Brief Report

Health Belief Model in Hospitals: Determining the Effective Factors on Influenza Vaccination

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Abstract

The need for extensive vaccination of health care workers (HCWs) is felt more than ever. The aim of this study was to investigate the determinants of influenza vaccination using HBM in HCWs of Jahrom hospitals. This cross-sectional study was performed by multicenter method on 614 HCWs in Jahrom, southern Iran, in 2020. Data collection tools included Demographic and researcher-made Influenza Vaccination in HCWs Based on HBM Questionnaires whose validity and reliability were measured and evaluated. Analyzes have been performed using SPSS 21. Increasing age (P < 0.001) and perceived barriers (P < 0.001) have increased influenza vaccination, but perceived benefits (P = 0.002), cues to action (P = 0.001), and self-efficacy (P < 0.001) have had a negative impact on influenza vaccination among HCWs. Perceived severity (P = 0.7) was higher in people with a history of influenza vaccination, while such a difference was not observed in perceived susceptibility. Higher mean age, previous vaccination history, and perceived barriers are predictors of influenza vaccine participation behavior.

Keywords: Hospitals, Influenza Vaccines, Health Belief Model

1. Background

The effect of influenza vaccination on reducing the burden of the disease and its mortality has been proven (1). During a mild seasonal flu outbreak, about 23% of health care workers (HCWs) are likely to become infected (2), which can be an important role in infections occurring in patients (3).

To increase the participation of HCWs in vaccination programs, it is very important to look at their perceptions and find barriers (4). Health belief model (HBM) has been widely used in the study of preventive health behaviors. The HBM includes the constructs of perceived susceptibility, perceived severity, perceived barriers, perceived benefits, cues to action, and perceived self-efficacy (5). The HBM has been used in recent years in various studies, including influenza vaccination behavior (6, 7), vaccination propensity, and other behavioral aspects of the COVID-19 (7). So far, no study has been conducted based on the application of prevention models to investigate the reasons for the reluctance of HCWs to get the influenza vaccine. The risk of influenza has increased significantly for HCWs and patients due to the outbreak of the COVID-19 disease, so the need for extensive vaccination of HCWs is felt more than before.

2. Objectives

The aim of this study was to investigate the determinants of influenza vaccination using HBM in HCWs of Jahrom hospitals.

3. Methods

This cross-sectional study was performed by multicenter method on 614 HCWs (medical, administrative, and service personnel) in three hospitals in Jahrom, southern Iran, in 2020. Data collection tools were demographic and researcher-made Influenza Vaccination in HCWs Based on HBM Questionnaires. After the tool-making section, validity was confirmed by eight experts. By the test-retest method for reliability, the overall Cronbach's alpha value

of the questionnaire was 0.78. After completing the 614 questionnaires by the participants within two months, analyzes have been performed using SPSS software version 21, by descriptive statistics, Chi-square, Univariate, and multivariate logistic regression tests.

4. Results

The findings indicated that 154 of the participants (25.1%) had a history of influenza vaccine injection. The mean age of hospital staff with a history of influenza vaccination (34.7 ± 7.4) was significantly higher than those without a history of vaccine injection (31 ± 7.3) ($P < 0.001$). The highest history of influenza vaccination was observed in central core (76.3%), service section (14.4%), clinic (5%) and radiology-laboratory (4.3%), respectively ($P = 0.005$). Moreover, 45.4% of people with a history of vaccine injection intended to be vaccinated in the year of the study. Perceived barriers score ($P < 0.001$) and perceived severity score ($P = 0.7$) were higher in people with a history of influenza vaccination than in those without a history of vaccination, while such a difference was not observed in perceived susceptibility.

Univariate analysis showed factors such as: age 1.1 (1.04, 1.1), perceived barriers 1.05 (1.02, 1.07), perceived benefits 0.97 (0.95, 0.99), cues to action 0.96 (0.94, 0.98) and self-efficacy 0.95 (0.93, 0.98) were effective in influenza vaccination (Tables 1 and 2).

Age has been an influential variable in receiving the flu vaccine. Higher age was associated with most vaccine acceptance. The Alenazi (8) and Pichon (9) studies showed that influenza vaccine acceptance was associated with older age. These results are justified given that older HCWs have more experience with health risks and feel more at risk.

The results showed that among the HBM constructs, only perceived barriers could predict the greater participation of HCWs in influenza vaccination. While perceived benefits, cues to action, and self-efficacy had the opposite effect. Also, the study showed that the perceived severity was higher in people with a history of vaccination but not in perceived susceptibility. Consistent with our findings, in Coe's study, perceived barriers predicted vaccination behavior against influenza (10). Although in Hu's study, high levels of perceived susceptibility, perceived severity of influenza, perceived benefits of vaccination, cues to action were positively associated with the acceptance of influenza

vaccination among pregnant women, a high level of perceived barriers of vaccination was a negative determinant (11). These conflicting results in various studies suggest that multiple factors may influence people's decision to participate in influenza vaccination. Nevertheless, the perceived barriers in most studies seem to have predicted participation in influenza vaccination. It should be said that the most important factors that cause low participation of HCWs in influenza vaccination are the obstacles or problems they feel in doing so, despite their relatively high knowledge.

Finally, the vaccination coverage of HCWs in studied hospitals was low. Higher mean age, previous vaccination history, and perceived barriers are predictors of influenza vaccine participation behavior.

Footnotes

Table 1. Determining the Effect Sociodemographic Variables on Receiving or Not Receiving the Flu Vaccine

Variable	Uni-variable OR (95% CI)	P-Value	Multivariable OR (95% CI)	P-Value
Age	1.1 (1.04, 1.1)	< 0.001	1.1 (1.04, 1.1)	< 0.001
Sex (female /male)	0.6 (0.4, 0.8)	0.001	-	-
Education				
Associate degree/ high school	0.4 (0.1, 1.2)	0.09	-	-
Bachelor's degree/ high school	0.3 (0.2, 0.5)	< 0.001	-	-
MA or higher/ high school	0.9 (0.4, 1.8)	0.70	-	-

Table 2. Determining the Effect of HBM Constructs on Receiving or Not Receiving the Flu Vaccine

Variable	Uni-variable OR (95% CI)	P-Value	Multivariable OR (95% CI)	P-Value
Perceived barriers	1.05 (1.02, 1.07)	< 0.001	1.04 (1.02, 1.1)	0.001
Perceived susceptibility	0.90 (0.9, 1.02)	0.90	-	-
Perceived severity	1.005 (0.9, 1.03)	0.70	-	-
Perceived benefits	0.97 (0.95, 0.99)	0.002	0.90 (0.95, 0.99)	0.02
Cues to action	0.96 (0.94, 0.98)	0.001	-	-
Self-efficacy	0.95 (0.93, 0.98)	< 0.001	0.96 (0.94, 0.99)	0.04

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