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Assessment of Awareness, Knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia 2022

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Abstract

Background:

Herpes Zoster is a viral infection that occurs due to reactivation of the Varicella Zoster virus. A vaccine has been approved for adults aged 50 and above for the prevention of Herpes Zoster and its complications, despite the recommended herpes zoster vaccine for individuals aged ≥ 50 years, its uptake remains low in Saudi Arabia. Herpes zoster infection can significantly impair the quality of life of the affected individuals, and its treatment imposes a considerable cost burden on the health-care system and on society at large. However, there is little information on the perception of this disease and the acceptability of vaccines in Saudi Arabia. Herpes Zoster, also known as shingles, is a skin condition caused by the reactivation of a latent varicella zoster virus, which is the virus that also causes chickenpox. Herpes Zoster is most commonly seen in patients who are older than age 50, immune compromised or receiving immunosuppressive therapy, Zostavax reduced the incidence of Herpes Zoster infection in those aged 60 years and

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older and in those aged 70 years and older by 51.3% and 38% respectively, and the incidence of post herpetic neuralgia (PHN) by 66.5% and 66.8% respectively.

Aim of the study: To assessment of awareness, knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia 2022.

Methods: A cross-sectional study was conducted at patients with history among the herpes zoster visiting the primary health sector in Saudi Arabia, from April to May 2022, 200 patients were included and data were collected by using a written questionnaire also online questionnaire and telephone interviews, was developed based on a literature review.

Results: shows that most of the participants (41.0%) were in the age group (40-49) years regarding educational attainment the majority of participant are Undergraduate were(40.0%) regarding employment status the majority of participant are employed were(69.0%) regarding history of chronic diseases the majority of participant answer Yes were(66.0%).

Conclusion: There is a large difference in self-reported Herpes zoster and vaccination rates among races. The Herpes zoster vaccination rate was low overall, but most patients were interested in receiving the vaccine after the education. More public awareness and education is needed to improve rates of Herpes zoster vaccination .

Keywords: assessment, awareness, knowledge, Vaccine, Herpes Zoster, Saudi Arabia .

Introduction

Herpes zoster, commonly known as shingles, is a viral infection caused by reactivation of the varicella-zoster virus, which also causes chickenpox. After a person recovers from chickenpox, the virus can remain dormant in the body and reactivate later in life, leading to shingles [1]. The prevalence of herpes zoster in Saudi Arabia is unclear; however, its incidence is increasing globally, particularly in the elderly population [2]. Shingles can lead to serious complications, including post-herpetic neuralgia, vision loss, and neurological problems [3]. Herpes zoster vaccine is a safe and effective way to prevent shingles and complications. The vaccine is recommended for individuals aged ≥ 50 years, and a two-dose schedule is recommended for optimal protection [4]. In Saudi Arabia, the herpes zoster vaccine is available free of charge for individuals aged 50 years and above. Henceforth, HZ exclusively affects those with a history of chickenpox infection.[5] HZ commonly presents as a vesicular dermatological rash that does not cross the midline that crusts within 10 days.[6] The pain associated with the rash can be highly variable; patients might experience hypersensitivity, tingling, aching, or burning pain.[7]

Furthermore, the vaccine reduces the burden of illness due to HZ by 61% (defined in a double-blind, placebo-controlled trial, the shingles prevention study, by using a composite measure of incidence, severity, and duration of pain) [8]. In addition, vaccine protection may persist for at least 7∼10 years, as observed in the long-term persistence sub study [9]. Finally, the US Food and Drug Administration approved herpes zoster vaccination in 2011 for immune competent patients aged 50 years or older [10]. Despite the availability of a vaccine, HZ is still seen frequently in clinical practice.

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Complications associated with Herpes zoster occur in almost half of all elderly patients [11]. The most common of these complications is post herpetic neuralgia (PHN), which is defined as pain in HZ lesions that lasts longer than 3 months [12]. There is no universally accepted treatment for PHN, and the available treatments are accompanied by considerable adverse effects. Elderly patients with PHN often need to make multiple visits to medical offices for prescription analgesics in attempts to resolve the pain [13]. An effective vaccine against Herpes zoster has been developed and can reduce the incidence and severity of both HZ and PHN by 51% and 67%, respectively. [14]

In 2008, the Advisory Committee on Immunization Practices recommended that all people older than age 60 receive the zoster vaccination.[15] the vaccine is recommended without serologic testing and regardless of race or medical history of varicella virus infection or HZ. When vaccinated, the risk of having HZ, the burden of disease, and the incidence of post herpetic neuralgia decrease by 51%, 61%, and 66%, respectively, over 3 years.[16] In 2011, the US Food and Drug Administration approved HZ vaccination for immune competent people older than age 50.[17] However, despite the recommendation of the Advisory Committee on Immunization Practices the rate of zoster vaccination is low.

Despite the availability of effective vaccines, herpes zoster vaccination rates remain suboptimal in many countries, including Saudi Arabia [18]. Several socio demographic factors may influence the awareness and uptake of the herpes zoster vaccine, including age, sex, education level, income, and access to healthcare services. Older individuals and those with limited access to healthcare services may have lower awareness and uptake [19]. Cultural and religious beliefs may also influence vaccine acceptance in some populations, highlighting the need for culturally sensitive interventions to increase vaccination coverage [20].

