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RESEARCH ARTICLE

The mental health of university students to attitudes toward COVID-19 vaccination

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ABSTRACT

The current study aimed to identify the relationship between mental health and the attitudes toward receiving the COVID-19 vaccine. It also aimed to determine the levels of mental health and attitudes towards receiving the COVID-19 vaccine among students of the Faculty of Education at Al-Azhar University, Gaza, Palestine. To achieve the study's objectives, the researchers used the descriptive approach, and the study sample consisted of 200 students from the Faculty of Education, Al-Azhar University, Gaza, Palestine. The study used the mental health scale, which consists of three dimensions (psychological stress, depression, and anxiety) and attitudes toward receiving the COVID-19 vaccine scale; it consists of three dimensions (cognitive, behavioral, and emotional), and the researchers prepared such scales. Through SPSS, The results showed a positive relationship between mental health and attitudes towards receiving the COVID-19 vaccine among students of the Faculty of Education at Al-Azhar University, and the level of mental health at the total degree was medium. The story of trends towards receiving the COVID-19 vaccine, on the entire degree, was medium. According to the research outcomes, the researchers recommend providing the students with psychological intervention such as counseling and guidance to decrease negative psychological symptoms and upgrade their positive attitude toward the COVID-19 vaccine.

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INTRODUCTION

COVID-19 is a disease of the human respiratory system caused by severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2), which transmits from person to person via respiratory droplet (Ghosh, 2020). The symptoms include fever, cough, and fatigue, mild to severe respiratory illness appearing after an incubation period of approximately 5.2 days. COVID-19 originated in Wuhan city, Hubei Province of China, with 41 cases of pneumonia of unknown etiology.3 Until February 2020, China was the only country affected by Covid-19, but from the beginning of March, it started to spread rapidly to South Korea. In the second week of March, cases quickly increased in Italy, Spain, and other European countries, and in the third week of March, issues were seen in the United States and other

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countries in the Americas. World Health Organization declared COVID-19 a pandemic on 11 March 2020. Globally, the reported cases of COVID-19 between 31 December 2019 and 20 March 2020 were 2,42,488, including 9,885 deaths (Wang et al., 2020). In late January 2021, there were more than 90 million cases of COVID-19 and more than 2 million deaths from infection. Many countries are accelerating vaccine research and the development of vaccination programs against COVID-19. As of early 2022, there are more than 170 vaccines in the preclinical stage and more than 60 vaccines in clinical development (World Health Organization, 2022)

Vaccines are effective interventions that can reduce the high burden of diseases globally. However, public vaccine hesitancy is a pressing problem for public health authorities. With the availability of COVID-19 vaccines, little information is available on the public acceptability and attitudes towards the COVID-19 vaccines (El-Elimat et al., 2021). Despite the progress of vaccine research very quickly, the general acceptance of vaccination and negativity represent significant challenges for societies and countries due to the rapid spread of the disease and the inability to bear the tiring measures taken from the closure of educational institutions, including universities (Lin et al., 2020).

Despite the importance of COVID-19 vaccination and the success of its application worldwide, hesitancy to take the vaccine is shared among various populations and across cultures and education levels. Indeed, the WHO declared vaccine hesitancy as one of the top ten threats to global health in 2019 (Sallam et al., 2021). According to the Strategic Advisory Group of Experts on Immunization, vaccine hesitancy is “a delay in acceptance or refusal of vaccination despite the availability of vaccination services (de Figueiredo et al., 2020). Present-day endorsement of vaccine hesitancy is a known phenomenon, with roots accompanying vaccination since its scientific inception. The phenomenon of vaccine hesitancy has resulted in the revival of some infectious diseases that could have been eradicated through mass vaccination, such as measles, poliomyelitis, and pertussis (Zaidi et al., 2021).

