



RESEARCH ON KNOWLEDGE, ATTITUDES, AND PRACTICES OF VARICELLA ZOSTER VACCINATION AMONG HEALTHCARE WORKERS IN KASHMIR INDIA: BASED ON STRUCTURAL EQUATION MODEL.

Medical Science

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ABSTRACT

Background: Herpes zoster (shingles) is caused by reactivation of the varicella-zoster virus. Despite the recommended herpes zoster vaccine for individuals aged ≥ 50 years, its uptake remains low in India. **Aim:** This study aims to evaluate the Knowledge, Attitudes, and Practices of Varicella zoster Vaccination among Healthcare Workers in Kashmir INDIA. **Methods:** From June 2022 to July 2022, we conducted survey in four sentinel hospitals and four non-sentinel hospitals in J&K, INDIA. We calculated knowledge, attitude, and behaviour scores for each study participant and assessed the level of knowledge, attitude, and behaviour of the medical staff. An SEM was used to evaluate the relationship between latent variables, and the path graph between knowledge, attitude, and behaviour was established. **Results:** A total of 308 valid questionnaires were collected in this survey. Women (N = 104, 33.76%) were less than men (N = 204, 66.24%). An average age of 18-25 years old (n=67, 21.75%), 26-39 years old (N=221, 71.75%) 40-49 (N=16, 5.19%) and Greater than 50 year Old (N=5, 1.62%) respectively. Nurses (159, 51.62%) were the main subjects, followed by physicians (134, 43.50%), Health Professionals (N=3, 0.97%), Support Staff (N=4, 0.12%), Administrative staff (N=4, 0.12%) and other staff (N=3, 0.97%). The final SEM model was obtained after the model was modified and adjusted. A bootstrap analysis of path coefficients was carried out on the final model. Knowledge has a direct influence on behaviour. **Conclusion:** This study highlights the need for increased awareness and education among healthcare providers and the public in Kashmir India regarding shingles and its vaccine. The low vaccine uptake calls for effective strategies, such as awareness campaigns and provider reminders. Primary education and vaccine hesitancy influence willingness to be vaccinated.

KEYWORDS

Herpes zoster (shingles), Vaccine, Awareness, Healthcare providers.

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 India, the herpes zoster vaccine is available free of charge for individuals aged 50 years and above.

Several sociodemographic 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 [5]. Cultural and religious beliefs may also influence vaccine acceptance in some populations, highlighting the need for culturally sensitive interventions to increase vaccination coverage [6, 7].

Despite the availability of effective vaccines, herpes zoster vaccination rates remain suboptimal in many countries, including India [5, 8]. 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 India, limited studies have examined the practices related to the herpes zoster vaccine. This study aimed to assess the knowledge, attitudes, and barriers towards shingles and its vaccine among the health care workers in Kashmir India.

METHODS:

Study Subjects:

We used the multistage sampling technique to conduct this survey.

In the first stage, hospitals were divided into sentinel hospitals and non-sentinel hospitals according to whether they participated in the National varicella Surveillance System. We randomly selected four

out of eight sentinel hospitals in Kashmir, and randomly selected four non-sentinel hospitals where the selected sentinel hospitals were located as the research site. In the second stage, departments were divided into high-risk and low-risk departments according to whether they had usual contact with varicella patients. HCWs in high-risk departments, such as respiratory, infection, emergency, pediatrics, and fever clinic department, were randomly selected in each selected hospital as the study subjects. The same in low-risk departments, such as general surgery, obstetrics and gynecology, laboratory, and radiology, were randomly selected in each selected hospital as the study subjects. All participants who had worked in the hospitals for at least 1 year and gave their written and informed consent were eligible for inclusion.

Statistical analysis

Statistical analysis was carried out using RStudio (R version 4.1.1). We used frequencies and percentages to present categorical data, and numerical data were presented as the median and interquartile range (IQR). A multiple-response analysis was used to analyze variables with multiple selections. Group-based differences in participants' awareness and knowledge about shingles and the shingles vaccine were assessed using a Pearson's chi-squared test or a Fisher's exact test whenever applicable. Predictors of knowledge were assessed by constructing a multivariate linear regression analysis using the significantly associated factors from the group-based association analysis. Beta coefficients and 95% confidence intervals (95% CI) were used to present the outcomes of the regression analysis. A p-value of 0.05 indicated statistical significance.

RESULTS

The study included 308 participants aged 18-60 years, with a higher proportion of males (66.24%) than females (33.76%). More than half of the study participants (71.75%) were aged 26-39 years, followed by those aged 18-25 years (21.75%), (5.19%) aged from 40-49 years and < 50 years (1.62%). Among the health workers, Nurses (159, 51.62%) were the main subjects, followed by physicians (134, 43.50%), Health Professionals (N=3, 0.97%), Support Staff (N=4, 0.12%), Administrative staff (N=4, 0.12%) and other staff (N=3, 0.97%) [Table 1].

Table 1: Demographic profile of the study population:

Variables	Frequency (n=308)	%
Male	204	66.24

Female	104	33.76
Nurses	159	51.62
Physicians	134	43.50
Health professionals	3	0.97
Support staff	4	0.12
Administrative staff	4	0.12
Other staff	3	0.97

The participants' responses to questions about the awareness of Varicella zoster Vaccination is summarised in [Table 2].

