

Factors Encouraging A Change of Health Care Worker's Attitudes Who Are Hesitant or Opposed to Receiving A Vaccine Against the COVID 19 Virus and Increasing Vaccination Rate

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1.1 Abstract

Background: Although vaccines were found to be effective in preventing and reducing morbidity, the last two decades saw a steep increase in anti-vaccination and vaccine hesitancy [1].

In March 2020, the World Health Organization (WHO) declared the ongoing COVID-19 outbreak as pandemic with global economic, political, vocational, and social ramifications. COVID-19 vaccines are considered safe and effective in reducing morbidity rates. Nevertheless, according to the ministry of health only 59% of the Israeli population is vaccinated against COVID-19 [2].

In 2016 the WHO defined vaccine hesitancy as the "reluctance or refusal to vaccinate despite the availability of vaccines". Vaccine hesitancy curtails the ability of health services to safely and effectively prevent morbidity and to preserve public health [11].

Results from surveys show that there is little variation in the factors affecting vaccine hesitancy in healthcare workers (HCWs) across countries [7].

From December 2020 to March 2021 hospital workers were given the opportunity to vaccinate in the workplace instead of vaccinating through their HMOs (Health Maintenance Organizations). To date, most workers had already vaccinated and only 150 remained unvaccinated. 93 (1.6%) of them refuse to vaccinate although they have no medical conditions that preclude vaccination. 190 (3.2%) out of the vaccinated group have done so from April to July 2021 and we shall refer to them as "vaccine hesitant".

The aim of this survey was to determine the underlying causes of vaccine hesitancy and refusal in hospital personnel, in order to better plan interventions. The data was collected by performing a cross-sectional study using anonymous online surveys. After processing and analyzing the data, we are planned future intervention.

Methods: The data had been collected using a cross-sectional study by administering an online anonymous questionnaire. After evaluation of the data, an intervention is planned to be developed.

Results: The survey was answered by 42 staff members. From them, 22 (52.4%) were late to receive the vaccine, while 20 (47.6%) refused it.

No differences were found between the two groups in background variables.

There were no significant differences between the two groups in positions regarding the coronavirus. The question with the highest average was related to the belief that "COVID is like a normal flu.

There were no significant differences in COVID-19 knowledge sources between the hesitant group and the anti-vaccinationist group. The most prominent knowledge sources were the government and the ministry of health, doctors, information from the press or the hospital, and information from social media.

Significant differences were found between the two groups in the feeling that they have sufficient information in selected topics concerning the coronavirus. The response averages were higher among the hesitant group than among the anti-vaccinationist group in relation to knowledge about the severity of the disease and side effects of the vaccine.

There were no significant differences between the two groups in the motivations for their refusal to vaccinate. The most common motive in both groups was that “I don’t need the vaccine” or that “I am not at risk from the disease”.

There were no significant differences between the two groups in the motives for their eventual vaccination. The most common reason for vaccination in both groups was “pressures from my superiors at work”.

Conclusion: *The findings of the present study show that HCWs who are directly involved in treating COVID patients are more likely to vaccinate. We therefore opine that more emphasis should be placed on other sectors of HCWs, such as administration, para-medical professions, and more. It is imperative to understand what are the motivations and characteristics of each sector, and perform appropriate adaptations in propaganda materials according to the sector’s specific needs. We predict that the continuation of experiments showing the effectiveness of the vaccine will increase vaccination rates. A combination of different strategies, such as educational campaigns, the publication of studies, and relevant instruction will increase vaccination rates in hesitants.*

1.2. Scientific Background

Vaccination is the most common medical technology in the world today, and is one of the ten most important public health achievements of the 20th century. The WHO deemed vaccination a moral imperative and determined it to be the most effective method of reducing morbidity, improving public health, and furthering human development [1].

Nevertheless, vaccine hesitancy and resistance has been known since the invention of vaccines, and has seen a dramatic surge in the last two decades. Vaccine hesitancy is rooted in ideologies and religious beliefs that developed in previous centuries with the introduction of vaccines. It is historically tied to social and political factors and forms an expression for class struggle and the inherent tension between the individual's right to bodily integrity and the collective right to health. The main objection to vaccine hesitancy is the subsequent decrease in herd immunity, and the outbreak of preventable diseases [1].

Empirical studies identified different factors that encourage or discourage people to vaccinate in general, and specifically in adult populations. Among these were personal, social, cultural, structural and political factors [5, 16, 19]. Psychological and social factors include the perception of the properties of diseases and vaccines, awareness and positions on vaccination and health, personal habits and social influences [5, 11, 20]. Likewise, it is possible to appeal to a person’s sense of humanity and altruism, so that they may see themselves as taking part in eradicating a disease [3].

In January 2020, the WHO declared an outbreak of a novel respiratory syndrome in Wuhan province, China. To date, COVID-19 has spread to 189 countries. 45 million people were confirmed to have contracted the virus and suffered from varying severities of illness. There are more than six million recorded deaths. The pandemic has yet to run its course and has been the cause of numerous economical, vocational, political and social ramifications [7].

