ORIGINAL PAPER

doi: 10.5455/medarh.2024.78.95-99
MED ARCH. 2024; 78(2): 95-99
RECEIVED: JAN 16, 2024
ACCEPTED: MAR 07, 2024

Community-Based Cross-Sectional Assessment Survey On Herpes Zoster Vaccination Practices

Nouf F. Bin Rubaian[1], Nada Alghamdi[1], Nada Alquorain[1], Serene R. Almuhaidib[2], Nouf A. AlShamlan[3], Assim M. AlAbdulKader[3], Moataza M. Abdel Wahab[3], Malak A. Al-Shammari[3]

[1]Department of Dermatology, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

[2]Department of Dermatology, Dammam Medical Complex. Dammam, Saudi Arabia

[3]Department of Family and Community Medicine, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Corresponding author: Serene Almuhaidib. Department of Dermatology, Dammam Medical Complex. Dammam, Saudi Arabia. E-mail address: SereneAlmuhaidib@gmail.com. ORCID ID: https://www.orcid.org/0000-0002-5336-3345.

ABSTRACT

Background: Herpes Zoster (HZ), also known as Shingles, is a commonly occurring infection especially among the elderly. It is due to the reactivation of the dormant virus in the sensory ends that were present since the primary infection with the virus. **Objective:** Our study aims at assessing the knowledge, attitudes practices beliefs and current barriers towards the Shingrix vaccine to fully understand where we stand and come up with proper recommendations to services these at-risk individuals and ultimately have a positive impact on the healthcare system. **Methods:** Questionnaire based cross sectional study using a translated version of a previously developed and tested questionnaire. **Results:** more than 8000 participants responded to the survey. The vast majority had chicken pox before and did hear about the vaccine from different sources. Most of the participants had minimal knowledge regarding the vaccine and were willing to take it regardless of some safety concerns. **Conclusion:** more efforts need to be conducted to enhance vaccine uptake in at risk populations in Saudi Arabia.

Keywords: Herpes zoster, shingles, vaccination, prevention, elderly.

1. BACKGROUND

Herpes Zoster (HZ), also known as Shingles, is a commonly occurring infection especially among the elderly. It is due to the reactivation of the dormant virus in the sensory ends that were present since the primary infection with the virus. Patients usually complain of a sever blistering skin infection markedly distributed on a specific neuronal prodrome (1).

Infection rates with the HZ virus are estimated to be three to five per one thousand at any given age. These rates increase with age to reach five to eight in one thousand people once they hit 50 years and may reach a whooping eight to twelve in one thousand people once they are above 80 years of age. These rates were carefully estimated depending on epidemiological data and medical records surveillance over extended time periods from all over the globe (2).

Infection rates in Saudi Arabia are no better. Although, no large epidemiological surveys were conducted to accurately estimate prevalence of HZ infection among Saudi elderly, rates have been reported to be as high as 38% in patients above 50 years of age (3).

Incidence of HZ infection increases with age and other risk factors like immunocompromised state due to anything from immune-cellular dysfunction to chemotherapy use. Patients usually complain from vague pain symptoms preceding the appearance of the pathognomonic skin infection. More than half of these infected individuals will suffer from post infection neuralgia which is devastating and significantly affects the quality of life (4).

Efforts to reduce the finical and social burden of this common infection have resulted in the recent FDA approval of the new recombinant vaccine against HZ, Shingrix. Primary studies show promise as the use of this vaccine may be 97%effective in reducing the chance of infection in adults over the age of 50. It has been in the market is Saudi Arabia for the past year and was widely advertised for by the ministry of health. Although these results have generated a positive hype in the medical community, the vaccine utilization, practices, and uptake abroad and nationally may be much more improved (5).

