

## Assessment of Primary Healthcare Physicians' Awareness about Shingles in Al-Qassim Province: A Cross-sectional Study

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### RESERACH

Please cite this paper as: Alrashdi JJ, Aljarallah MA, Alrashdi AA, AlQahtani MS, Alharbi ZM, Alanazi MQ, Alreshidi AJ, Alharbi AS, Alqutaymi AA. Assessment of Primary Healthcare Physicians' Awareness about Shingles in Al-Qassim Province: A Cross-sectional Study. AMJ 2023;16(11):895-903.

<https://doi.org/10.21767/AMJ.2023.3993>

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### ABSTRACT

#### Background

Despite the significant public health implications of shingles (Herpes Zoster), there is a paucity of research examining the awareness levels among primary healthcare physicians, particularly in specific regions such as Al-Qassim Province. Understanding the awareness gaps is crucial for designing targeted interventions that enhance early detection, prevention, and management of shingles.

#### Methods

A descriptive, correlational cross-sectional design was employed for this study. The study was conducted at primary health care centers in Al-Qassim Province. Participants were selected during the period from January to March 2023. Population of the current study

were primary healthcare physicians in Al-Qassim Province, KSA. Study participants were selected by non-probability convenient sampling technique. Study instrument consists of two domains. First is sociodemographic characteristics of participants. Second is KAP assessment regarding shingles.

#### Results

The study included 252 participants. The mean age among study participants was 34.58 + 8.53 years with median age of 31 years. More than half of study participants were males (n= 154, 61.1 Per Cent) and half of study participants were general practitioners (n= 127, 50.4 Per Cent). Majority of study participants were Family Medicine practitioners (n= 228, 90.5 Per Cent). More than half of study participants were Saudi (n= 150, 59.5 Per Cent). In addition, more than half of study participants had 1-5 years of experience (n= 131, 52 Per Cent). Notably, 60 participants acknowledge the common occurrence of Shingles while 166 recognize the possibility of multiple occurrences. A significant proportion, 188 participants, are aware of Shingles' transmissibility, and 240 participants understand that older individuals and those with comorbid conditions face a higher risk. Additionally, 231 participants acknowledge the serious impact of Shingles on daily life, with 185 considering the potential need for hospital admission. Most of study participants believed that rash (n= 130, 51.6 Per Cent) and post-herpetic neuralgia (n= 116, 46 Per Cent) are the most common complications of shingles. Moreover, more than half of study participants reported that pain associated with shingles is moderate and has a duration of few weeks (n= 144, 57.1 Per Cent). Furthermore, more than half of study participants said that polymerase chain reaction (PCR) test is the diagnostic tool

for herpes zoster (n= 132, 52.4 Per Cent). Noteworthy results include a significant association between age and awareness, with the younger age group (25-35) showing higher awareness compared to older age groups (36-45 and 46-60). Proficiency level also demonstrates a substantial impact, as specialists and consultants exhibit higher awareness compared to general practitioners and residents. Nationality is another significant factor, with Saudis having higher awareness than non-Saudis. Experience plays a role, with those having more than 10 years of experience demonstrating greater awareness. **Conclusion**

Awareness increased with younger age, competency, Saudi nationality, and professional experience. Shingles' frequency, transmissibility, and impact on susceptible populations were well-known, demonstrating sophisticated views about the illness. These findings show that demographically appropriate education will enhance public health and patient care in the region.

### Key Words

Primary healthcare, Varicella zoster virus , Herpes Zoster.

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### Introduction

Varicella zoster virus (VZV) is a highly infectious virus that commonly infects school-age children during late winter, resulting in chickenpox infection<sup>1</sup>. Once VZV has established a foothold in the body, it lies dormant in the sensory dorsal root ganglia and cranial nerves. Shingles, also known as Herpes Zoster (HZ), is caused when a dormant herpes simplex virus reactivates and travels through a sensory neuron to its matching dermatomes<sup>2</sup>. Those who have already been exposed to chickenpox are the only people who will develop HZ<sup>3</sup>. HZ often manifests as a vesicular, non-crossing rash on the skin that crusts up in about 10 days. The discomfort associated with the rash may be quite diverse; patients could suffer hypersensitivity, tingling, aching, or scorching pain<sup>4</sup>. Herpes (including HZ) was shown to be one of the top 10 most expensive causes of skin diseases in a recent research that analyzed the healthcare economic burden of skin illness<sup>5</sup>.

