

Attitudes Toward COVID-19 Vaccination Among Athletic Trainers in Early 2021

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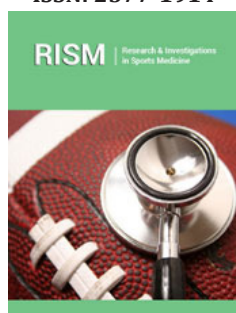
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Abstract

Following the widespread transmission of the novel coronavirus responsible for COVID-19, the first COVID-19 vaccine received emergency use authorization in December 2020. The purpose of this study is to describe the attitudes toward available COVID-19 vaccines among athletic trainers. 258 certified athletic trainers (age=43±12 years; years of certified experience=19±12 years) completed an electronic survey via email that collected data on demographics, face mask usage, and attitudes toward available COVID-19 vaccines. Data were downloaded and analyzed using a commercially available statistics package (SPSS Statistics Version 26, IBM, Armonk, NY). Measures of central tendency (means, standard deviations, frequencies) were calculated for all survey items. The majority of respondents reported that they were comfortable with the current level of authorization for available COVID-19 vaccines. Most athletic trainers stated that they would receive a COVID-19 vaccination when it was available, but that they would rather it be a voluntary choice rather than mandated by an employer or government body. The majority of athletic trainers reported personal, household, and vulnerable population safety as the primary considerations for receiving a COVID-19 vaccination. In general, these factors were more important to participants than were public perception or concerns over infringements of personal liberties. Given that athletic trainers continue to work in day-to-day patient care, it is important to consider the best means of educating athletic trainers on the potential benefits of COVID-19 vaccinations.

Introduction

Coronavirus disease 2019 (COVID-19) is a highly infectious respiratory disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 was first reported in late 2019 in Wuhan, China [1]. Symptoms include fever, cough, fatigue, loss of smell, loss of taste, body aches, shortness of breath, nausea, vomiting, and diarrhea [1]. In severe cases, patients have experienced potentially fatal pneumonia, septic shock, metabolic acidosis, and coagulation dysfunction [2]. Efforts during the first several months of the COVID-19 pandemic focused on mitigating its spread, including testing, contact tracing, enhanced hygiene efforts, use of face coverings, and social distancing [3-6]. In December 2020, the first vaccine against COVID-19 received Emergency Use Authorization (EUA) from the United States Food and Drug Administration [7].

As the global COVID-19 pandemic progressed, many communities and organizations enacted legislation and rulings aimed at limiting the transmission of COVID-19. The National Collegiate Athletic Association (NCAA) opted to cancel all remaining championships for the 2020 spring semester [8]. The majority of institutions and athletic conferences followed suit and cancelled the remainder of their seasons [9], including many secondary schools, who postponed or suspended athletic activities and face-to-face instruction [10,11]. Subsequently, a study reported that many athletic trainers were suffering from increased levels of depression and anxiety [12]. These findings suggested that some athletic trainers experienced adverse

mental health effects as a result of the pandemic while participating in their role as frontline healthcare workers. Further research is underway to evaluate the epidemiology, diagnosis, treatment, and prevention of COVID-19 [1-4]. To date, no publications appear to be available on attitudes toward recently authorized COVID-19 vaccines. Therefore, the purpose of this study is to describe the attitudes of athletic trainers toward COVID-19 vaccination.

Methods

Design

This cross-sectional study collected data by internet-based survey as approved by the University of Texas at Tyler IRB.

Participants

Participants were recruited by emailing the head athletic trainers at NCAA Division I, Division II, and Division III institutions, Commission on Accreditation of Athletic Training Education (CAATE) accredited program directors, and members of various regional and local athletic training organizations using publicly available databases. Recruiting was completed using the snowball technique; participants were asked to forward the study invitation to certified colleagues. A total of 258 certified athletic trainers completed the study (age = 43 ± 12 years; years of certified experience = 19 ± 12 years). Participant demographics are listed in Table 1.