		Age								p-vale
		< 50 years old		50 -64 years old		65+ years old		Total		
		No.	%	No.	%	No.	%	No.	%	
Gender	male	2543	42.9	1208	61.5	170	66.9	3921	48.2	
	female	3378	57.1	755	38.5	84	33.1	4217	51.8	.0001
Educational level	Primary or below	35	0.6	92	4.7	36	14.2	163	2.0	
	secondary	1477	24.9	575	29.3	102	40.2	2154	26.5	
	tertiary or above	4409	74.5	1296	66.0	116	45.7	5821	71.5	.0001
health practitioner	No	4734	80.0	1752	89.3	211	83.1	6697	82.3	.0001
	Yes, physician	492	8.3	78	4.0	26	10.2	596	7.3	
	Yes, not physician	695	11.7	133	6.8	17	6.7	845	10.4	
Chronic diseases	None	3755	63.4	514	26.2	49	19.3	4318	53.1	.0001
	DM	550	9.3	646	32.9	105	41.3	1301	16	
	Hyperlipidemia	473	8	602	30.7	74	29.1	1149	14.1	
	Hypertension	432	7.3	586	29.9	89	35	1107	13.6	
	Depression	356	6	92	4.7	13	5.1	461	5.7	
	Hypothyroidism	309	5.2	138	7	18	7.1	465	5.7	
	Gout	157	2.7	146	7.4	8	3.1	311	3.8	
	osteoarthritis	121	2	97	4.9	18	7.1	236	2.9	
	Rheumatoid arthritis	92	1.6	92	4.7	17	6.7	201	2.5	
	CAD	34	0.6	53	2.7	16	6.3	103	1.3	
	COPD	25	0.4	29	1.5	15	5.9	69	0.8	
	others	382	6.5	69	3.5	7	2.8	458	5.6	

Table 1. Participant demographics and medical history. CAD: coronary artery disease COPD: Chronic obstructive pulmonary disease

2. OBJECTIVE

Our study aims at assessing the knowledge, attitudes practices beliefs and current barriers towards the Shingrix vaccine to fully understand where we stand and come up with proper recommendations to services these at-risk individuals and ultimately have a positive impact on the healthcare system.

3. MATERIAL AND METHODS

Questionnaire development

A previously developed, tested, and implemented survey was used in this survey. The questionnaire was utilized from a similar published article after taking the permission of the authors that made the survey accessible as supplemental material online after the publication of the article (6).

The questionnaire was translated by 2 independent field experts and tested on 30 people. Notes and unclarities were corrected in the final Arabic questionnaire version. The questionnaire had a demographic information part, knowledge assessment part and barriers to get the vaccine part. Participants were asked to answer to their best current knowledge.

Sampling

Calculation of the sample was based on the epi-info formula estimating the overall prevalence of the infection to be 35%, confidence interval of 95% and at least 80% response rate. We needed at least 1200 responses to include in the study. Participants were recruited online through social media platforms over a 2-month period. The study was conducted in an interview like pattern by trained medical students and interns on a volunteering basis and informed consent was taken from participants prior to enrolment.

4. RESULTS

The study comprised 8138 participants. The higher percent (72.8%) were less than 50 years old, 24.1% were 50 to 64 years old, while 254 participants (3.1%) were 65 years old or more. Almost half of them (51.8%) were females. Almost 72% had higher education and about 18% were health practitioners. The details are displayed in table 1 stratified by age groups.

Almost half of the participants (50.7%) mentioned that they had chicken pox before and 10.1% said they do not know. While 5.8% mentioned that they had herpes zoster before and 7% said they do not know. 43.5% knew someone who had Herpes zoster. Almost 64% mentioned that they heard of herpes zoster. Figure 1 displays the percents by age group.

Concerning Herpes zoster vaccine, 58.8% heard about the vaccine, almost 41% of them heard about it from family and friends, 33.6% from TV or Internet, 25.1% from physician or nurse, 12.2% from community organizations, 6.6% from the radio and 2.3% from other sources, namely, university (49 participants) courses (2), work (5), reading (5), discussion (1), clinic leaflets or MOH (36), MOH SMS (11), previous infection (13) and 3 participants mentioned hearing about the vaccine from the current survey. About one quarter (24%) mentioned they are willing to get the vaccine (with higher percent in older ages) and 34.1% were neutral about it. Figures 1 and 2 display the percents by age group.