The Herpes Simplex Virus (HSV) family, of which the Varicella Zoster Virus (VZV) is a part, is composed of enveloped, double-stranded DNA viruses. Varicella, often known as chickenpox, is caused by primary infection with the VZV virus. Viral latency is established in the sensory ganglia, rendering the infected person asymptomatic.

Herpes zoster (HZ), often referred to as shingles, is caused by the reactivation of the herpes simplex virus .

There were 8879 confirmed cases of VZV infection in 2016, making it the most common notifiable infectious illness in Hong Kong. More than 90 Per Cent of children at age 8 were found to have antibodies against VZV in a 1994 research, demonstrating the widespread prevalence of latent infection at that age. These people could be susceptible to HZ.

The lifetime prevalence of HZ has been estimated to range between 10 Per Cent and 32 Per Cent. According to research conducted at the University of Hong Kong, HZ is more common than previously thought, affecting 16 Per Cent of the population. Age is positively linked with the occurrence of HZ<sup>6</sup>. It is possible that those with impaired immune systems or those who suffer from long-term illnesses are more likely to get HZ.

A dermatomal rash, vesicular eruption, and neuropathic pain are the classic symptoms of HZ, a viral illness<sup>7,8</sup>. HZ may cause a wide range of secondary problems<sup>9</sup>. In older individuals, HZ may cause a chronic form of neuropathic pain known as post-herpetic neuralgia<sup>10</sup>. HZ ophthalmicus, HZ oticus, and bacterial skin infections are other significant complications that might reduce a patient's standard of living. They also put a heavy financial strain on healthcare<sup>11</sup>. An annual cost of nearly a billion dollars was anticipated for 2009 for the care of new cases of HZ in the United States. Antiviral medication, such as acyclovir, may be used to treat active HZ<sup>12,13</sup>.

The US Food and Drug Administration (FDA) authorized use of a live HZ vaccination for the prevention of HZ in immunocompetent individuals aged 60 or older in 2006<sup>14</sup>. In 2011, the FDA approved the vaccine for use in adults 50 to 59<sup>15</sup>. The incidence of HZ was decreased by 51 Per Cent and the pain and discomfort of postherpetic neuralgia was reduced by 66 Per Cent when the HZ vaccination was compared to the placebo in the Shingles Prevention Study<sup>16</sup>. Thereafter, similar surveys were conducted to gauge people's familiarity of HZ and preventative measures. Both the Herpes Zoster Global Awareness Survey<sup>17</sup> (which polled people in 22 countries) and the Herpes Zoster Knowledge, Attitude, and Practice in South Korea (which polled people in that country in 2009) provide evidence of the growing interest in this topic. The later research also looked into what factors help or hinder the spread of HZ vaccinations<sup>18-20</sup>.

There has been limited research conducted in the Kingdom of Saudi Arabia to assess the knowledge of and attitudes as well as practice towards HZ. As primary healthcare physician is the first one for people to seek help, they should be able to manage the case and relieve patients' symptoms. They should have high awareness level as well as good knowledge and attitude which is reflected by their practice. This study spot light on the awareness level of primary healthcare physicians about Shingles. This study aimed to explore these areas among primary health care physicians in Al-Qassim Province.

## Methods

### Study design and settings

A descriptive, correlational cross-sectional design was employed for this study. Since this study aims to primary healthcare physician's awareness toward shingles at a single point of measurement, this is the most appropriate design. This enables the researcher to measure the effect and the outcome at a single point of time. This study design gives reliable results with short time and less effort. The study was conducted at primary health care centres in Al-Qassim Province. Participants were selected during the period from January to March 2023.

