and its vaccine. Investigating the influence of cultural and demographic factors on vaccine acceptance, as well as understanding

specific barriers and facilitators to HZ vaccine uptake, will provide valuable insights. Comparative studies across diverse regions, longitudinal research to track changes over time, and exploration of risk perception in vaccine decision-making are crucial for a nuanced understanding. Additionally, global perspectives on HZ awareness and vaccination, along with the role of social media in disseminating information, should be investigated to inform evidence-based strategies for promoting vaccination awareness.

## Conclusion

The study highlights a significant gap in knowledge and low vaccine uptake among the target population in Al-Ahsa. It underscores the need for educational initiatives and awareness programs to improve understanding and acceptance of the HZ vaccine. These findings can inform healthcare providers and policymakers in developing strategies to enhance vaccination coverage and ultimately improve public health outcomes in the region.

## Disclosure

### *Conflict of interest*

There is no conflict of interest.

### *Funding*

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### *Ethical consideration*

The study was conducted after receiving ethical clearance from King Faisal University with institutional review board approval number: KFUREC-2023-NOV-ETHICS1539. Participant confidentiality was a priority, with data securely stored on a password-protected device accessible only to the principal investigators and authorized personnel. All participant information was anonymized and handled with strict confidentiality.

### *Data availability*

The survey used is attached in the supplementary materials. All other data is embedded within the manuscript.

## *Author contribution*

All authors contributed to conceptualizing, data drafting, collection and final writing of the manuscript.

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