Literature Review

A recent study that evaluated the healthcare economic burden of skin disease has shown that herpes (including HZ) is one of the top 10 most costly causes of skin conditions.[21] The incidence of HZ in the general population is estimated to be 4.47 cases per 1000 people in the United States (US) annually and rises to 10.46 per 1000 in those aged above 60.[22] Multiple predisposing factors have been linked to developing HZ, including diabetes mellitus, malignancy, immunosuppressive medications, HIV infection, radiotherapy, and TB.[23]

Several studies have examined the rate of use of the HZ vaccine in a population. In 2007, approximately 3500 adults older than age 60 in the United States were surveyed, and 1.9% of those surveyed reported having had the HZ vaccine.[24] Of those surveyed who had not been vaccinated, approximately 80% reported that they would receive the vaccine if their doctor recommended it. The 2 most common reasons for declining to be vaccinated were that the patients did not feel it was needed, and many did not think they were at risk.

In 2009, the rate of zoster vaccination among a group of rheumatologic patients was still relatively low (9.1%).[25] One study reported that the major barrier to receiving the HZ vaccine

was the cost.[15] Of the vaccines recommended for the older population, the HZ vaccine is among the most expensive. [26]

Studies have shown that various factors influence vaccine uptake, including socio demographic factors, such as age, gender, education level, income, and access to healthcare services.
Cultural and religious beliefs may also influence vaccine acceptance. In Saudi Arabia, limited studies have examined the practices related to the herpes zoster vaccine, with one recent study finding that only 4.5% of adults had received the vaccine [27].

Previous studies have focused on specific geographic areas or risk groups [28] , highlighting the need for a more comprehensive understanding of the population's knowledge and attitudes towards shingles and its vaccine in Saudi Arabia. Increasing vaccination rates is crucial for reducing the burden of herpes zoster and its complications, particularly in the elderly population.

According to the World Health Organization (WHO), Saudi Arabia a twenty-year audit study of herpes zoster (HZ) in the Asia-Pacific region identified immune senescence and immunosuppression as the principal risk factors for HZ [29] .

Study reported that only 6.7% of diabetic patients were diagnosed with herpes zoster. Additionally, 23.7% of them knew someone who had been diagnosed with herpes zoster, whether diabetic or non-diabetic. [30] This rate is lower than the rates in previous studies in Korea, where 14.7% of respondents had a history of herpes zoster and 26.1% among COPD patients in the USA [31].

Rationale:

This study aimed to awareness, knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia . Shingles is a viral infection caused by the same virus that causes chickenpox. After having chickenpox, the virus can stay in the body and reactivate later in life, causing shingles. We conducted a survey among patient aged 35 years and above to gather information vaccine acceptability of Herpes Zoster. Many people had heard about shingles, but their knowledge about it and vaccine acceptability was limited. Healthcare providers were not a significant source of information for most participants, showing the need for more awareness and education from healthcare professionals. We also looked at people's attitudes towards the shingles vaccine. Only a small percentage of participants had received the vaccine, but many expressed willingness to get vaccinated. However, certain factors like age, gender, and education level influenced people's willingness to take the vaccine. The low vaccine uptake is concerning because shingles can lead to serious health problems. To increase vaccine acceptance, we suggest implementing awareness campaigns .

Aim of the study:

To assessment of awareness, knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia 2022 .

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Objectives:

To assessment of awareness, knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia 2022 .

Methodology:

Study design:

This study is descriptive type of cross-sectional study was conducted among 100 candidates this study included visitors to health centers, in primary health sector in Saudi Arabia

Study Area

The study has been carried out in the Saudi Arabia of is the holiest spot on Earth. It is the birthplace of the Prophet Mohammad and the principal place of the pilgrims to perform Umrah and Hajj. It is located in the western area in Kingdom of Saudi Arabia and called the Holy Capital. Contains a population around 3 million. This study has been conducted in Saudi Arabia in the primary health sector in Saudi Arabia. During the April to May 2022, and it reflects a diversified demographic profile with a considerable portion of the population comes from rural descent, while others come from an urban one. This difference translates into biological, socioeconomic and lifestyle differences in Saudi Arabia population .

Study Population

The study has been conducted regarding visitors to health centers, in April to May 2022 in primary health sector in Saudi Arabia .

Selection criteria:

Inclusion criteria

- Visitors to health centers in primary health sector complain about herpes zoster in Saudi Arabia .
- All nationalities

Exclusion criteria :

- No specific exclusion criteria.

Sample size

Visitors to health centers in primary health sector complain about herpes zoster in Saudi Arabia, the sample size has been calculated by applying Raosoft sample size calculator based on (The margin of error: 5%, Confidence level: 95%, and the response distribution was considered to be 20%) accordingly the Sample size is (200) in primary health sector after official communication with the primary health sector in the Saudi Arabia and adding 10 more to decrease margin of error. After adding 5% oversampling, the minimum calculated sample has been 300. Computer generated simple random sampling technique was used to select the study participants.

Sampling technique:

Systematic random sampling technique is adopted. After that, by using random number generator, then simple random sampling technique has been applied to select from primary health sector. Also, convenience sampling technique will be utilized to select the participants in

the study. By using systematic sampling random as dividing the total students by the required sample size; (200).