The factors influencing COVID-19 vaccine acceptance and the intention to vaccinate are individuals’ perceptions of the benefits and efficacy of the vaccine and their psychological state (Szilagyi et al., 2021). One study suggested that vaccine hesitancy among university students is associated with psychological factors and that an intervention targeting these factors may increase vaccination rates (Dratva et al., 2021). Moreover, although understanding the willingness to be vaccinated may assist in disseminating vaccination programs, the intention to be vaccinated may change over time. For example, research investigating the desire to follow up with the COVID-19 vaccination showed that 74.1% of the participants were willing to receive a vaccine in April 2020. In contrast, only 56.2% were willing to do so in December 2020 (seven months later). Although the reasons for this phenomenon are unclear, it is possible because they had been exposed to various speculations and media reports amid rapid changes in the infectious situation (Barello et al., 2020).

Willingness to accept a vaccine against COVID-19 is a critical issue in determining the success of a vaccination program (Lin et al., 2020). As it is essential to examine the public acceptance of vaccines, previous studies have examined the acceptance rate of the 2009 H1N1 influenza vaccine. For example, during the 2009 A/H1N1 pandemic, the vaccine acceptance rates ranged from 50% to 64% among adults in the USA (Gidengil et al.,2012). In China, over 60% of study respondents had intended to receive a vaccination. Recent studies examining the acceptance rate of COVID-19 vaccines found rates ranging from 23% to 91% among American medical students, adults, and Chinese adults. Other associated factors of vaccine acceptability are also essential to implementing a vaccination strategy (Reiter et al., 2020; Bai et al., 2021).

It is estimated that approximately 70% of the population must acquire immunity via natural infection or vaccination to achieve adequate herd immunity to the 2019 novel coronavirus disease (COVID-19) (Randolph & Barreiro, 2020). In addition, to developing a safe and effective vaccine, vaccination hesitancy is a crucial public health concern, which can be influenced by the individual, group, and contextual factors (Dong, Du, & Gardner, 2020). Anti-vaccination sentiment represents a significant hurdle to overcome toward achieving the threshold for herd immunity, with as few as 50% of Americans committed to getting a COVID-19 vaccine before its availability. Recent surveys conducted in November and December 2020 found that a quarter of individuals in the US and Canada were hesitant to get a COVID-19 vaccine (Gerretsen et al., 2021). The governments and public health authorities worldwide have been tasked with ensuring adequate vaccine acceptance and thus vaccination coverage to ensure herd immunity is achieved.

Even though vaccination is one of the most effective measures to prevent COVID-19, the vaccination acceptance rate varies across countries and populations. As trustworthy healthcare providers, nursing students' attitudes, knowledge, and willingness to receive the COVID-19 vaccine may significantly affect the population's present and future vaccine acceptance rates; however, studies related to the vaccine acceptance rates among university students are limited.

The topic of trends is one of the essential topics in psychology because trends are determinants directed by knowing the nature of an individual's tendency towards a particular issue or situation, which enables us to predict the direction of his behavior if he is exposed to a stimulus. The action is available before him, and his behavior will be lively and active to achieve this topic. However, if he has negative trends, his activity will be characterized by lethargy and hesitation to complete this topic (Belkacem & Nabil, 2017). The theoretical approaches that explain trends agree that the psychological trend is based on three components that interact with each other to give the general framework of the trend, which are: the cognitive component, which is the individual's beliefs, thoughts, and perceptions about the subject of the trend and the moving part, and it refers to the individual's feelings and emotions towards the subject of the trend and the behavioral component and refers to the individual's readiness to do by specific actions and responses that are consistent with his tendencies (al-Mafraji, 2021).

In one of the previous studies, among 23,143 students who completed the survey, 22,660 participants were included in the final analysis with an effective rate of 97.9% after excluding invalid questionnaires. 60.6% of participants would be willing to receive the COVID-19 vaccine, 33.4% were hesitant to vaccination, and 6.0% were resistant to vaccination. Social media platforms and government agencies were the primary sources of immunization information. Worrying about vaccine efficacy and adverse effects were the top two common reasons for vaccine hesitancy and resistance. Multiple multinomial logistic regression analyses identified that participants concerned about the damaging effects of vaccination were more likely to be vaccine hesitancy and resistant (Zhu et al., 2022).

