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Prevalence of influenza vaccine hesitancy at a tertiary care hospital in Riyadh, Saudi Arabia

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ABSTRACT

Background: Influenza vaccine hesitancy is a major problem worldwide, with significant public health consequences. We aimed to determine the prevalence of influenza vaccine hesitancy and the effect of vaccine awareness campaigns on vaccine acceptance among three groups (parents, adult patients, and healthcare workers [HCWs]) at King Abdulaziz Medical City, a tertiary care hospital in Riyadh, Saudi Arabia.

Methods: The study was conducted during the 2015–2016 winter season. Participants anonymously completed a validated questionnaire on influenza vaccine hesitancy.

Results: Of the 300 study participants, 17% ($n = 51$) expressed vaccine hesitancy. The most common reasons given for vaccine refusal were: "It doesn't have any positive effect or benefit" ($n = 11$ [21%]), "I don't need it because I'm healthy" ($n = 9$ [17%]), and "I think it causes serious side effects" (n = 7 [13%]). The most common sources of information about the vaccine were awareness campaigns (98/267 [36%]) and medical staff (98/267 [36%]). One hundred and sixty-three [54%] respondents knew that the effect of the influenza vaccine lasts up to 1 year. There was no significant relationship between education level and receiving influenza vaccination. The study showed that confidence towards the Saudi Ministry of Health and medical doctors among three groups of participants was very high; 97% of adults, 95% of parents, and 93% of HCWs expressed trusted information provided to them by the Ministry of Health, and 97% of adults, 99% of parents, and 90% of HCWs trusted their physicians' information.

Conclusion: Influenza vaccine hesitancy was low at KAMC. The most common reason for vaccine refusal was believing that it had no positive effect and that it is unnecessary. The most common sources of information for influenza vaccine were awareness campaigns and medical staff. Participants had high levels of trust in both the Saudi Ministry of Health and doctors.

Introduction

The World Health Organization (WHO) Strategic Advisory Group of Experts on Immunization developed the following definition of vaccine hesitancy: "Vaccine hesitancy refers to a delay in acceptance or refusal of vaccination despite availability of vaccination services." Vaccine hesitancy is complex and context-specific, varying across time, location, and type of vaccine. It is influenced by factors such as complacency, convenience, and confidence [1]. Vaccine hesitancy has become of increasing concern in recent years. Worldwide, hesitancy has contributed to a resurgence in diseases that were declining or were nearly eradiated, as evidenced by poliomyelitis outbreaks in northern Nigeria and measles and pertussis outbreaks in parts of the US and Europe, for example. These new outbreaks have resulted in significant public health setbacks and resource wastage [2–7].

Vaccines are one of the most successful tools in the prevention and eradication of disease worldwide, responsible for saving millions of children's lives every year. Despite this, there has been a disturbing increase in vaccine hesitancy. The recent anti-vaccine and misinformation campaigns linking vaccines to various diseases have contributed to this hesitancy. In the US, parents are

Abbreviations: HCW, healthcare worker; WHO, World Health Organization.

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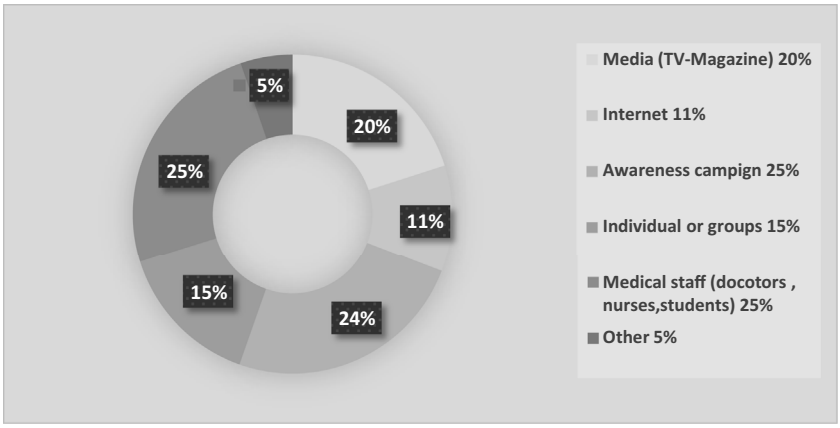

Fig. 1. Sources of knowledge about the influenza vaccine for the study population.

increasingly choosing to delay or refusing one or more of the recommended childhood vaccines [8].