Data collection tool

The self-administered questionnaire is designed based on previous studies to assessment of awareness, knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia. The questionnaire has been developed in English. The questions were first pre-tested and were revised and finalized after it has been pilot tested. Before completing the survey, participants were required to indicate their consent using a forced response question followed by the survey questionnaires. The survey is estimated to take 10 min to complete .

To collect the information, a set of questions were constructed and developed. All questions were closed-ended, with tick boxes provided for responses; participants answered the questionnaires from the April to May 2022 the period of study in 2022.

The questionnaire consisted of questions that

First part General and Socio demographic information. These variables included contact data (email or mobile phone number),(age, gender, Sources of information). Other variables were education level, economic level .

A questionnaire has been developed that had Socio demographic data and questions related to knowledge. The two senior faculty members checked the questionnaire's validity and comprehension, and it was revised according to their suggestions. A pilot study has been conducted on secondary students to check the questionnaire's understanding and responses further, and its Cronbach's alpha was 0.75. The results of the pilot study were not included in the final analysis.

The assessment to assessment of awareness, knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia among visitors to health centers as per each topic/question, and also as per each response/answer . Data entry and analysis were carried out using the Statistical Package for the Social Sciences.

Data collection technique:

Researcher has been visits the selected primary health sector after getting the approval from the ministries of health. The researcher has been obtained permission from participants.

After the arrival of the participants has been explained the purpose of the study to all participants attending .

Data entry and analysis:

The Statistical Package for Social Sciences (SPSS) software version 24.0 has been used for data entry and analysis. Descriptive statistics (e.g., number, percentage) and analytic

Pilot study

A pilot study has been conducted in the same sector due to the similarity to the target group using the same questionnaire to test the methodology of the study. As a feedback, the questionnaire has been clear and no defect has been detected in the methodology

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Ethical Approval

This study was approved from regional research center in Saudi Arabia. Each participant gave a verbal consent prior to recruitment and confidentiality was assured for each situation.

Budget: Self-funded

Results

Table 1: Distribution of socio-demographic characteristics of participant . (n-200)

	N	%
Age		
30-39 y	64	32
40-49 y	82	41
≥50 y	54	27
Gender		
Male	134	67
Female	66	33
Nationality		
Saudi	170	85
Non -Saudi	30	15
Educational attainment		
High school or below	50	25
Undergraduate	80	40
Postgraduate	70	35
Employment status		
Employed	138	69
Unemployed	62	31
History of chronic diseases		
Yes	132	66
No	68	34
Chronic disease		
Hypercholesterolemia	99	75.00
Hypertension	65	49.24
Diabetes mellitus	85	64.39
Respiratory disease	27	20.45
Marital status		
Single	42	21
Married	158	79
Patient enrollment sites in health centers		
Internal medicine clinic	52	26
Family medicine clinic	128	64

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Geriatric clinic	20	10
Income status		
Less than 10000RS	64	32
10000-20000 RS	110	55
More than 20000 RS	26	13

Table 1 shows that most of the participants (41.0%) were in the age group (40-49) years follow by the age 30-39 were (32.0%) followed by ≥ 50 years were (27.0%), the majority of them male was higher compared to female(67.0% and 33.0%) , regarding nationality the majority of participant are Saudi were(85.0%) while non-Saudi practitioner were(15.0%), regarding educational attainment the majority of participant are Undergraduate were(40.0%) while postgraduate practitioner were(35.0%) but the High school or below were (25.0%), regarding employment status the majority of participant are employed were(69.0%) while unemployed were(31.0%), regarding history of chronic diseases the majority of participant answer Yes were(66.0%) while No were(34.0%), regarding chronic disease the majority of participant hypercholesterolemia were (75.0%) while Diabetes mellitus were (64.39%) but Hypertension were (49.24%) while Respiratory disease were (20.45%), regarding the marital status most of participants married were(79.0%) while single were(21.0%), regarding patient enrollment sites in health centers the majority of participant Family medicine clinic were (64.0%) while Internal medicine clinic were (26.0%) but Geriatric clinic were (10.0%) , regarding Income status the majority of participant are between 10000 to 20000 were(55.0%) while less than 10000 were(32.0%) but more than 20000 were (13.0%) .

Table 2: Distribution of the awareness, knowledge and intention to receive (HZ) vaccination and sources of Information about its Vaccine

	N	%
How did you learn about the herpes zoster?		
Healthcare provider	114	57
Family or friends	24	12
The internet (e.g., social media, websites)	40	20
Personal experience of having herpes zoster	12	6
Knowing someone who had herpes zoster	10	5
How did you learn about the herpes zoster vaccine?		
Healthcare provider	60	30
Family or friends	44	22
Someone who had herpes zoster	72	36
The internet (e.g., social media, websites)	24	12
Awareness and knowledge of herpes zoster		
Yes	118	59

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No	82	41
Awareness and knowledge of herpes zoster vaccination		
Yes	76	38
No	124	62
Awareness and knowledge of Intention to vaccination		
Yes	42	21
No	158	79

Table 2 distribution of the awareness, knowledge and intention to receive (HZ) vaccination and sources of Information about its Vaccine shows regarding did you learn about the herpes zoster the most of the participants healthcare provider were (57.0%) followed by the internet (e.g., social media, websites) were (20.0%) followed by family or friends were (12.0%) while Personal experience of having herpes zoster were (6.0%) but the Knowing someone who had herpes zoster were (5.0%) , regarding the did you learn about the herpes zoster vaccine the majority of participant someone who had herpes zoster were (36.0%) followed by healthcare provider were (30.0%) but family or friends were (22.0%) while The internet (e.g., social media, websites) were (12.0%) , regarding awareness and knowledge of herpes zoster the majority of participant answer Yes were(59.0%) while No were(41.0%), regarding awareness and knowledge of herpes zoster vaccination the majority of participant answer No were(79.0%) while Yes were(21.0%)

Figure (1): Distribution of the awareness, knowledge of (HZ) .

