Journal of Nursing Practices and Research (JNPR)
e-ISSN: 2582 - 9602
Journal of Nursing Practices and Research (JNPR)
Vol-2, Issue-2, October 2022

COVID-19 Vaccination: Assurance, Hesitance, and Expectation for the Future beyond the Pandemic among College Students: A Review

Udayakumari Pethaperumal[1*] , Dr. Jogindra Vati[2]

[1,2] Himalayan University, Itanagar, Arunachal Pradesh, India
*Corresponding Author Email: udayap79@gmail.com

Abstract

The COVID-19 pandemic has changed daily life; with more than 303 million infections contracted globally and over 43.4 Million people infected in India, the pandemic's toll continues to rise. At the end of 2020, the good news was on the horizon that COVID-19 vaccines had been developed.

Growing attention has been paid recently all over the countries to control the COVID-19 pandemic. College students are one of the populations for vaccination as they are the pillars of the future. More understanding is needed in the aspects of willingness to take vaccination and factors influencing their vaccination intention, thereby contributing to developing and implementing effective strategies to promote COVID-19 vaccine uptake among this population.

Background: All counties were facing an unprecedented public health challenge of the global pandemic

The only way to block the spread of the disease is through vaccine administration, like how other vaccine-preventable diseases like smallpox, Poliomyelitis, and measles were controlled or even eradicated. Research also has proven evidence for the safety and scientific validity of COVID 19 vaccines based on trials that presented a promising effective way to control the transmission of the dreadful disease.

Although older people are at more significant infection fatality risks for COVID-19, the Younger generation is more vulnerable to COVID-19 infection, and the transmission rate is higher comparatively than the older population, especially those engaged in activities with a higher risk for exposure. College students can be affected by campus outbreaks and the spread of COVID when they return home or go out for social activities. Therefore, students could be an ideal population to investigate their view on COVID-19 since they are well educated and open-minded and supposed to be the active spreader of the current pandemic

Methods: An online or web literature review or articles review of 31 articles related to Covid-19 and Vaccination was conducted through Pub Med/Google Scholar and BMJ and NIH databases published during the years from January 2018 to April 2022.

Results: The coronavirus pandemic has left a distinctive marking worldwide, and the changes are continuing in all aspects of human life, work, education, and recreational activities. Along with the other preventive strategies, Vaccination uptake is one of the essential preventive strategies to protect people from COVID-19 Infection. This literature review studied attitude and perception related to vaccination uptake, hesitancy, and influential factors related to COVID-19 vaccine administration and the theories related to Vaccination. Most college students intend to accept vaccinations despite differences in attitudes toward vaccination uptake globally. Psychologists believed that motives drove belief in conspiracy theories to understand one's environment, safe environment and maintain a positive self-image and social group. The first two were what people needed during the COVID-19 pandemic. The responsibility lies in government institutions where they should implement strategies to eliminate the concerns about the COVID-19 Vaccines.

Conclusion: The article search found that in all the selected literature reviews, a significant proportion of college students have a positive attitude towards vaccine administration to prevent the spread of COVID-19. Correct knowledge of COVID-19, trust, good conceptions and social behaviour were important factors or determinants in students' willingness to vaccinate. The information on social media significantly impacted vaccine acceptance among college students. Government should strengthen creditability and convey trusted communication with the influence of social media, and improvement in vaccination services are critical in provoking college students to be vaccinated at the earliest

Key Words:

COVID-19 pandemic, Attitude and perception towards Vaccination hesitancy, influencing factors, theories associated with COVID-19 vaccine, college students.

INTRODUCTION

COVID-19 has spread worldwide, with over 303 million infections and 43.4 million in India, with a death rate of 5.25 lakhs. Most people infected with mild to moderate symptoms have a good recovery. Still, some need hospitalization and high dependency care, and some die even with treatment until the vaccination rates rise. There has been considerable fear of contracting COVID-19 among populations, and vaccines are the only remarkable preventable weapon available to control this.

Universities and colleges are considered high-risk areas for COVID-19 outbreaks, given the crowded environment of campuses with high mobility and limited space. As such, vaccination is regarded as an essential intervention that could significantly reduce the incidence and spread of COVID, and the willingness of college students to receive vaccines varies greatly. Various published studies showed various vaccine

e-ISSN: 2582 - 9602

hesitancy rates in different countries worldwide. Studies also showed considerable variation among students with vaccine hesitancy rates higher in low and middle-income countries. The safe and efficacy of the COVID-19 vaccine were highly associated with vaccine acceptability in the general population and among college students who live and study in crowded surroundings and respond more quickly to public health issues. Therefore, their attitudes towards COVID 19 vaccines could differ from another group of individuals.