Table 1: Participant demographic information.

Demographic Factor	Criteria	Responses
Gender	Male	132, 51.2%
	Female	124, 48.8%
	Prefer not to answer	2, 0.01%
Degree Earned	Professional Bachelor's	29, 11.2%
	Professional Master's	58, 22.5%
	Post-professional Master's (in Athletic Training)	47, 18.2%
	Post-professional Master's (not in Athletic Training)	94, 36.4%
	Clinical Doctorate	4, 1.6%
	Academic Doctorate	26, 10.1%

Data collection

An email was sent in January 2021 to all prospective participants inviting them to participate in a survey accessible via hyperlink to a web-based server (Qualtrics Inc., Provo, UT). The email contained information about the investigators, the purpose of the study, and the nature of the survey. A follow-up email was sent two weeks after the initial email, and the survey was closed a week later prior to statistical analysis.

Instrument

Following the questions on informed consent and demographics, the survey posed questions about the professional settings in which respondents practice and whether they had returned to in-person

work following a COVID-19-related stay-at-home order. Participants were also asked about opportunities they had had to receive a COVID-19 vaccine and about their current vaccination status. The survey also solicited information about the participants' attitudes toward vaccination against COVID-19 and about their primary considerations when deciding whether to undergo vaccination. The survey comprised 22 questions, including one question obtaining consent to participate in the study, three multiple-choice and two fill-in-the-blank questions about demographics, one multiple-choice question on employment status, four multiple-choice questions regarding face mask usage, two multiple-choice questions about access to and receipt of a COVID-19 vaccination, five multiple-choice questions on attitudes toward the available COVID-19 vaccines using a Likert scale ranging from "Strongly Agree" to "Strongly Disagree", and two ranking questions about their leading considerations when deciding on whether to receive a COVID-19 vaccine. Participants' responses were downloaded and analyzed using a commercially-available statistics package (SPSS Version 26, IBM, Armonk, NY). A total of 258 athletic trainers responded to the invitation, provided informed consent, and completed the survey; all 258 responses were included in the statistical analyses. Measures of central tendency (means, standard deviations, frequencies) were calculated where appropriate.

Result

Access to and receipt of a COVID-19 vaccination

The majority of participants reported not having access to a COVID-19 vaccine (82.2%, $n = 157$). Of those who had access to the vaccine, 62% ($n = 26$) elected to receive the vaccine. In other words, most of the athletic trainers surveyed who had access to a COVID-19 vaccine chose to receive it.

Face mask usage at work and in public

Of the respondents, 98.1% reported that their employers had allowed them to return to work ($n = 253$). The majority of participants reported that, upon returning to their workplace, they were required to wear a face mask during interactions with patients (98.1%, $n=253$) and coworkers (96.5%, $n=249$). Table 2 outlines the self-reported percentage of time spent wearing a face mask when in public, excluding their place of employment.

Table 2: Frequency of face mask use in public (excluding the workplace) among athletic trainers during the COVID-19 pandemic.

Frequency	Responses
100% of the time	204, 79.1%
75% of the time	30, 11.6%
50% of the time	15, 5.8%
25% of the time	6, 2.3%
0% of the time	3, 1.2%

Attitudes toward COVID-19 vaccination

The majority of responding athletic trainers agreed, at least to some extent, that they felt the current level of FDA authorization for

available COVID-19 vaccines was appropriate to support their use. When considering whether to receive a COVID-19 vaccine, more respondents reported concerns of personal and community safety rather than concerns of public judgment or of having their liberties

infringed upon. Table 3 provides a breakdown of the questions on respondents' attitudes toward the currently available COVID-19 vaccines.

Table 3: Responses to statements regarding attitudes toward the currently available COVID-19 vaccines.