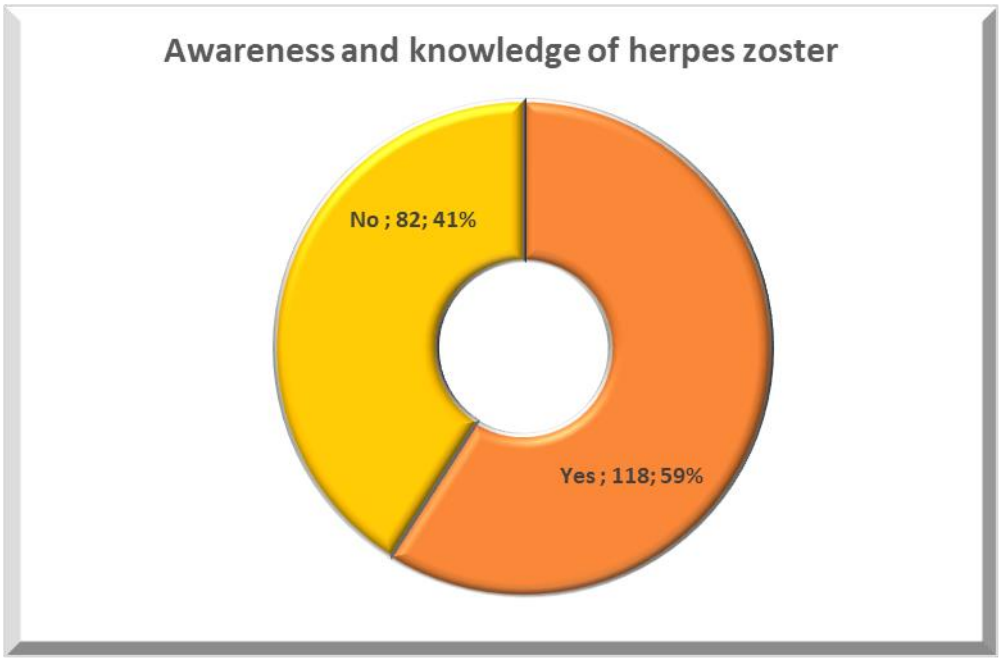

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Figure (2): Distribution of the awareness, knowledge of (HZ) vaccination

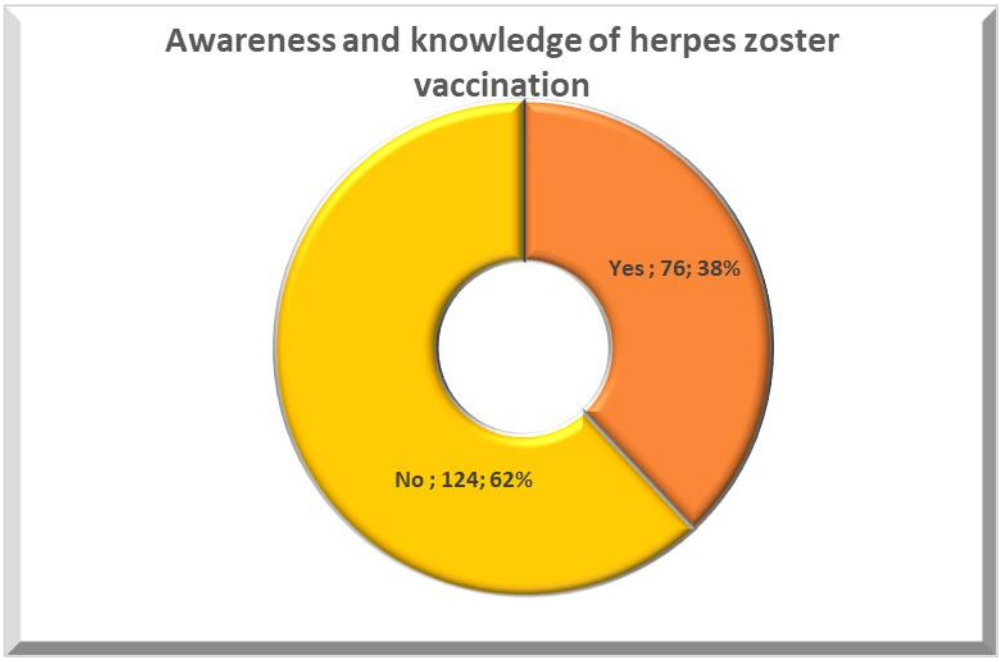

Figure (3): Distribution of the awareness, knowledge of intention to receive (HZ) vaccination .