Students act as messengers in delivering effective messages for better uptake of health-promoting behaviour. Understanding their knowledge about Coronavirus disease 2019(COVID-19) intentions to use the VODI-19 vaccine and its associated factors will help develop promising strategies in vaccine promotion concerning the current COVID-19 pandemic.

The key factors associated with vaccine hesitancy and resistance in college students are female gender, Older age, single status, Lower academic performance, family and friends without confirmed or suspected COVID-19, and concern for the safety and efficacy of vaccination. Health officials and policymakers must take supportive measures, such as providing sufficient and specific information about the COVID-19 vaccine and elaborating on the vaccine's efficacy and safety to promote the COVID-19 vaccination progress.

SEARCH STRATEGY

This Online literature review/articles from Pub Med/Google Scholar and BMJ and NIH databases from a systemic perspective published during the year Jan 2018 to April 2022 looking mainly at the risk exposure, attitude or perceptions influencing factors, vaccination hesitance, and vaccination uptake and strategies to promote the uptake of vaccination.

During the initial search stages, titles, abstracts, and full articles were screened when needed to segregate the eligible literature reviews. Then all the relevant articles selected were reassessed for appropriateness, and the data required were extracted.

The core questions for this review included were

1. What is the attitude and Perceptions of receiving COVID-19 vaccines among college students
2. What are the influencing factors among college students to promote vaccination-based interventions?
3. What are the theories associated with the intentions to vaccine uptake against COVID-19?

Inclusion and exclusion criteria:

After identifying the related articles, the inclusion and exclusion criteria were decided and applied by the researchers. The full texts, including abstracts of the relevant papers in English, were screened from Jan 2018 to April 2022 and a total of 31 studies were selected for this review. Articles that were not relevant to the scope of this current study were excluded. Also, studies focused on Vaccination in health care workers, Vaccination among the elderly, etc., were excluded. Articles, where access to the full text was not feasible were also excluded. It resulted in Covid-19 and Vaccination among nursing, paramedics, arts and science, physiotherapy, dental, medical, and allied health sciences.

Attitudes and Perceptions towards COVID-19 Vaccination

The Covid-19 pandemic has spread widely all over the world. New effective vaccines against COVID-19 have begun to be administered. For the global vaccination campaign to be effective, any reasons for hesitation about vaccination must be addressed.

Serana Barello et al. (2020) conducted a cross-sectional study on a convenient sampling technique among Italian university students, which explored their attitudes towards a future vaccine to prevent COVID-19 and evaluated the impact of university curriculum on the intention to vaccinate. The findings suggested that vaccination attitude is influenced by the students' level of health knowledge and other motivational and psychological factors, including the sense of individual responsibility for their health and the common sense towards the value of civic life and social solidarity. The study also recommends that public health information campaigns be supported by other actions to increase consciousness regarding the crucial role of the individuals' engagement to safeguard their own and their family members through vaccinations. It is suggested that multidisciplinary educational interventions are the preferred strategy to improve students' adherence, attitude, and knowledge about vaccinations**.** [1]

Michael Belingher et al. (2021) evaluated the intentions to be vaccinated against COVID-19 in a population of nursing students, identifying factors associated with the choices by an anonymous online survey among 422 nursing students. The questionnaire includes the health status, vaccine attitudes, and specific reasons regarding the intentions to get or not get the COVID-19 vaccination. Almost 81% of the study participants wanted to take the take vaccine. The intentions to adhere to the vaccination program were associated with gender, Previous uptake of other vaccines. And the reason for rejecting the vaccines is fear of adverse events. The study concluded that it is fundamental to consider vaccine hesitancy among the students from health care settings as they will provide recommendations to patients and promote adherence to vaccinations programs [2]

Noria Sugawara et al. (2021) surveyed the students' attitudes towards COVID-19 vaccination. Out of 496 participants, 89.1% received the second dose of the vaccine, and 90.7% indicated that they would hypothetically receive the vaccination in the future. Also, 84.5% of the participants were willing to take the third dose of the vaccines. There was a significant association with the positive attitude towards a

vaccine, belief in the protection offered by the COVID-19 vaccination, concerns regarding the rapid development of vaccines, need for aspects of pre-pandemic life, and sustainability of immunity. Confidence in vaccines, relaxation of mobility restrictions, and worry about the sustainability of immunity motivate the willingness to receive the COVID-19 vaccine in medical students [3]

Abanoub Riad et al. (2021) conducted a global cross-sectional online survey to assess the COVID-19-related experiences and drivers of the COVID-19 vaccine-related attitude among dental students. Six thousand six hundred thirty-nine students from 22 countries participated; most were females (70.5%). 22.5% of dental students were hesitant, and 13.9% of participants rejected the vaccines, and the vaccination hesitancy was more among the students from a low and lower-middle-income groups than others. The study concluded that the Vaccination acceptance level of dental students was sub-optimal, and the socioeconomic factors influenced the worrisome hesitancy level. The main barriers to vaccination were media, public figures, insufficient knowledge, and mistrust of governments and the pharma industry, which needs more detailed study. [4]