### Population

Primary healthcare physicians in Al-Qassim Province, KSA.

### Sampling and sample size

Study participants were selected by non-probability convenient sampling technique. Sample size was determined according to the total number of primary healthcare physicians in Al-Qassim Province with a confidence level of 95 Per Cent and marginal error of 5 Per Cent using Epi-Info software.

### Data collection

Data was collected using a questionnaire filled through a self-administered approach.

### Instruments

Study instrument consists of two domains. First is sociodemographic characteristics of participants. Second is KAP assessment regarding shingles.

### Statistical analysis

Data obtained from questionnaire were entered and analyzed using SPSS program version 23 computer software. Sociodemographic data are presented using descriptive statistics as means, median, percentages and standard deviation. Independent T test and one-way Anova are used to show statistical significance among participants

characteristics. Chi square test is used to show relationship between categorical variables.

### Ethical Considerations

An approved permission was gained from (institution) to collect quantitative data from primary healthcare physicians. After explanation of study objectives, participants were asked to volunteer to participate at our study. In addition, verbal informed consent was gained from participants before asking questions.

## Results

The study included 252 participants. The mean age among study participants was 34.58 + 8.53 years with median age of 31 years. Age ranged from 25 to 60 years. More than half of study participants were males (n= 154, 61.1 Per Cent) and half of study participants were general practitioners (n= 127, 50.4 Per Cent). Majority of study participants were Family Medicine practitioners (n= 228, 90.5 Per Cent). More than half of study participants were Saudi (n= 150, 59.5 Per Cent). In addition, more than half of study participants had 1-5 years of experience (n= 131, 52 Per Cent). The median number of working hours per week was 40 hours. Vast majority are non-smokers (n= 230, 91.3 Per Cent). Only seven participants were infected with shingles (2.8 Per Cent) while 21 participants are vaccinated (8.3 Per Cent). More than half of participants have experience in managing cases with shingles (n= 142, 56.3 Per Cent). Table 1 provides detailed information regarding participants' sociodemographic characteristics.

Table 2 reveal important insights into the awareness of primary healthcare physicians regarding shingles. Notably, 60 participants acknowledge the common occurrence of Shingles while 166 recognize the possibility of multiple occurrences. A significant proportion, 188 participants, are aware of Shingles' transmissibility, and 240 participants understand that older individuals and those with comorbid conditions face a higher risk. Additionally, 231 participants acknowledge the serious impact of Shingles on daily life, with 185 considering the potential need for hospital admission. Notably, 139 participants recognize the preventability of Shingles, and a substantial majority, 229 participants, consider the Shingles vaccine safe. The study underscores the importance of enhancing awareness among primary healthcare physicians about Shingles, its risk factors, and preventive measures to optimize patient care and public health outcomes.

Most of study participants believed that rash (n= 130, 51.6 Per Cent) and post-herpetic neuralgia (n= 116, 46 Per Cent) are the most common complications of shingles. Moreover, more than half of study participants reported that pain associated with shingles is moderate and has a duration of few weeks (n= 144, 57.1 Per Cent). Furthermore, more than half of study participants said that polymerase chain reaction (PCR) test is the diagnostic tool for herpes zoster (n= 132, 52.4 Per Cent) (Figure 1).

Half of study participants are aware of shingles infection and the following table 3 provides the relationship between sociodemographic characteristics with awareness. Table 3 presents key findings on the relationship between sociodemographic characteristics and awareness regarding shingles among the study participants. Noteworthy results include a significant association between age and awareness, with the younger age group (25-35) showing higher awareness compared to older age groups (36-45 and 46-60). Proficiency level also demonstrates a substantial impact, as specialists and consultants exhibit higher awareness compared to general practitioners and residents. Nationality is another significant factor, with Saudis having higher awareness than non-Saudis. Experience plays a role, with those having more than 10 years of experience demonstrating greater awareness. Working hours per week exhibit a noteworthy association, with participants working 20-40 hours having higher awareness. Additionally, individuals who have managed shingles cases and those who have been vaccinated exhibit higher awareness. These findings underscore the importance of considering sociodemographic factors when designing awareness campaigns and educational interventions, particularly targeting older age groups, less experienced healthcare professionals, and non-Saudi individuals.