Facts	Age			P value
	< 50 years old	50 -64 years old	65+ years old	
Still there is no drug to cure herpes zoster (shingles)	15.0%	15.3%	13.8%	.815
Herpes zoster (shingles) can be passed from one person to another	17.8%	20.9%	23.6%	.001
People who have had chicken pox before, they will be exposed to develop herpes zoster (shingles) as a result	21.2%	19.1%	22.4%	.102
Shingles (Herpes Zoster) can cause death	22.2%	17.3%	24.4%	.0001
One can get shingles (Herpes Zoster) more than once	29.1%	22.4%	29.5%	.0001
Pain associated with shingles is serious, with a duration of months or years	25.7%	28.9%	31.1%	.006
Shingles (Herpes Zoster) is common in Saudi Arabia	30.8%	31.4%	33.5%	.589
Young people may have herpes zoster (shingles)	40.0%	31.2%	34.6%	.0001
People with poor immune system are at high risk for herpes zoster (shingles)	38.5%	31.5%	36.6%	.0001
50+ years old mostly at risk for shingles (Herpes Zoster)	32.9%	40.8%	37.0%	.0001
Number of symptoms known of Shingles				
one	34.2%	40.2%	42.1%	.0001
Two	25.7%	27.7%	26.4%	.0001
3-5	5.9%	3.6%	2.4%	.0001
Shingles is a disease affecting skin and nerves	48.1%	50.5%	41.3%	.013

Table 2. Percent of correct responses to information about Herpes Zoster by age

The doctors or pharmacists recommended receiving Herpes zoster vaccine for 12.3% of the participants, displayed by age groups in Figure 1.

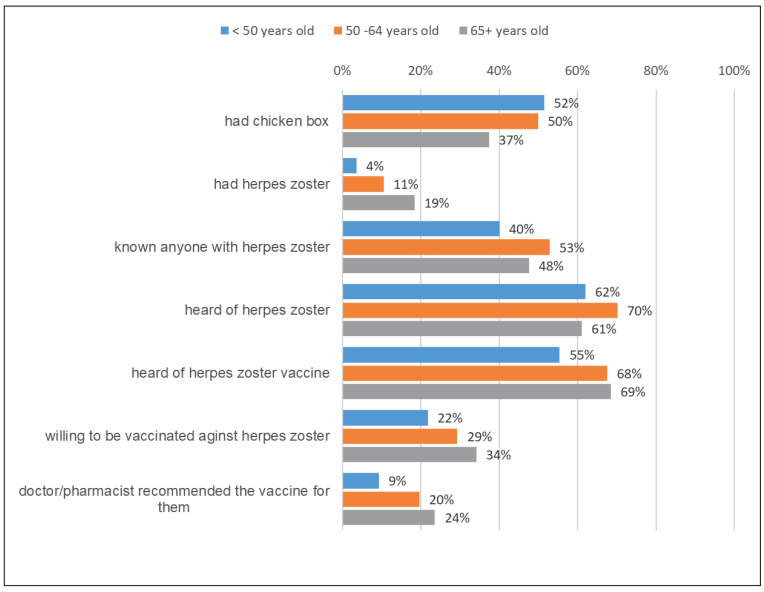

Figure 1. History of Herpes zoster and awareness and attitude towards vaccine.

Concerning Knowledge and Beliefs Towards HZ, the survey showed that correct answers were obtained only in 13.8% to 50.5% of responses. The least known information were that still there is no drug to cure HZ, HZ is infectious, people infected with chicken pox can still develop HZ and that HZ can cause death and one can be infected more than once. Table 2 displays in detail the percentage of correct answers for each survey question by different age groups.

Concerning Knowledge and Beliefs Towards HZ vaccine, the survey showed that correct answers were obtained only in 9.1%-42.6% of responses. The least known information was that HZ vaccine cannot treat active HZ. And the groups of people approved for vaccine. And that HZ vaccine cannot cause shingles. The detailed percents of correct answers for each survey question by different age groups are shown in Table 3.

The results revealed that 30% of participants were worried about getting HZ , the percent was higher in older age, females, lower education, non-physician healthcare workers, patients of chronic diseases, those who had chicken pox or not sure about it, those who heard of HZ or had HZ before . while 47.7% were neutral about it. Details are shown in Table 4.

About three quarters of the participants (74%) were interested to learn more about HZ prevention. Higher percents were obtained from females, higher education, those who had chicken pox, those who heard of HZ and patients of chronic diseases, yet patients with COPD were the lowest percent (61%). Details are shown in Table 4.

5. DISCUSSION

Our online survey result was mostly similar to Baalbaki et al study on knowledge, attitude and practice on herpes zoster infection and herpes zoster vaccine. However, there are few unique findings.