Influenza is a major source of morbidity and mortality in children, as well as a huge financial and social burden [9,10]. Despite this, influenza vaccine rates remain low worldwide [11]

Across the literature, some strategies were found to address vaccine hesitancy and were evaluated for their impact on either vaccination uptake and/or changes in knowledge, awareness, or attitudes. A study concluded that multicomponent and dialogue-based interventions were most effective [12].

A study performed among college students in US universities showed very low uptake of influenza vaccination. It was noted that healthy students lacked the motivation to receive it. However, after a targeted awareness campaign about the benefits and risks of vaccination in healthy individuals and the need to understand access to and utilization of health care by college students, the number of students accepting the vaccine increased significantly, showing that awareness and counter-measures can improve vaccine uptake [13]. Healthcare workers (HCWs) are one of the primary target groups for influenza vaccination; however, HCW vaccine uptake remains low worldwide and locally in Saudi Arabia, with rates near 40% [14,15].

Influenza vaccine hesitancy is an international problem and the underlying reasons and social influences are variable. It is essential to know the size of this problem and the reasons behind it in order to direct our efforts towards a solution. We conducted a cross-sectional study to assess the prevalence of influenza vaccine hesitancy among parents, adult patients, and HCWs at King Abdulaziz Medical City, Riyadh, Saudi Arabia. Our goal was to determine some of the reasons behind this hesitancy in order to target potential future efforts in reversing this problem.

Material and methods

This cross-sectional study was conducted at King Abdulaziz Medical City, a 1500-bed tertiary center that serves National Guard employees, soldiers, and their dependents in Riyadh, Saudi Arabia. The study was conducted during the winter season of 2015–2016. Our study population was randomly sampled and consisted of three participant groups: (i) parents accompanying their children (aged up to 14 years) to the outpatient clinics for routine medical follow-up or to receive other vaccinations, (ii) adult patients attending the outpatient clinics for routine medical follow-up, and (iii) HCWs.

A questionnaire to evaluate influenza vaccine hesitancy was developed and validated in a multiple-step process: The questionnaire was formulated, then presented to two infectious diseases consultants for expert evaluation. We then multiplied the number of questions by 2, resulting in 32 participants from each group, which was the number required for the pilot study. After conducting a pilot study, the questionnaire was reviewed and data analysis was performed to ensure that the participants understood the questions and that the questionnaire was appropriate. The finalized questionnaire was completed anonymously by participants after they signed an attached consent form. Responses were taken via interviews with participants in the three groups.

The questionnaire included data on demographics (age, sex, chronic illnesses, education level), willingness to take the vaccine both in the past and in the future, reasons for not taking the vaccine, knowledge of the vaccine and sources of this knowledge, and confidence in the vaccine. We defined hesitant participants as those who stated that they had not received the influenza vaccine before and would not take it in the future despite availability, which is consistent with the WHO definition.

The total number of participants required was 300, based on Raosoft sample size calculation (http://www.raosoft.com/samplesize.html) with a margin of error set as 10%, a confidence level of 95%, and a population size of approximately of 20,000. SPSS 23 software was used to analyze the common reasons for influenza vaccine hesitancy and to assess knowledge. In addition, to determine the best method for improving influenza vaccine uptake, confidence in doctors and in the Saudi Ministry of Health was assessed, as was the role of education in the decision to refuse influenza vaccination. We acquired a consent form from King Abdullah International Medical Research Center that stated the title, the main authors, the objectives, and the ethical considerations of our study and attached it to each questionnaire. Participants were required to sign it before starting the interview. It was also made clear to the participants that they could withdraw from the survey at any time they desired.

Results

There were 100 participants in each group. The HCW group comprised nurses (58%), physiotherapists (20%), physicians (11%), technicians (7%), and pharmacists (4%). The parent group comprised similar proportions of mothers (54%) and fathers (46%); 65% of the children were boys and 34% were girls. The adult patient group comprised mostly men (74%) (Table 1).

Overall, 17% ($n = 51$) of participants completely refused influenza vaccination and were thus deemed vaccine-hesitant and this percentage is considered not significant, while 83% ($n = 249$) had been vaccinated in prior seasons or were planning to be vaccinated in the future (Table 2).

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