## Discussion

This research sheds light on the sociodemographic aspects of primary healthcare professionals' awareness levels about shingles in Al-Qassim Province. The findings are important. much, the research indicated that there is a correlation between age and awareness, with younger people (those in the 25–35 age bracket in particular) showing much greater levels of awareness than older ones. Based on these results, it seems that healthcare providers in their latter years could benefit from special educational initiatives aimed at closing the knowledge gap. Another important element was the degree of proficiency; residents and general practitioners

showed lower levels of awareness compared to consultants and experts. This highlights the need of customizing awareness programs according to job responsibilities and areas of expertise. The need for culturally relevant and adaptable educational interventions is highlighted by the fact that awareness was significantly associated with nationality, experience, and working hours per week. In order to improve patient care and public health outcomes in the region, it is crucial to develop strategies to increase primary healthcare providers' awareness and knowledge about shingles. This can be achieved by acknowledging and addressing sociodemographic variations.

Differences in the samples may explain why one research found an infection incidence of 90 Per Cent despite the fact that almost two-thirds of participants (78.1 Per Cent) had experienced chicken pox before. While 64.3 Per Cent of participants in a related study by Al-Khaldi, et al<sup>21</sup>. had heard of shingles, the great majority (80.4 Per Cent) had heard of the disease before. This disparity in background knowledge may be attributable to differences in demographics and environmental factors. The knowledge that chicken pox increases the likelihood of shingles was known by more than 60 Per Cent of those who took the survey. Among the risk factors for shingles, immunodeficiency was mentioned by 95.1 Per Cent of the individuals. People with lower immunity or advanced age are more likely to be familiar with the condition, thus this finding was not surprising.

Consistent with the results of the last research, over two-thirds of the participants (78 Per Cent) reported age, and over half (58.5 Per Cent of the participants) reported chronic conditions<sup>22</sup>. The shingles vaccine was known to most of the participants (88.2 Per Cent), which is significantly higher than the proportion observed in Yang Tu's congruent study (43.6 Per Cent); this disparity may be attributable to differences in the samples used for analysis<sup>23</sup>.

An overwhelming majority of respondents (86.3 Per Cent) felt that the shingles vaccine had the potential to cut the disease's prevalence in half or more. Consistent with the study's results, over two-thirds of participants (64.7 Per Cent) said that shingles vaccination is necessary regardless of whether the patient has had chicken pox before [16]. The majority of participants (82.4 Per Cent) were aware that individuals over the age of 50 should have the vaccination. This conclusion is consistent with the previous study's

findings, which also indicated that those over the age of 50 should receive the vaccine<sup>24</sup>.

Approximately 45.1 Per Cent of people said they would receive the shingles vaccination if their physicians recommended it, while 13.8 Per Cent said they were very unlikely to do so and 13.7 Per Cent said they were very unlikely. In addition, if their doctor suggested it, 39.2 Per Cent of participants would probably obtain the shingles vaccination. In a similar vein, Baalabaki et al. observed that 37.5 Per Cent of participants were open to being vaccinated based on a doctor's suggestion<sup>25</sup>.

One of the main reasons why people in the research didn't receive shingles shots was because 33 percent of them didn't think they were at danger. While one similar research indicated that cost and availability were the primary obstacles, this one discovered that 27.5 Per Cent of participants were worried about the vaccine's negative effects.

Out of a total of sixteen participants, an average knowledge score of  $9.51 \pm 3.14$  was recorded for shingles, whereas an average score of  $5.43 \pm 1.46$  was recorded for shingles vaccination. Results showed that participants' knowledge scores on shingles were substantially linked with their qualification level and current SCFHS classification. Knowledge scores regarding vaccinations were shown to be strongly related with gender, with females generally having more knowledge about shingles vaccines than men. However, gender had no significant effect on awareness of shingles. Consistent with the previous study's results, this one also indicated that women had more awareness and understanding about shingles and the vaccination.