Tsutsumi et al. (2022) conducted another study about the willingness to receive the covid-19 vaccination. Japanese university students' psychological state may be one solution to end the COVID-19 pandemic. One's psychological state may be strongly related to one's vaccination willingness. This study investigated the relationship between the psychological state of Japanese university students and their desire to be vaccinated. An online self-report questionnaire on COVID-19 vaccines (vaccination status, perceived efficacy, and safety) and psychological state (anxiety and depressive mood) obtained 560 valid responses. The unvaccinated group reported significantly lower perceived vaccine effectiveness and importance than the vaccinated group. However, the two groups had no differences in anxiety and depressive mood symptoms. Analysis performed Multivariate logistic

regression on the unvaccinated participants to identify the factors associated with their unwillingness to be vaccinated; there was a significant association between anxiety and reluctance to receive the vaccine ($p < 0.05$). However, there was no significant association between depressive mood and unwillingness to receive the vaccine. The results suggest that timely psychological support for Japanese university students experiencing high anxiety levels is vital in accelerating vaccination programs.

Another study indicated that the increased prevalence of COVID -19 hurts the mental health of individuals, as the level of psychological problems was raised. The results also found differences in most psychological problems symptoms due to demographic variables (Arnout et al., 2020). The study results emphasized the importance of preventing and treating psychological problems and symptoms caused by the deadly COVID-19. These findings stressed the role of counseling and therapy via the internet and cross-cultural counseling and treatment.

Moreover, the fourth study examined the attitudes of Chinese college students toward COVID-19 vaccines and their associated factors (Bai et al., 2021). A cross-sectional study was conducted on college students nationwide from 27 December 2020 to 18 January 2021. Attitudes toward COVID-19 vaccines and acceptance of future vaccination programs were assessed. Two thousand eight hundred eighty-one college students participated in this survey; 76.3% were willing to accept a COVID-19 vaccine in the future.

Finally, Jiang et al. (2021) study investigated nursing students' knowledge, attitudes, and willingness to receive the COVID-19 vaccine and the influencing factors. An adopted convenience sampling method was to select two medical universities in China. The data from 1488 valid questionnaires explained that the vaccination status of family members significantly influenced the mood. Gender, grade, and academic background became the main factors influencing knowledge. Furthermore, the participants were respective to the vaccination by attitude (70.07%), knowledge (80.70%), and vaccination willingness (84.38%). Factors significantly influenced aspects of willingness, gender, educational background, visits to high-risk areas, family members' vaccination status, and the side effects experienced after receiving other vaccines.

Mental Health is an essential element in the lives of individuals, especially university students, where achieving a good level of mental health helps face life's difficulties. The spread of the COVID-19 in Palestine caused a crisis that affected the category of university students. Due to the excellent mixing inside the university campus, they became more vulnerable to mental health problems due to the COVID-19 space. A recent study among university students in China showed that 24.9% of the students suffered from anxiety due to the COVID-19 outbreak. A study conducted in Greece also indicated high degrees of anxiety, depression, and suicidal thoughts among Greek students (Huang et al., 2020). Also, attitudes towards receiving vaccines, which means the perceived safety and efficacy of vaccines, were associated with the acceptance of vaccines in university students with symptoms of anxiety and depression, so it is considered an emergency psychological intervention necessary if a new wave of which there is much fear becomes a reality. Given the importance of identifying the level of mental health and students' attitudes toward receiving the vaccine, mental health specialists and researchers must conduct studies on mental health in the spread of the COVID-19 among university students and their attitudes toward receiving the vaccine. Therefore, the study's main aim is to examine the relationship between mental health and the attitudes toward receiving the COVID-19 vaccine among the Faculty of Education at Al-Azhar University, Gaza, Palestine, besides identifying the levels of mental health and attitudes towards receiving COVID-19 vaccine.

