

Acceptance of and Concerns About COVID-19 Vaccination: An Online Survey among Israel Defense Forces Soldiers

ABSTRACT

Large-scale administration of a safe and effective COVID-19 vaccine is imperative for changing the trajectory of the pandemic. Public acceptance of a vaccine is a key determinant of our ability to reach the herd immunity threshold. An anonymous, web-based survey was administered to soldiers in an Israel Defense Forces (IDF) special forces unit. Of 318 respondents, 199 (62.6%) responded "Yes", 72 (22.6%) responded "No" and 47 (14.8%) responded "Unsure" to the question of whether they intend to receive the vaccine. Combat service was found to have a significant correlation with the above responses. Reasons for concern centered around the safety profile of the vaccine. Advocacy measures aiming to dispel misinformation and better inform the military population along with the general public are crucial for attaining maximum acceptance of COVID-19 vaccines.

During December of 2020, the US Food and Drug Administration (FDA) granted an emergency use authorization (EUA) to two mRNA-based coronavirus disease 2019 (COVID-19) vaccines [1]. On December 19th, Israel began its nationwide deployment of COVID-19 vaccines, soon to achieve an unprecedented pace – highlighted by the administration of the first vaccine dose to over 10% of the population by December 31st, 2020 [2]. With the COVID-19 pandemic continuing to cause substantial morbidity and the disruption of societies and economies, large-scale administration and acceptance of a safe and effective vaccine is currently perceived as the foremost measure for changing the pandemic's trajectory [3].

The Israel Defense Forces (IDF) began vaccinating its soldiers for COVID-19 on December 28th, 2020. In order to gauge the acceptance of COVID-19 vaccinations, estimate vaccine allotment and identify potential concerns amongst soldiers, an anonymous, web-based survey was administered to soldiers serving in an IDF special forces unit. The survey was limited to four questions regarding service type (mandatory or permanent), platoon, intention to be vaccinated (yes, no or unsure), and main concern regarding the vaccine.

Between December 19th and 31st, 2020, a total of 318 responses were recorded: 272 (85.5%) by mandatory-service soldiers (aged 18 to 21) and 46 (14.5%) by permanent-service soldiers (aged > 21), while 192 (60.4%) soldiers were from combat platoons and 126 (39.5%) from non-combat platoons (Table 1). When asked whether they intend to receive the approved COVID-19 vaccine if administered within the unit, 199 (62.6%) responded "Yes", 72 (22.6%) responded "No" and 47 (14.8%) were "Unsure" (Figure 1). An independent chi-squared test indicated a significant correlation between combat service and intent to receive the vaccine (chi-squared=18.61, $p<0.001$). Soldiers who responded that they are unsure or do

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not intend to receive a COVID-19 vaccine were asked to select or describe in free-text their main concern about receiving the currently approved COVID-19 vaccines. The most prominent responses concerning vaccine hesitancy are displayed in Table 1.

The results of this study demonstrate that despite widely available public data and media coverage on the efficacy and safety of the currently approved COVID-19 vaccine inoculations, several key concerns remain among the study population. The most prominent concerns raised in this survey centered around the safety profile of the vaccine, specifically the short time frame in which the safety profile was assessed and the vaccine's side effects (Table 1).

Figure 1: Intention to be vaccinated among surveyed IDF soldiers.

Intention to be vaccinated against COVID-19

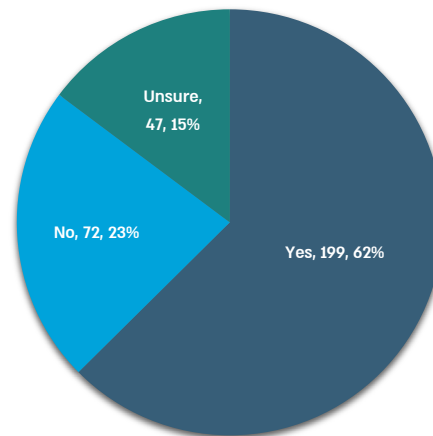


Table 1: Reported intention to receive the COVID-19 vaccine, stratified according to combat vs. non-combat service and mandatory vs. permanent service. Reasons for concern regarding vaccination as expressed by soldiers responding "No" or "Unsure". ^a – Chi-squared test

Reported intention to be vaccinated – number of respondents (%)

| | Total (n=318) | Combat (n=192) | Non-Combat (n=126) | <i>p</i> -value | Mandatory (n=272) | Permanent (n=46) | <i>p</i> -value |
|--------|---------------|----------------|--------------------|---------------------|-------------------|------------------|--------------------|
| Yes | 199 (62.6) | 135 (70.3) | 64 (50.8) | <0.001 ^a | 165 (60.7) | 34 (73.9) | 0.212 ^a |
| No | 72 (22.6) | 41 (21.4) | 31 (24.6) | | 64 (23.5) | 8 (17.4) | |
| Unsure | 47 (14.8) | 16 (8.3) | 31 (24.6) | | 43 (15.8) | 4 (8.7) | |

Reported intention to be vaccinated – number of respondents (%)

| | |
|--|----|
| I would like to wait for more vaccine safety information | 66 |
| I am concerned about the vaccine's side effects | 21 |
| I am concerned about the rapid development of the vaccine | 15 |
| I do not believe in the vaccine's efficacy | 10 |
| I have no reason | 1 |
| Military training and accidents kill more than the coronavirus | 1 |
| I am afraid of needles | 1 |
| I am just not interested | 1 |

It is estimated that attaining herd immunity for COVID-19 requires vaccinating 60%-70% of a given population [3]. Our results, along with other surveys on the topic performed over the last few months [4-6], demonstrate that public acceptance of the vaccine is at above 60%. However, such surveys need to be replicated and tailored to specific groups in order to better target data gaps and misinformation, leading to more effective large-scale vaccination programs.

Our study is limited by a fairly small sample size and the potential for both response and selection bias, due to the anonymous and web-based nature of the survey. Additionally, the survey was conducted

in a single IDF special forces unit and the study population may not be representative of the general IDF soldier population. Full anonymity was ensured as to avoid any authoritarian or hierarchal influence associated with soldier identification.

The findings of this survey may aid in the construction of advocacy interventions, informing the military population on the efficacy, side effects and development data of the vaccines currently being administered. Such efforts, if carried out by qualified health care personnel, may dispel misinformation, increase vaccine uptake and help swiftly reach the threshold for herd immunity upon vaccine availability.

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