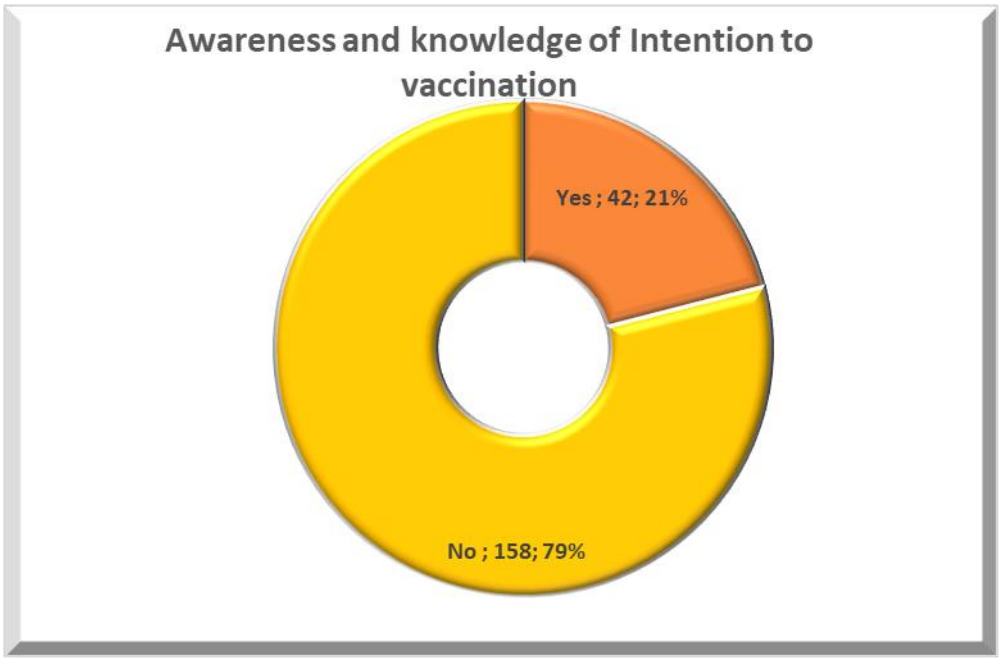

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Table 3 . Distribution of the factors Impacting Decisions For or Against Receiving the Herpes Zoster (HZ) Vaccine

	N	%
Reasons cited for getting the HZ vaccine		
Recommended by health care provider	118	59
Recommended by media/ads	32	16
Recommended by friends	40	20
Recommended by family	10	5
Reasons cited for not getting the Herpes Zoster vaccine		
Have not heard about it	42	21
Do not think I will develop shingles	86	43
The physician did not recommend it	92	46
Afraid of the side effects	118	59
Financial reasons	42	21
Do not believe in vaccines in general	14	7
Have a weak immune system and cannot receive live virus vaccines	24	12
Allergic to the zoster vaccine	44	22
Do not think zoster will cause significant or lasting illness	30	15
Do not think the vaccine works	60	30
Someone told me not to get the vaccine	90	45

Table 3 distribution of the factors Impacting Decisions For or Against Receiving the Herpes Zoster (HZ) Vaccine shows regarding reasons cited for getting the HZ vaccine the most of the participants recommended by health care provider were (59.0%) followed by recommended by friends were (20.0%) followed by recommended by media/ads were (16.0%) while Recommended by family were (5.0%) , regarding the reasons cited for not getting the Herpes Zoster vaccine the majority of participant afraid of the side effects were (59.0%) followed by physician did not recommend it were (46.0%) but someone told me not to get the vaccine were (45.0%) while do not think I will develop shingles were (43.0%) , while do not think the vaccine works were (30.0%) but Allergic to the zoster vaccine were (22.0%) while financial reasons and have not heard about it were (21.0%) while do not think zoster will cause significant or lasting illness were (15,0%) but have a weak immune system and cannot receive live virus vaccines were (12.0%) while do not believe in vaccines in general were (7.0%)

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Table 4 Distribution of the relationship of the Socio-demographic characteristics and awareness and knowledge of herpes zoster

		Awareness and knowledge of herpes zoster						Chi-square	
		Yes (n=118)		No (n=82)		Total			
		N	%	N	%	N	%	X^2	P-value
Age	30-39 y	55	46.61	9	10.98	64	32.00	69.303	<0.001*
	40-49 y	20	16.95	62	75.61	82	41.00		
	≥50 y	43	36.44	11	13.41	54	27.00		
Gender	Male	85	72.03	49	59.76	134	67.00	3.299	0.069
	Female	33	27.97	33	40.24	66	33.00		
Nationality	Saudi	95	80.51	75	91.46	170	85.00	4.554	0.033*
	Non -Saudi	23	19.49	7	8.54	30	15.00		
Educational attainment	High school or below	10	8.47	40	48.78	50	25.00	76.218	<0.001*
	Undergraduate	40	33.90	40	48.78	80	40.00		
	Postgraduate	68	57.63	2	2.44	70	35.00		
Employment status	Employed	88	74.58	50	60.98	138	69.00	4.184	0.041*
	Unemployed	30	25.42	32	39.02	62	31.00		
History of chronic diseases	Yes	86	72.88	46	56.10	132	66.00	6.073	0.014*
	No	32	27.12	36	43.90	68	34.00		
Marital status	Single	22	18.64	20	24.39	42	21.00	0.963	0.326
	Married	96	81.36	62	75.61	158	79.00		
Patient enrollment sites in health centers	Internal medicine clinic	25	21.19	27	32.93	52	26.00	4.880	0.087
	Family medicine clinic	78	66.10	50	60.98	128	64.00		
	Geriatric clinic	15	12.71	5	6.10	20	10.00		
Income status	Less than 10000RS	10	8.47	54	65.85	64	32.00	74.578	<0.001*
	10000-20000 RS	90	76.27	20	24.39	110	55.00		
	More than 20000 RS	18	15.25	8	9.76	26	13.00		