METHOD

A systematic random sample was selected from the students of the Faculty of Education, Al-Azhar University, Gaza, Palestine, for the year 2022 to represent the study population. The study sample consisted of 250 male and female students from the Faculty of Education, Al-Azhar University, Gaza, Palestine, for 2022.

Table 1. Demographics of participants (n=250) vaccinated students

Variables	n (%)
Gender	
Male	118 (47.2)
Female	135 (52.8)
Academic Level	
Semester 2	139 (55.6)
Semester 4	111 (44.4)

The researchers used two tools to collect data about the mental health of university students and their attitudes towards receiving the vaccine. The tools were designed after reviewing the educational literature and previous studies related to the problem of the study and surveying the opinion of a sample of specialized professors through personal interviews of an informal nature. The researcher used the mental health scale, which consists of 22 items distributed on three dimensions: psychological stress, depression, and anxiety. The scale of attitude towards receiving the vaccine, which consists of 18 items, distributed on three dimensions (cognitive, behavioral, emotional), and the scale is graded according to a scale Likert quintuple (strongly agree, agree, neutral, disagree, strongly disagree) the following weights were given 5 to 1 so that the scores of the study sample ranged between (22-110) for the mental health scale. Furthermore, it ranges from 18 to 90 for the attitude scale. The study has adopted five levels of mental health scale according to the following equation: the upper range minus the lower range divided by five (0.80), and therefore the relative weight 84 to 100 is enormous, from 68 to 84 is significant, and from 52 to 67 medium, from 36 to 52 a few, and less than 36 very few. Whereas for the attitude scale, Table. 2 illustrates the scores and the interpretation. The validity of mental health scale ($r=0.901$, p-value<0.01) and attitude scale ($r=0.845$, p-value<0.01) is acceptable.

Table 2. Instrument score and the interpretation of attitude scale

Dimension	Likert Scale	Total Items	Lowest Score	Highest Score	Neuter (60%)	Positive	Negative
Cognitive	5	6	6	30	18	<18	>18
Behavioral	5	6	6	30	18	<18	>18
Emotional	5	6	6	30	18	<18	>18
Total	5	18	18	90	54	<54	>54

RESULT

To identify the level of mental health, the researchers used the averages, standard deviations, and relative weight for each of the dimensions of the scale and the total scores; table 3 illustrates this:

Table 3. Descriptive statistics of the mental health scale

Dimension	Mean	SD	Weight (%)	T	p-value	Rank
Psychological stress	23.940	5.325	68.40	8.730	0.000	1
Depression	21.932	6.264	62.66	2.353	0.019	2
Anxiety	23.720	7.548	59.30	-0.587	0.558	3
Total	69.592	16.453	63.27	3.452	0.001	

It is clear from Table 3 that psychological stress ranked first with relative weight (68.40%) and came to a great degree, followed by depression, which got the second place with relative importance

(62.66%). It went to a medium degree, followed by anxiety, earned third place with relative weight (59.60%), and reached a medium degree. The total mental health degree got relative importance (63.27%) and came at a medium degree. This result indicates the mental health status among the Palestinian students. The researchers think such a score should be lower than the results as the scale used measures the negative aspect of mental health. This score could result from the stressful environment in which the students live, as the Palestinian community is full of political and socio-economic stressors, besides the stress that the pandemic of covid 19 has created.

To identify the level of attitudes toward receiving the COVID-19 vaccine, the researchers used the averages, standard deviations, and relative weight for each of the dimensions of the scale; table 4 illustrates this:

Table 4. Descriptive statistics of attitude scale

Dimension	Mean	SD	Weight (%)	T	p-value	Rank
Cognitive	19.728	4.574	65.76	5.973	0.000	2
Behavioral	18.676	4.870	62.25	2.195	0.029	3
Emotional	21.280	4.956	70.93	10.464	0.000	1
Total	59.684	12.238	66.32	7.344	0.000	