Aleksandar Kecojevic et al. (2021) investigated the extent of vaccination coverage and the intention to vaccinate among college students. The non-vaccinated students (52.8%) indicated their intention to receive the vaccine if available. A strong association was identified among the students who are health care workers and family members who received a COVID-19 vaccine. This study's findings highlighted the need for additional education and vaccine outreach to promote uptake of the COVID-19 vaccine among college students**.** [5]

Scott Graupensperger et al. (2021) examined the extent of vaccination intentions and attitudes associated with some estimated social norms. In November 2020, 647 undergraduate students completed the online surveys. The reported results showed a strong association between the perceived importance of these vaccines and the estimated social norms regarding vaccination administration. The authors also recommended that there is a need to identify empirically supported strategies to increase uptake, especially among students, as this subpopulation has always shown poor adherence to physical distancing guidelines. [6]

Lovely Jain et al. (2021) carried out a cross-sectional online survey by using the non-probability snowball sampling technique through social media platforms and emails among students in healthcare (323) and non-healthcare (332) sections to assess their intentions to get vaccinated against the COVID-19. Of the 655 students, 63.8% expressed intentions to receive the COVID-19 vaccine. The acceptance was higher among non-healthcare students. 27.8% of students had been exposed to a confirmed covid-19 patient. 93.4% of the students knew about the COVID-19 virus, and 89.3% were aware of developing a COVID-19 vaccine. The study concluded that the Indian college students had relatively high positive intentions to receive COVID-19 vaccines. However, about one-third were not sure or unwilling to accept the vaccine, highlighting possible vaccine hesitancy. The study recommended that informational campaigns and other strategies to address vaccine hesitancy are needed to promote the uptake of COVID-19 vaccines**.** [7]

Nevenka Kregar Velikonja et al. (2021) investigated the adherence to preventive measures and vaccination intentions among nursing students in three European countries using a cross-sectional survey method between February to March 2021. Data were analyzed from 872 respondents. Higher adherence to preventive behavior was declared by those working in health care students, engaged in COVID-19 departments, had not had the disease yet, and had children. Fear of side effects and general refusal of vaccines were the main reasons for vaccine hesitancy. Educational institutions should develop appropriate programs to support and improve the attitudes and behaviors among nursing students . [8]

Jessica Silva, Jeffrey Bratberf, and Virginia Lemay (2021) investigated the spectrum of vaccine hesitancy and identified the differences in COVID-19 among college students at the University of Rhode Island. A total of 237 clinical vaccination participants consented and responded. 92% of respondents are very/somewhat likely to receive a COVID-19 vaccine, and 50% will receive a COVID-19 vaccine as soon as possible. Only 3% of participants said they would never accept a COVID-19 vaccine. Concerns related to Vaccine hesitancy were safety, effectiveness, and limited information. The study concluded that URI students are willing to be vaccinated, proven safe, and productive. [9]

Shan Qiao, Cheuk Chi Tam, and Xiaoming Li (2022) investigated how risk exposures and perception of COVID-19 and negative attitudes towards Vaccination related to COVID-19 vaccine acceptance among 1062 college students by using an online survey data in south California. The findings revealed that perceived severity and fear of COVID-19 were positively correlated, while a higher level of risk exposure and negative attitude towards Vaccination was associated with Low vaccination acceptance. The study concluded with the suggestion of tailoring educational messages to emphasize the severity of COVID-19 vaccines and to address the concerns of side effects of available vaccines by dispelling the misconception. Efforts should be made to increase college students' perceived susceptibility and severity, promote their self-efficacy in health management, and encourage them to take protective behaviors, including vaccine updates. [10]

e-ISSN: 2582 - 9602

Factors influencing Vaccination intentions, Acceptance, and Hesitance

Various factors influence the acceptance and rejection of the COVID-19 vaccines.

Wei Bai (2021) assessed the college students' attitude toward COVID-19 vaccines and their associated factors using a nationwide cross-sectional survey from December 2020 to Jan 2021. A total of 2881 college students participated in the survey. 76.3% (95%Cl: 74.8- 77.9%) were willing to accept the COVID-19 vaccine in the future. The study also revealed that the students living in urban (OR=1.409, 95% CL: 1.152 – 1.724, p=0.001) and those studying health-related courses (OR=1.581, 95% CL: 1.291 – 1.935, p<0.001) were likely to have a positive attitude towards COVID-129 vaccines. In addition, students in the high-risk group have a positive attitude towards vaccines and encourage their friends and families to take the vaccine. The study concluded that a high acceptance rate of COVID-19 was found among Chinese college students. However, vaccine updates may be reduced by vaccine safety and efficacy concerns. The crucial part of the future immunization programs was alleviating these concerns and enhancing public confidence in vaccines**.** [11]