Table (4) distribution of the relationship of the Socio-demographic characteristics and awareness and knowledge of herpes zoster show regarding age heave a significant relation were

P-value=0.001, X^2 were (69.303) increase in Yes in age 30-39 years were (46.61%) in total (32.0%) followed by ≥50 years were (36.44) in total (27.0%) while regarding No increase in 40-49 years were (75.61) in total (41.0%) , regarding gender heave a significant relation were P-value=0.069, X^2 were (3.299) increase in Yes in male were (72.03%) in total (67.0%) followed by female were (27.97%) in total (33.0%) while regarding No increase in male were (59.76%) followed by female were (40.24%), regarding nationality heave a significant relation were P-value=0.033, X^2 were (4.554) increase in Yes in Saudi were (80.51%) in total (85.0%) followed non-Saudi were (19.49%) in total (15.0%) while regarding No increase in Saudi were (91.46%) , regarding educational attainment heave a significant relation were P-value=0.001, X^2 were (76.218) increase in Yes in Postgraduate were (57.63%) in total (35.0%) followed Undergraduate in No were (48.78%) followed by High school or below were (48.78%) in total (25.0%) , regarding employment status heave a significant relation were P-value=0.041, X^2 were (4.184) increase in Yes in employed were (74.58%) in total (69.0%) followed by employed in No were (60.98%) , regarding patient enrollment sites in health centers heave no significant relation were P-value=0.087, X^2 were (4.880) increase in Yes in family medicine clinic were (66.10%) in total (64.0%) followed by No in family medicine clinic were (60.98%) in total (64.0%), regarding Income status heave a significant relation were P-value=0.001, X^2 were (74.578) increase in Yes in 10000-20000 RS were (76.27%) in total (55.0%) followed by Less than 10000RS in No were (65.85%) in total (32.0%) .

Discussion

In the present study, we assessment of awareness, knowledge, and Vaccine Acceptability of Herpes Zoster in Saudi Arabia 2022, and analyzed the predictors of HZ vaccination. Additionally, a study conducted in the US found that gaining a better understanding of HZ and its vaccine was a leading factor in participants' willingness to take the vaccine. [24] Hence, public health awareness campaigns that underscore the importance of vaccination as well as HZ vaccine recommendations, while underlining the HZ associated sequalae, could essentially improve the willingness to take the HZ vaccine. In our study that most of the participants (41.0%) were in the age group (40-49) years , the majority of them male was higher compared to female(67.0% and 33.0%) , regarding employment status the majority of participant are employed were(69.0%) while unemployed were(31.0%), regarding history of chronic diseases the majority of participant answer Yes were(66.0%) while No were(34.0%), regarding chronic disease the majority of participant hypercholesterolemia were (75.0%) while Diabetes mellitus were (64.39%) but Hypertension were (49.24%) while Respiratory disease were (20.45%) (See table 1).

Among those who had not been vaccinated, expressed willingness to receive HZ vaccination in the future . The most frequent reason was "severe sequelae," followed by "knowing someone who has HZ" and "recommendation from a doctor or other health-care professionals." Overall, this indicates that education about the disease and its sequelae by health professionals including doctors can help motivate patients to accept HZ vaccination. The key reason cited by most of the

respondents who did not want to receive HZ vaccination was the high cost. The cost of the HZ vaccine has been reported previously to be a major obstacle to vaccination efforts [21]. However, most studies have shown that vaccination against HZ is likely to be cost-effective [22]. conducted a review of 15 cost-effectiveness studies in North America and Europe and concluded that most studies showed that vaccination against HZ is cost-effective. In our study (See Figure 1,2,3)

Although not specifically studied in our study, additional potential barriers to HZ vaccination exist. One example is the complexity of the vaccine administration. [14] The vaccine must be stored at 15°C(5°F), and it must be administered within 30 minutes of thawing.[20] This makes it inconvenient to administer in practices that do not have the vaccine in the building. When this is the case, systems-based plans need to be implemented to simplify the acquisition and administration of the vaccine. Patients picked up the vaccine and had to bring it back to their respective clinic within 30 minutes for administration. As an alternative, they took their zoster vaccine prescription to private pharmacies off-site for dispensing and administration [30] , in our study the factors Impacting Decisions For or Against Receiving the Herpes Zoster (HZ) Vaccine shows regarding reasons cited for getting the HZ vaccine the most of the participants recommended by health care provider were (59.0%) followed by recommended by friends were (20.0%) followed by recommended by media/ads were (16.0%) while Recommended by family were (5.0%) , regarding the reasons cited for not getting the Herpes Zoster vaccine the majority of participant afraid of the side effects were (59.0%) followed by physician did not recommend it were (46.0%) (See table 3)

The unexpected finding that participants with education were more willing to take the shingles vaccine than those with higher education raises questions about the role of health literacy and vaccine hesitancy in vaccine uptake. Previous studies have found that individuals with lower educational levels are often at a disadvantage in terms of health literacy, which may impact their ability to understand and act on health-related information, including recommendations for vaccination [14].