Statement	Most Common Responses (%)
I feel comfortable with the current level of authorization for available COVID-19 vaccines.	Agree, 107 (41.5%) Strongly Agree, 78 (30.2%) Somewhat Agree, 34 (13.2%)
If I had the opportunity, I would take a COVID-19 vaccine.	Strongly Agree, 126 (48.8%) Agree, 62 (24.0%) Disagree, 23 (8.91%)
I would feel safer if my local or state government required COVID-19 vaccinations.	Somewhat Agree, 64 (24.8%) Agree, 49 (19.0%) Strongly Agree, 47 (18.2%)
I would prefer that receiving a COVID-19 vaccine be left to individual responsibility rather than to a mandate from my employer.	Strongly Agree, 76 (29.5%) Agree, 52 (20.2%) Somewhat Agree, 46 (17.8%)
I would prefer that receiving a COVID-19 vaccine be left to individual responsibility rather than to a mandate from my state or local government.	Strongly Agree, 78 (30.2%) Agree, 52 (20.2%) Somewhat, 48 (18.6%)
Please rank the following considerations when deciding whether to receive a COVID-19 vaccine.	Personal Safety, 189 (73.3%) Community Safety, 46 (17.8%) Concern for having my personal liberties infringed upon, 13 (5.0%)
Please rank the following parties based off how strongly you consider them when deciding whether to receive a COVID-19 vaccination.	Yourself, 109 (42.3%) Your family members living in your household, 85 (33.0%) Vulnerable populations, 29 (11.2%)

Discussion

The primary purpose of this study was to describe the attitudes of credentialed athletic trainers toward the currently available COVID-19 vaccines. A secondary purpose was to describe current face mask use habits in public, excluding the workplace, among athletic trainers. The majority of participants agreed on some level that they were comfortable with the current level of authorization granted to available COVID-19 vaccines (Agree = 41.5%, Strongly Agree = 30.2%, Somewhat Agree = 13.2%). Most of the respondents reported that they would feel safer if the government mandated COVID-19 vaccinations; however, most participants also reported that they preferred the choice to be voluntary. These findings suggest that, while the majority of the athletic trainers surveyed believed that the available COVID-19 vaccines are effective at mitigating the spread of COVID-19, they nevertheless prefer that the vaccine be received voluntarily.

Most athletic trainers reported that their employers had required or allowed the return to the workplace. In such cases, the majority were required to wear face masks during patient and coworker interactions. When not at work, most athletic trainers reported wearing face masks in public. At the time of this study, the majority of athletic trainers had not had an opportunity to receive a

COVID-19 vaccination. Among those who had, the majority elected to be vaccinated. The most important considerations for these behaviors appear to be personal safety, household safety, and the safety of vulnerable populations. A possible limitation of this study was the small sample size. While the total number of responses is similar to or higher than other survey-based studies with athletic trainers, an exhaustive and definitive statement on the attitudes of athletic trainers toward COVID-19 vaccinations would require a larger scale study [13,14]. Given the novelty of this study, however, the results nevertheless warrant consideration.

There is a need for additional research on the opinions held toward COVID-19 vaccinations among athletic trainers and other allied healthcare professionals. Future studies may wish to investigate the impact of the COVID-19 pandemic on athletic trainers' moods, job security, and mental health. Given athletic trainers' role in providing day-to-day patient care, it is crucial that the stresses and obstacles they have encountered due to the COVID-19 pandemic be investigated. In conclusion, the majority of athletic trainers surveyed felt comfortable with the current level of authorization for available COVID-19 vaccinations in early 2021. The majority of respondents reported that their employers required the use of face masks during patient and coworker interactions and that personal, household, and vulnerable population safety were

their primary considerations for receiving a COVID-19 vaccine. In general, these factors were more important to participants than were public perception or concerns over the infringement of personal liberties. Given the high level of involvement of athletic trainers in day-to-day patient care, emphasis should be placed on the best means of educating athletic trainers about the potential benefits of COVID-19 vaccinations.

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