It is clear from Table 10 that the emotional trend got the first rank with relative weight (70.93%). It came to a large degree, followed by the cognitive trend, it got the second place with relative importance (65.76%), and it came to a medium degree, followed by the behavioral trend, it got the third place with relative weight (62.25%), and it came to a medium degree. The total degree of the trend Towards receiving the vaccine, she obtained relative importance (66.32%) and reached a medium degree. The results, according to the attitudes scale key, indicate that the students' attitudes towards receiving the vaccine are positive, and this indicates the students' awareness of the dangers of the COVID-19 and not receiving the vaccine, and the positive attitudes towards receiving the vaccine work to reduce stress and anxiety, especially considering the outbreak of the COVID-19 pandemic in the Palestinian community. The researchers used the Pearson correlation coefficient to examine the relationship between mental health and attitudes toward receiving the COVID-19 vaccine among students in the Faculty of Education at Al-Azhar University, Gaza, Palestine, in Table 5 as follows:

Table 5. The correlation coefficient between mental health and the tendency to receive the meeting among students of Al-Azhar University, Gaza, Palestine

Dimension	Cognitive	Behavioral	Emotional	Total Score
Psychological stress	0.153	0.269	0.266	0.272
Depression	0.241	0.257	0.256	0.296
Anxiety	0.294	0.419	0.366	0.425
Total	0.276	0.377	0.351	0.396

It is clear from the previous Table that there is a positive relationship between mental health and the attitudes toward receiving the COVID-19 vaccine among the students of the Faculty of Education students at Al-Azhar University, Gaza, Palestine. This case means that the students have more positive attitudes toward receiving the vaccine whenever their psychological stress, depression, and anxiety increase.

DISCUSSION

The researchers think the mental health score should be lower than the results as the scale used measures the negative aspect of mental health. The researchers believe that this score results from the stressful environment in which the students live, as the Palestinian community is full of political and socio-economic stressors; this is beside the stress that the pandemic of covid 19 has created. The results are also consistent with the findings of a study by Lee et al. (2007) that the outbreak of SARS

increased the symptoms of post-traumatic stress disorder (Hunt et al., 2021). Findings found during the unprecedented events of the COVID-19 pandemic, students in higher education settings face tremendous biopsychosocial stress. Students had very high levels of psychological distress relative to their male and female peers during the pandemic and may need additional support and expanded access to treatment. There was a significant association between anxiety and unwillingness to receive the vaccine ($p<0.05$). However, there was no significant association between depressive mood and unwillingness to receive the vaccine. The results suggest that timely psychological support for Japanese university students experiencing high anxiety levels is essential in accelerating vaccination programs (Tsutsumi et al., 2022).

According to the attitudes scale key, the results indicate that the students' attitudes towards receiving the vaccine are positive. This condition shows the students' awareness of the dangers of the COVID-19 and the dangers of not receiving the vaccine. This result, to some extent, matches the findings of (Jiang et al., 2021), which revealed that the score rates of the attitude, knowledge, and vaccination willingness dimensions were 70.07%, 80.70%, and 84.38%, respectively. The vaccination status of family members significantly influenced the attitude. The positive attitudes toward receiving the vaccine reduce stress and anxiety, especially considering the outbreak of the COVID-19 pandemic in the Palestinian community. The result also revealed a statistically positive correlation between mental health and an attitude toward receiving the vaccine; this means that whenever the psychological stress, depression, and anxiety have increased, this led to more positive attitudes toward receiving the vaccine among the students and several theoretical psychological assumptions support this result.

CONCLUSION

As the research outcomes revealed, the students have a positive attitude toward receiving the vaccine and moderate psychological stress, depression, and anxiety. Moreover, there is a statistically significant correlation between the level of mental health and the attitude toward having the vaccine; this means that whenever the psychological stress, depression, and anxiety have increased, this leads to more positive attitudes toward receiving the vaccine among the students. Despite the positive attitude toward having the vaccine, the students have a reasonable level of negative psychological symptoms; accordingly, the researchers recommend psychological intervention for students, such as counseling and guidance, to decrease such negative symptoms knowing that such services are still unavailable at the university community.

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