Razai and Chaudhry (2021) have found that in multiple countries, 50-60% of the general population have consented to be vaccinated against COVID-19, while 18% resisted vaccination [13]. HCWs are at risk to contract COVID-19 and have a significant influence on the general population in regard to vaccination [7]. The

following factors were mentioned to affect COVID-19 vaccination hesitancy and resistance in healthcare workers:

- Lack of trust in the safety and reliability of the vaccine and in the credibility of its manufacturer.
- Flawed apprehension of the severity of the disease and its ramifications and complications.
- Inconsistent policy on the part of health organizations.
- Lacking accessibility.
- Refusal to vaccinate against seasonal influenza [6, 16].

Di Gennaro, Murri, Segala, et al. (2021) have found no appreciable differences in the factors encouraging or discouraging vaccination between the general population and medical personnel, and related this find to the heterogeneity of medical staff, and to the fact that many of them are ignorant in immunology and vaccination theory [7].

In their review paper, Finney Rutten, Zhu, Leppin, et al (2021). have presented evidence-guided strategies that influence the decision making process in the general public and in HCWs who refuse vaccination, and that may increase vaccination rates. These strategies operate on 3 levels [14]:

1. Interpersonal: Interactions with experts - grounding the recommendation to vaccinate in reliable and methodical research, and presenting up-to-date evidence.
2. Individual: Adaptation of the instructional material to a given person, while addressing the causes of their hesitancy.
3. Policy and Community: Constant publication of current information (about the safety and advantages of the vaccine), lectures, campaigns, and improving the accessibility and ease of vaccination.

In conclusion, resistance against the COVID-19 vaccine and vaccines in general is well-known among both the general population and HCWs. The decision not to vaccinate has a direct impact on the workers themselves, their patients, the organisation, and public opinion. The positions of hesitants and/or anti-vaccinationists are influenced by a variety of factors, and can sometimes be changed through apt informational campaigns.

1.3 Rationale

The majority of hospital workers have received one (If they already contracted COVID-19) or two doses of the vaccine.

According to data supplied by the staff clinic (July 2021), 150 staff members have yet to receive the vaccine. 93 of them refuse to vaccinate although they have no medical conditions that preclude vaccination. 190 out of the vaccinated group have done so from April to July 2021 and we shall refer to them as “vaccine hesitants”. The vaccine hesitants group has roused our interest and led us to commit to this study. A thorough understanding of the positions of these individuals and the factors that led to eventually vaccinate can assist the organization and HCWs in dealing with obstacles, myths, or concerns of any other nature, and enable the rational decision to vaccinate, and thus protect the health of the HCWs, their patients, colleagues and others around them.

The Aims of the Study:

1. Understanding the causes of vaccine hesitancy and anti-vaccination.
2. Understanding the positions and factors that encouraged the hesitants to come around and vaccinate.

Hypothesis:

It is possible to increase the rate of vaccination among individuals who hesitate or refuse to receive the COVID 10 vaccine using informational campaigns that refer to the factors that delay the decision to vaccinate.

1.4. Contribution of the Study to the Field

Using evidence-based data we will be able to develop a dedicated organisational propaganda campaign that could counteract the causes of COVID-19 vaccine hesitancy and anti-vaccination. We thus intend to improve COVID-19 vaccination rates and possibly vaccination rates in general.

1.5. Data Collection Methodology

After receiving an Helsinki committee approval to conduct a cross-sectional study, we circulated a link to an online survey among a group of vaccine hesitants and anti-vaccinationists. The survey was put together using Nemala, a software that facilitates anonymous data collection. The distribution of the link was performed through the personnel clinic, in order to maintain responders’ anonymity. Responders were able to submit their answers through computers or mobile devices. A reminder to fill the survey was sent twice, with a gap of two weeks between each reminder. Those who responded were not reminded.

1.6. Study Tools

The survey asked for the following demographic data points:

- Part I - background information: Socioeconomic variables - age, sex, marital status, vocational attributes, education, seniority, and basic medical status.
- Part II - Habits of vaccination against the seasonal flu.
- Part III - knowledge, positions and beliefs about COVID-19 vaccines; the perception of the disease itself (severity, the actual existence of the disease). This part was based on the 2013 Israeli Knowledge, Attitudes and Practices survey (KAP), which was converted to concern COVID-19.

- Part IV - for the hesitants group - why did they change their position on the vaccine?

1.7. Statistical Analysis

The data will be analyzed using the software SPSS, version 21. The study’s variables were analyzed using theoretical and deductive statistics, in order to find correlations between demographic and vocational variables and positions on the vaccines, and the causes for the eventual decision to vaccinate.