S.NO	Awareness	No. of Answered individual (yes)	No. Of answered individuals (no)
1	Aware that vaccination is available for health care?	191	117
2	Is varicella zoster a potentially severe disease	164	144
3	Do you know of a vaccine against Varicella Zoster	58	250
4	Do you know of a vaccine against Varicella Zoster is available	54	254
5	Have you ever had the Varicella zoster vaccine before	4	304
6	Do you intended to get vaccine varicella zoster	2	306

We used Spearman's correlation to analyze the correlation among KAP one by one. There were positive correlations among influenza vaccine-related KAP ($r = 0.187, 0.317$, and 0.755 , all the values of P were significant). The details are shown in [Table 3].

Table 3: The correlation coefficient among latent variables.

Variables	yes	No
Mean	78.833	229.16
Variance	6477.76	6477.76
Observations	6	6
Pearson Correlation	-1	-
Hypothesized Mean Difference	0	-
df	5	-
t Stat	-2.28	-
P(T<=t) one-tail	0.035	-
t Critical one-tail	2.015	-
P(T<=t) two-tail	0.070	-
t Critical two-tail	2.570	-

There were 18.83% participants aware about the vaccine against Varicella Zoster is available and 81.16% were not aware regarding the same [fig 1].

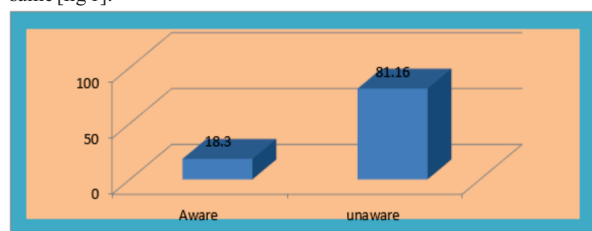


Fig 1

DISCUSSION:

Varicella zoster virus (VZV) is an exclusively human neurotropic alpha-herpes virus. Primary infection causes varicella (chickenpox), after which virus becomes latent in cranial nerve ganglia, dorsal root ganglia, and autonomic ganglia along the entire neuraxis. Years later, in association with a decline in cell-mediated immunity in elderly and immunocompromised individuals, VZV reactivates and causes a wide range of neurologic disease, including herpes zoster, postherpetic neuralgia, vasculopathy, myelopathy, retinal necrosis, cerebellitis and zoster sine herpette.

There was overall good knowledge among the health professionals in Kashmir regarding Varicella zoster virus. Over 70% of people in our sample were aware of HZ, while only about 18.3% knew about the HZ

vaccine. This outcome is in line with research done in South Korea, where nearly half of the participants knew about the HZ vaccine and more than 80% of them knew about HZ. Our results are also accordance a study done in the UAE population, where just 15% of people knew about the HZ vaccine, while just over 60% of people knew about HZ [9]. Additionally, a US study's findings show that participants' motivation to receive the vaccine was significantly influenced by their increased understanding of HZ and its vaccine [10]. Our results show that only less than 30% could answer most questions correctly. In addition, about 64% of the participants could not recognize the link between chickenpox and HZ. This may be due to the fact that more than 70% of participants learned about HZ from friends, family, or the internet, which are not the most reliable sources of information. Furthermore, postgraduates were better informed than others regarding HZ, consistent with a study from Hong Kong and the United Arab Emirates that found higher levels of education were associated with better HZ skills [11,9]. This illustrates the importance of education and providing the public with primary sources of information to minimize the spread of distorted facts and untruths. [V1]

The vaccination rates for HZ are extremely low in many different geographical areas, as demonstrated by many studies. In Saudi Arabia, only around 5% received the HZ vaccine. Only about 3% of people in the UAE and Hong Kong, and about 8% in the US, have received the HZ vaccine [11,9,10]. In our research, most participants were unaware that the vaccine was recommended for those over 50. This, combined with the fact that over 97% of participants showed negative attitudes and were unwilling to get the vaccine if a health care provider (HCP) recommended it, offers a possible strategy for encouraging individuals who are most in need of the vaccine to receive it.

The low uptake of the shingle vaccine (4.7%) among the study samples is concerning. Despite the availability of the vaccine, many individuals may not perceive themselves to be at a high risk of developing shingles or may be hesitant to receive the vaccine due to concerns about safety or efficacy. However, shingles can cause significant morbidity, including postherpetic neuralgia, which can result in chronic pain and a decreased quality of life. Therefore, efforts to increase vaccine uptake are crucial to prevent shingles and complications. Strategies such as education and awareness campaigns, provider reminders, and reducing vaccine cost barriers have been effective in increasing vaccination rates for other diseases, and could be applied to increase vaccine uptake by shingles [12,13].

The unexpected finding that participants with primary 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 [14,15]. 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 [16]. However, other studies have found no association between education level and vaccine hesitancy [17]. One possible explanation for the observed association between primary 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 [18].

The vaccine-related knowledge might be an important influential factor for improving influenza vaccination status among HCWs as it may lead to good attitude and practice, which ultimately boost influenza vaccination status. Previous research showed that the coverage rate of the influenza vaccine was extremely low among medical staff, though the government encourages medical staff to prioritize vaccine.

CONCLUSION:

We concluded that there is need for increased awareness and education among healthcare providers and the public in Kashmir India regarding

shingles and its vaccine. The low vaccine uptake calls for effective strategies, such as awareness campaigns and provider reminders. Primary education and vaccine hesitancy influence willingness to be vaccinated.

Conflict of interest: Nil

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