In both studies the majority have heard of herpes zoster vaccine and know at least someone who got infected

with herpes zoster (6). Unlike Al-Khalidi study where the mean of only 39.3% of HZ knowledge was known (8).

Less than half of participants are willing to take the vaccine, however in our study, 74% were interested to learn more about HZ prevention. Higher percents were obtained from females, higher education, those who had chicken pox, those who heard of HZ and patients of chronic diseases. This finding was similar to Alorini study on HZ vaccination among diabetics (9).

On the other hand, Alhothali reported that most paticipants in his study agreed that they would get the vaccine if the doctor recommended it. Only 5% took got vaccinated at the time of the study (7). This is same finding in Alkhalidi study (8).

In our study the main source of vaccine information is family and friends as Alkhalidi et al study and not television and Internet advertisements as Baalbaki's (6, 8). Yawn et al study among COPD patients showed that the main source of information was from primary care office (10).

About three quarters of the participants (74%) were interested to learn more about HZ prevention. Higher percents were obtained from females, higher education, those who had chicken pox, those who heard of HZ and patients of chronic diseases, yet patients with COPD were the lowest percent (61%). Alkhaldi et al found that participants with chronic diseases were 2 times more likely to hear about HZ vaccine than healthy participants (8). Other interesting findings, 63.4% did not recognize that the HZ vaccine can dramatically reduce the incidence of the disease. 89.5% were not aware that those infected with HZ can still get vaccinated. 80.3% did not know that those infected with chickenpox as children need to be vaccinated for HZ (8). However Alorini study showed, participants were more likely to be willing to get the HZ vaccine if they were male, knew about HZ infection, knew someone who had been infected with HZ, knew that there was an HZ vaccine, believed that the HZ vaccine was effective, knew that people were at higher risk of contracting HZ if they had had chickenpox, and knew that immunocompromised individuals were at a higher risk of contracting HZ (9). Unlike Yawn study among COPD, only (27.1%) had reported in that they knew that COPD increased HZ risk. He also mentioned participant-reported rates of discussion or recommendations by an HCP for influenza and pneumococcal vaccines were substantially higher than for HZ vaccines (10).

The least known information on herpes zoster infection were that still there is no drug to cure HZ , HZ is infectious, people infected with chicken pox can still develop HZ and that HZ can cause death and one can be infected more than once. Most of our participants didn't know that vaccine cannot treat active infection. This was similar to Alkhaldi et al, 78.3% of the participants were unable to recognize the link between chickenpox and HZ. Moreover, 58.7% of the participants correctly identified rash as a clinical feature of HZ.

However, other symptoms such as blisters and neuropathic pain were not recognized by most participants while fever was incorrectly reported as a clinical feature of HZ by some (8).

Out of 30% of our participants were worried about getting HZ, the percent was higher in older age, females, lower education, non-health care workers. On the other hand Baalbaki's found that with better understanding of vaccine efficacy, more participants are willing to take the vaccine regardless of the number of dose required and its cost. Alhothali etal mentioned that the most frequently reported barriers to get vaccinated are the lack of awareness about the vaccine (46.0%) and concerns about the possible side effects (20.2%), Alkhaldi et al participants preferred taking medications instead of vaccines, Alorini et al respondants HZ vaccination concerns about side effects (31.6%), self-perceived immunity from HZ (25.4%), generally not being in favor of vaccination (14.4%), doubts about HZ vaccine effectivity (9.5%), a belief that HZ is not a serious and severe infection (6.9%), low prioritization of the HZ vaccination (3.3%), Yawn et al participants worry about cost, not being recommended by a physician/nurse, and concerns about side effects. He found also interestingly, the recent COVID-19 pandemic has been reported to impact overall vaccine receipt and hesitancy, but almost all participants in this study reported that the pandemic had not changed.

Despite the high response rate in this study, we had a major limitation that the majority of respondents were younger than 50 years. This is understandable since younger populations are more likely to use social media and online material (6).

6. CONCLUSION

The majority of our participants have heard of herpes zoster vaccine and know at least someone who got infected with herpes zoster. About three quarters of the participants (74%) were interested to learn more about HZ prevention. Higher percents were obtained from females, higher education, those who had chicken pox, those who heard of HZ and patients of chronic diseases. About one quarter (24%) mentioned they are willing to get the vaccine (with higher percent in older ages).