The study exhibits several strengths that enhance the validity and reliability of its findings. Firstly, the use of a descriptive, correlational cross-sectional design is appropriate for the research objective, allowing a snapshot of primary healthcare physicians' awareness toward shingles at a specific point in time. This design facilitates efficient data collection with minimal time and effort. The study's focus on primary healthcare physicians in Al-Qassim Province adds to its relevance, providing insights into a specific regional context. The sample size determination using Epi-Info software and the employment of non-probability convenient sampling technique, while potentially introducing some bias, were practical choices given the accessibility of the study population. The use of a self-administered questionnaire for data collection is a strength, promoting candid responses. Despite its strengths,

the study has inherent limitations that should be considered when interpreting the results. The cross-sectional design restricts the ability to establish causality or capture changes in awareness over time. The use of convenient sampling might introduce selection bias, limiting the generalizability of findings beyond the study population. Self-administered questionnaires may be subject to response bias, and the reliance on participants' self-reporting could introduce information bias. Additionally, the study's focus on primary healthcare physicians may not provide a comprehensive view of the entire healthcare system's awareness. Furthermore, while efforts were made to ensure ethical considerations, the use of verbal informed consent might still pose a risk of social desirability bias. Finally, the study lacks a comparison with an external gold standard for awareness assessment, which could have strengthened the robustness of the findings.

## Conclusion

Results of this study shed light on awareness levels of 252 primary healthcare physicians regarding shingles in Al-Qassim Province. The findings reveal that age, proficiency level, nationality, experience, and working hours per week are significantly associated with participants' awareness of shingles. Notably, younger participants (25-35), specialists, Saudis, individuals with more than 10 years of experience, and those working 20-40 hours per week exhibited higher awareness levels. These insights highlight the need for targeted educational interventions and awareness campaigns, particularly tailored to older age groups, less experienced healthcare professionals, and non-Saudi individuals. Additionally, the study emphasizes the importance of considering working hours and specific healthcare roles in designing effective strategies to enhance awareness and knowledge about shingles among primary healthcare providers in the region.

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### Tables & Figures

**Table 1: Sociodemographic characteristics of study participants**

Variable	Frequency	Percent
<b>Age</b>	25-35	152 60.3
	36-45	68 27
	46-60	32 12.7
<b>Gender</b>	Male	154 61.1
	Female	98 38.9
<b>Proficiency level</b>	GP	127 50.4
	Resident	53 21
	Specialist	57 22.6
	Consultant	15 6
<b>Nationality</b>	Saudi	150 59.5
	Non-Saudi	102 40.5
<b>Experience</b>	1-5 Years	131 52
	5-10 Years	30 11.9
	>10 Years	91 36.1
<b>Working hours/week</b>	<20 Hours	5 2
	20-40 Hours	156 61.9
	>40 Hours	91 36.1
<b>Smoking</b>	Yes	22 8.7
	No	230 91.3
<b>Infected</b>	Yes	7 2.8
	No	254 97.2
<b>Managed</b>	Yes	142 56.3
	No	110 43.7
<b>Vaccinated</b>	Yes	21 8.3
	No	231 91.7