However, some studies have reported that higher education levels may be associated with increased vaccine hesitancy, which is defined as a delay or refusal of vaccination despite the availability of vaccine services [15]. However, other studies have found no association between education level and vaccine hesitancy education level and vaccine hesitancy [26]. One possible explanation for the observed association between education and willingness to receive the shingle vaccine is that individuals with lower education levels may have less access to healthcare services and, therefore, may be more motivated to take advantage of preventive health measures when they become available. Additionally, people with lower educational levels may have higher levels of trust in healthcare providers and are more likely to follow their recommendations [27].

In our study show regarding age heave a significant relation were P-value=0.001, X2 were (69.303) increase in Yes in age 30-39 years were (46.61%) in total (32.0%) followed by ≥50 years were (36.44) in total (27.0%) while regarding nationality heave a significant relation were P-value=0.033, X2 were (4.554) increase in Yes in Saudi were (80.51%) regarding employment

status heave a significant relation were P-value=0.041, X2 were (4.184) increase in Yes in employed were (74.58%) in total (69.0%) followed by employed in No were (60.98%) , regarding patient enrollment sites in health centers heave no significant relation were P-value=0.087, X2 were (4.880) increase in Yes in family medicine clinic were (66.10%) in total (64.0%)(See table 4)

Conclusion

Herpes Zoster vaccination rates are low, as is patients' awareness that the Herpes Zoster vaccine is recommended for all people older than age 50. Large differences in the vaccination rates exist and potential reasons for the differences are likely multifactorial. Witnessing someone having Herpes Zoster and having a higher educational level are strongly related to Herpes Zoster vaccination status. A physician's recommendation is the reason to get vaccinated that is most commonly cited by patients, not being aware of the vaccine and the recommendation was reason most commonly cited by patients who had not received the vaccine, and most of these people wanted the vaccine once they knew about it. Future research should explore the incidence of shingles and the efficacy of vaccination and other, minority races because some populations have a lower incidence of the disease and the cost-effectiveness of the vaccine in these groups is not known. To achieve higher HZ vaccination rates, public awareness, education, and redesign of the health care delivery system should be explored.

References

[1] Wilms, L., Weßollek, K., Peeters, T. B., & Yazdi, A. S. (2022). Infections with Herpes simplex and Varicella zoster virus. *JDDG: Journal der Deutschen Dermatologischen Gesellschaft*, *20*(10), 1327-1351.

[2] Alqifari, S. F., Aldawish, R. F., Binsaqr, M. A., Khojah, A. A., Alshammari, M. R., Esmail, A. K., & Al-Rasheedi, M. (2022). Trends in Herpes Zoster Infection in Saudi Arabia; A Call for Expanding Access to Shingles Vaccination. *Middle East Journal of Family Medicine*, *20*(9).

[3] Patil, A., Goldust, M., & Wollina, U. (2022). Herpes zoster: a review of clinical manifestations and management. *Viruses*, *14*(2), 192.

[4] Perry, M. (2022). Shingles in adults: what the practice nurse needs to know. *Practice Nursing*, *33*(2), 54-57.

[5] Watson, C. P. N., Gershon, A. A., & Oxman, M. N. (2017). *Herpes zoster: postherpetic neuralgia and other complications*. Adis.

[6] Alhayyas, M., Chaudhry, M., & Berdouk, S. (2020). An atypical presentation of multidermatomal herpes zoster: a case report. *International Journal of Emergency Medicine*, *13*(1), 1-4.

[7] Doshi, T. L., Dworkin, R. H., Polomano, R. C., Carr, D. B., Edwards, R. R., Finnerup, N. B., ... & Raja, S. N. (2021). AAAPT diagnostic criteria for acute neuropathic pain. *Pain Medicine*, *22*(3), 616-636.

[8] Marra, Y., & Lalji, F. (2022). Prevention of Herpes Zoster: a focus on the effectiveness and safety of herpes zoster vaccines. *Viruses*, *14*(12), 2667.

[9] Cook, S. J., & Flaherty, D. K. (2015). Review of the persistence of herpes zoster vaccine efficacy in clinical trials. *Clinical Therapeutics*, *37*(11), 2388-2397.

[10] Pan, C. X., Lee, M. S., & Nambudiri, V. E. (2022). Global herpes zoster incidence, burden of disease, and vaccine availability: a narrative review. *Therapeutic advances in vaccines and immunotherapy*, *10*, 25151355221084535.

[11] Meyers, J. L., Candrilli, S. D., Rausch, D. A., Yan, S., Patterson, B. J., & Levin, M. J. (2019). Costs of herpes zoster complications in older adults: a cohort study of US claims database. *Vaccine*, *37*(9), 1235-1244.

[12] Aggarwal, A., Suresh, V., Gupta, B., & Sonthalia, S. (2020). Post-herpetic neuralgia: a systematic review of current interventional pain management strategies. *Journal of Cutaneous and Aesthetic Surgery*, *13*(4), 265.