- **Acknowledgments**: The authors would like to acknowledge patients who participated in this study.
- **Declaration of patient consent**: The authors certify that they have obtained all appropriate patient consent forms.
- **Author's contribution**: All authors gave a substantial contribution to the conception, design of the work, contribution of data, contribution to the acquisition, analysis, or interpretation of data for the work, and article preparing for drafting or revising it critically for important intellectual content. All authors gave final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
- **Conflicts of interest**: The authors declare no conflicts of interest.
- **Financial support and sponsorship**: Nil.

REFERENCES

1. Harp az R, Ortega-Sanchez IR, Seward JF; Advisory Committee on Immunization Practices (ACIP) Centers for Disease Control and Prevention (CDC). Prevention of herpes zoster: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep. 2008 Jun 6; 57(RR-5): 1-30; quiz CE2-4.
2. Kawai K, Gebremeskel BG, Acosta CJ. Systematic review of incidence and complications of herpes zoster: towards a global perspective. BMJ Open. 2014 Jun 10; 4(6): e004833. doi: 10.1136/bmjopen-2014-004833.
3. Binsaeedu AS, Bajaber AO, Muqrad AG, Alendijani YA, Alkhenizan HA, Alsulaiman TA, Alkhenizan AH. Clinical and epidemiological aspects of herpes zoster disease in a primary care setting in Riyadh, Saudi Arabia: A retrospective cohort study. J Family Med Prim Care. 2022 Oct; 11(10): 6433-6437. doi: 10.4103/jfmpc.jfmpc_933_22. Epub 2022 Oct 31.
4. Saguil A, Kane S, Mercado M, Lauters R. Herpes Zoster and Postherpetic Neuralgia: Prevention and Management. Am Fam Physician. 2017 Nov 15; 96(10): 656-663.
5. Keating GM. Shingles (herpes zoster) vaccine (zostavax(®)): a review of its use in the prevention of herpes zoster and postherpetic neuralgia in adults aged ≥50 years. Drugs. 2013 Jul; 73(11): 1227-1244. doi: 10.1007/s40265-013-0088-1.
6. Baalbaki NA, Fava JP, Ng M, Okorafor E, Nawaz A, Chiu W, Salim A, Cha R, Kilgore PE. A Community-Based Survey to Assess Knowledge, Attitudes, Beliefs and Practices Regarding Herpes Zoster in an Urban Setting. Infect Dis Ther. 2019 Dec; 8(4): 687-694. doi: 10.1007/s40121-019-00269-2. Epub 2019 Oct 3.
7. Alhothali OS, Alhothali AS, Hanif AA, Bondagji MF, Aljabri HM, Goweda R. A Cross-Sectional Study of the Knowledge, Practice, and Attitude Towards Herpes Zoster Vaccination Among the General Population in the Western Region of Saudi Arabia. Cureus. 2023 Jan 8; 15(1): e33508. doi: 10.7759/cureus.33508.
8. Al-Khalidi T, Genidy R, Almutawa M, Mustafa M, Adra S, Kanawati NE, Binashour T, Barqawi HJ. Knowledge, attitudes, and practices of the United Arab Emirates population towards Herpes Zoster vaccination: A cross-sectional study. Hum Vaccin Immunother. 2022 Nov 30; 18(5): 2073752. doi: 10.1080/21645515.2022.2073752. Epub 2022 May 27.
9. Al-Orini D, Alshoshan AA, Almutiri AO, Almreef AA, Alrashidi ES, Almutiq AM, Noman R, Al-Wutayd O. Acceptability of Herpes Zoster Vaccination among Patients with Diabetes: A Cross-Sectional Study in Saudi Arabia. Vaccines (Basel). 2023 Mar 14; 11(3): 651. doi: 10.3390/vaccines11030651.
10. Yawn BP, Merrill DD, Martinez S, Callen E, Cotton J, Williams D, Loskutova NY. Knowledge and Attitudes Concerning Herpes Zoster among People with COPD: An Interventional Survey Study. Vaccines (Basel). 2022 Mar 10; 10(3): 420. doi: 10.3390/vaccines10030420.