**Table 2: Participants’ awareness regarding Shingles.**

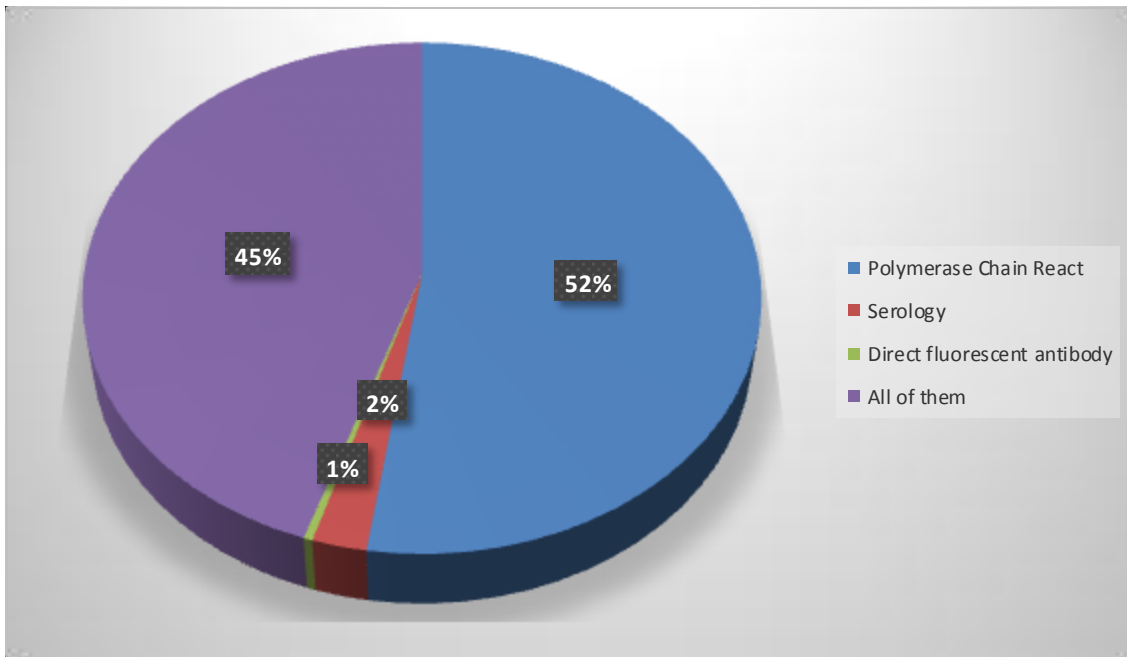
Item	Response		
	Yes	No	Don't know
Do you think that Shingles (Herpes Zoster) is common in Al-Qassim Province, KSA	60	78	114
Do you think that you can get shingles more than once?	166	70	16
Shingles can be passed from one to another	188	54	10
Older population and population with comorbid conditions are at higher risk of getting shingles than others	240	10	2
Shingles can cause serious illness or pain that interferes with daily life activities	231	18	3
Shingles can be serious enough that a person needs to be admitted to the hospital for management	185	38	29
Shingles might result in death	55	137	60
Shingles can be prevented	139	12	1
Shingles vaccine is safe	229	9	14
Do you think that herpes zoster (HZ) vaccine is an important clinical priority?	231	13	8
Do you think that herpes zoster (HZ) vaccine can treat active herpes zoster?	39	148	65
Shingles vaccine is effective	238	7	7
Shingles vaccine doesn't have side effects	54	142	56
A vaccinated individual could not get infected with shingles	180	57	15
Shingles vaccine might actually cause shingles	21	206	25

**Table 3: Relationship between sociodemographic characteristics and awareness.**

Variable		Aware	Not aware	P value
Age	25-35	35	99	<0.0001
	36-45	54	14	
	46-60	23	9	
Gender	Male	78	76	0.796
	Female	52	46	
Proficiency level	GP	45	82	<0.0001
	Resident	16	37	
	Specialist	56	1	
	Consultant	13	2	
Nationality	Saudi	51	99	<0.0001
	Non-Saudi	79	23	
Experience	1-5 Years	36	95	<0.0001
	5-10 Years	25	5	
	>10 Years	69	22	
Working hours/week	<20 Hours	5	0	0.001
	20-40 Hours	68	88	
	>40 Hours	57	34	
Smoking	Yes	9	13	0.373
	No	121	109	



Infected	Yes	6	1	0.121
	No	124	121	
Managed	Yes	101	41	<0.0001
	No	29	81	
Vaccinated	Yes	17	4	0.004
	No	113	118	



**Figure 1: Diagnosis of shingles as reported by study participants**