[13] Wen, B., Wang, Y., Zhang, C., Xu, W., & Fu, Z. (2020). Efficacy of different interventions for the treatment of postherpetic neuralgia: a Bayesian network meta-analysis. *Journal of International Medical Research*, *48*(12), 0300060520977416.

[14] Pan, C. X., Lee, M. S., & Nambudiri, V. E. (2022). Global herpes zoster incidence, burden of disease, and vaccine availability: a narrative review. *Therapeutic advances in vaccines and immunotherapy*, *10*, 25151355221084535.

[15] Xia, Y., Zhang, X., Zhang, L., & Fu, C. (2022). Efficacy, effectiveness, and safety of herpes zoster vaccine in the immunocompetent and immunocompromised subjects: a systematic review and network meta-analysis. *Frontiers in Immunology*, *13*, 978203.

[16] Anderson, T. C., Masters, N. B., Guo, A., Shepersky, L., Leidner, A. J., Lee, G. M., ... & Dooling, K. L. (2022). Use of recombinant zoster vaccine in immunocompromised adults aged≥ 19 years: recommendations of the Advisory Committee on Immunization Practices—United States, 2022. *American Journal of Transplantation*, *22*(3), 986-990.

[17] Patil, A., Goldust, M., & Wollina, U. (2022). Herpes zoster: a review of clinical manifestations and management. *Viruses*, *14*(2), 192.

[18] Bakker, K. M., Eisenberg, M. C., Woods, R. J., & Martinez, M. E. (2022). Identifying optimal vaccination scenarios to reduce varicella zoster virus transmission and reactivation. *BMC medicine*, *20*(1), 1-10.

[19] Parikh, R., Widenmaier, R., & Lecrenier, N. (2021). A practitioner's guide to the recombinant zoster vaccine: review of national vaccination recommendations. *Expert review of vaccines*, *20*(9), 1065-1075.

[20] Weinberger, B. (2021). Vaccination of older adults: Influenza, pneumococcal disease, herpes zoster, COVID-19 and beyond. *Immunity & Ageing*, *18*(1), 38.

[21] Lim, H. W., Collins, S. A., Resneck Jr, J. S., Bolognia, J. L., Hodge, J. A., Rohrer, T. A., ... & Moyano, J. V. (2017). The burden of skin disease in the United States. *Journal of the American Academy of Dermatology*, *76*(5), 958-972.

[22] Johnson, B. H., Palmer, L., Gatwood, J., Lenhart, G., Kawai, K., & Acosta, C. J. (2015). Annual incidence rates of herpes zoster among an immunocompetent population in the United States. *BMC infectious diseases*, *15*, 1-5.

[23] Babamahmoodi, F., Alikhani, A., Ahangarkani, F., Delavarian, L., Barani, H., & Babamahmoodi, A. (2015). Clinical manifestations of herpes zoster, its comorbidities, and its complications in north of Iran from 2007 to 2013. *Neurology Research International*, *2015*.

[24] Lu, P. J., Euler, G. L., Jumaan, A. O., & Harpaz, R. (2009). Herpes zoster vaccination among adults aged 60 years or older in the United States, 2007: uptake of the first new vaccine to target seniors. *Vaccine*, *27*(6), 882-887.

[25] Cunningham, A. L., Heineman, T. C., Lal, H., Godeaux, O., Chlibek, R., Hwang, S. J., ... & ZOE-50/70 Study Group. (2018). Immune responses to a recombinant glycoprotein E herpes zoster vaccine in adults aged 50 years or older. *The Journal of infectious diseases*, *217*(11), 1750-1760.

[26] Le, P., & Rothberg, M. B. (2018). Cost-effectiveness of the adjuvanted herpes zoster subunit vaccine in older adults. *JAMA internal medicine*, *178*(2), 248-258.

[27] Binsaeedu, A. S., Bajaber, A. O., Muqrad, A. G., Alendijani, Y. A., Alkhenizan, H. A., Alsulaiman, T. A., & Alkhenizan, A. H. (2022). Clinical and epidemiological aspects of herpes zoster disease in a primary care setting in Riyadh, Saudi Arabia: A retrospective cohort study. *Journal of Family Medicine and Primary Care*, *11*(10), 6433.

[28] Bricout, H., Torcel-Pagnon, L., Lecomte, C., Almas, M. F., Matthews, I., Lu, X., ... & Sevdalis, N. (2019). Determinants of shingles vaccine acceptance in the United Kingdom. *PLoS One*, *14*(8), e0220230.

[29] Chen, L. K., Arai, H., Chen, L. Y., Chou, M. Y., Djauzi, S., Dong, B., ... & Won, C. W. (2017). Looking back to move forward: a twenty-year audit of herpes zoster in Asia-Pacific. BMC infectious diseases, 17(1), 1-39.

[30] Yawn, B. P., Merrill, D. D., Martinez, S., Callen, E., Cotton, J., Williams, D., & Loskutova, N. Y. (2022). Knowledge and attitudes concerning herpes zoster among people with COPD: an interventional survey study. Vaccines, 10(3), 420.

[31] Yawn, B. P., Merrill, D. D., Martinez, S., Callen, E., Cotton, J., Williams, D., & Loskutova, N. Y. (2022). Knowledge and attitudes concerning herpes zoster among people with COPD: an interventional survey study. Vaccines, 10(3), 420.