1.8. Results

- The survey was answered by 42 staff members. From them, 22 (52.4%) were late to receive the vaccine, while 20 (47.6%) refused it.
- No differences were found between the two groups in background variables
- The proportion of those who had previously received seasonal flu vaccines was significantly higher among the hesitant group than among the anti-vaccinationist group (82% against 35%, $p = 0.0004$, respectively). In those who forewent Covid vaccination, the main motivation for their refusal was the belief that they were not at risk for complications related to the flu.
- The rate of vaccination against Covid in the previous half a year was significantly higher among the hesitant group than among the anti-vaccinationist group (85% against 10%, $p < 0.0001$, respectively).
- There were no significant differences between the two groups in positions regarding the coronavirus. The question with the highest average was related to the belief that “COVID is like a normal flu” (see Table 2).
- There were no significant differences in COVID-19 knowledge sources between the hesitant group and the anti-vaccinationist group. The most prominent knowledge sources were the government and the ministry of health, doctors, information from the press or the hospital, and information from social media (see Table 3).
- Significant differences were found between the two groups in the feeling that they have sufficient information in selected topics concerning the coronavirus (see Table 4). The response averages were higher among the hesitant group than among the anti-vaccinationist group in relation to knowledge about the severity of the disease and side effects of the vaccine.
- There were no significant differences between the two groups in the motivations for their refusal to vaccinate. The most common motive in both groups was that “I don’t need the vaccine” or that “I am not at risk from the disease”.
- There were no significant differences between the two groups in the motives for their eventual vaccination. The most common reason for vaccination in both groups was “pressures from my superiors at work”.

1.9. Discussion

Vaccine hesitancy remains a significant obstacle to herd immunization in the general population. Rapid development of

vaccination technology against the coronavirus, combined with fears about the safety of the vaccine have led to a major increase in vaccine hesitancy.

In a study involving 1941 participants from both the general population and HCWs, Dror et al. (2020) found that men are more given to vaccination than women [6]. In our study, there were no differences between groups in regard to background variables. Similarly, to our study, Dror et al. (2020) also found that HCWs who had personally treated COVID patients and individuals who defined themselves as part of a risk group were more given to vaccination. They identified two subpopulations with lower vaccination rates - nurses and parents (fearing that they may not be able to take care of their children). Likewise, HCWs who were not personally involved in treatment of COVID patients were more hesitant than the general population [8]. In a study involving 4116 participants, it was found that lack of trust in the efficacy of the vaccine was the main motivation for hesitancy. Fear of potential side effects and the perception of the coronavirus were additional motivations for vaccine hesitancy and refusal. Individuals with considerable knowledge about COVID-19 or those who had been vaccinated against the seasonal flu were more disposed to receive the vaccine. Collaboration between the press and experts in informing the public about infectious disease was found to reduce hesitancy rates [11].

Another study involving 104 medical students has produced similar findings about vaccination and hesitancy. A quarter of participants pointed at a lack of clear credible information. A correlation was also found between side-effects from previous vaccination and hesitancy to receive an additional vaccine: the severity of side-effects from previous vaccinations increased hesitancy levels and reduced the willingness to receive another vaccine. Interestingly, it was found that students who had lost their employment, missed school days, or felt socially isolated during lockdowns were less hesitant and expressed willingness to vaccinate. Moreover, a correlation was found between having family members who had been ill with COVID and greater willingness to vaccinate. This study too has found that hesitant students felt a lack of knowledge about the vaccine or were motivated by personal beliefs about the safety and the severity of side-effects of the vaccine [9].

As a rule, efforts by the government in its fight against the coronavirus included varied techniques, including a special emphasis on HCWs. The findings of the present study show that doctors and other workers who are directly involved in treating COVID patients are more likely to vaccinate. We therefore opine that more emphasis should be placed on other sectors of HCWs, such as administration, para-medical professions, and more. It is imperative to understand what are the motivations and characteristics of each sector, and perform appropriate adaptations in propaganda materials according to the sector's specific needs.

A consistent policy across the ministry of health and the hospital's management improves workers' willingness to receive the

vaccine. Coherent and consistent information about the disease and accessibility of vaccination likewise increase vaccination rates in hospital workers [15].

The main concern of hesitant is quality assurance (vaccination technology) and side-effects of the vaccine. Therefore, we believe that an educational campaign can increase vaccination rates against COVID-19 [8].

We predict that the continuation of experiments showing the effectiveness of the vaccine will increase vaccination rates. A combination of different strategies, such as educational campaigns, the publication of studies, and relevant instruction will increase vaccination rates in hesitant. Many studies recommend campaigns encouraging vaccination specifically directed at the hesitant population in order to combat misinformation and to raise vaccination rates. Our study has also found that strategies encouraging vaccination among hospital staff by the hospital's management constituted a positive influence on medical staff to vaccinate. Similarly, to the literature, we also believe that using digital and electronic tools and avoiding overly complex and cumbersome instructions can improve the willingness of medical teams to vaccinate.

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