Ana Karina Mascarenhas (2021) surveyed using Ultrix in 2020 dental students to assess the attitudes, factors, and reasons associated with vaccine hesitancy and acceptance of the COVID-19 vaccine. Nearly all participants had positive attitudes. However, only 56% are willing to take the COVID-19 vaccine. Factors associated with vaccine acceptance and the likelihood of recommending the vaccination include trust among health experts, concern about side effects, and agreement with vaccine protocol. The study highlighted the need for an educational curriculum about the safety and effectiveness to promote the uptake [12]

Shimaa M Saied et al. (2021) explored the level of COVID-19 vaccine hesitancy. They determined the factors and barriers that affect the decision-making towards vaccination by a cross-sectional survey among medical students in Tanta and Kafrelsheikh universities, Egypt. through an online questionnaire in Jan 2021 among 2133 students. 90.5% of students perceived the importance of taking COVID-19 vaccines, about 46% had vaccination hesitancy, and 6% accepted or refused the vaccine. Most reported concerns regarding the vaccines are adverse effects and ineffectiveness, and factors influencing the same were insufficient information regarding the vaccine itself. The study recommended that the government authority make efforts, medical experts, and universities to reduce the hesitancy and raise awareness about vaccination, thereby improving the acceptance of COVID-19 vaccines [13]

Jyothi Jain (2021) assessed the vaccine hesitancy and factors related to COVID-19 vaccines among medical students in India through an online questionnaire among 1068 medical students from Feb 2, 2021, to Mar 7, 2021. Overall, vaccine hesitancy was found among 10.6% of students. Significant concerns were vaccine safety, efficacy, lack of awareness regarding the eligibility for vaccination, and lack of trust in government agencies. Risk perception reduced vaccine hesitancy, and students who were hesitant about the vaccine were more likely to derive information from social media than teachers. Of the vaccine preferability, Covisheild was the preferable vaccine among the students. The factors influencing the vaccine uptake were resuming classes and getting their personal life back to track. Awareness campaigns, Regulatory oversight of vaccine trials, public release of safety and efficacy data, and trust-building activities are recommended to reduce further covid-19 vaccine hesitancy among medical students. [14]

Taysir Al Janabi, Ravi Chinsky, and Maria A Pino (2021) measured the students' perception of a new COVID-19 vaccine and the factors driving their opinions. An electronic survey of 37 questions was distributed to Osteopathic medical students in October 2020. Out of 1770 students, 197 students responded. 45% of responded students reported that they would receive the new vaccines if available, while 19% reported that they had not yet decided. Trust in the government health care system, pharmaceutical trust, adequate vaccine testing, an additional dose of vaccines, and antivaccine acquaintances were significant factors influencing the vaccine uptake among the students**.** [15]

Mei Li (2021) analyzed the vaccination hesitancy and related factors among medical college students in China through an online cross-sectional survey among 2,196 medical students. 41.2% of students reported vaccination hesitancy, while females and individuals with higher education reported slightly higher hesitation. Confidence in vaccination and perceptions of benefits and risks were associated with vaccine hesitancy. The study recommended strengthening vaccine health literacy education for medical students and enhancing vaccine confidence through social media and transparent, evidence-based information to increase vaccine coverage**.** [16]

Hamzah Alzubaidi et al. (2021) investigated the university students' attitudes in UAE towards COVID-19 vaccination. They determined the factors associated with vaccine hesitancy and the underlying reasons through an online survey between 16th to 24th February 2021 among 669 students from the University of Sharjah. Of 669 students, 43.8% were vaccinated, and 24.4% had a higher intention for the vaccine; vaccine hesitance by the students was associated with less positive beliefs and attitudes towards the COVID-19 vaccine, high perceived adverse effects, and not

getting easy access to vaccination centers. Uncertainty and knowledge from negative experiences overvaluing vaccine risks were associated with vaccination hesitancy. The concerned should take interventions to reduce the fear about adverse effects and highlight the individual and societal benefits of the vaccinations**.** [17]

Marie Pierre Tavalacci et al. (2021) explored the level of COVID-19 vaccine acceptance, hesitancy, and resistance to study motivation and barriers and the reasons that may change the decision-making towards vaccination by an online survey among French university students in January 2021. Fifty-eight percent of students reported that they would choose to have the vaccination. The main motivations for vaccine acceptance were to prevent the transmission of viruses, and the main barriers to vaccine resistance were to have more experiences with the new vaccines. Self-estimated knowledge, confidence in efficiency, and safety of conventional vaccination were associated with a lower risk of Vaccine hesitancy. Dissemination of information with an evidence-based approach is necessary to promote vaccine uptake by college students. [18]

Ning Jiang et al. (2021) conducted a study to assess the acceptance of COVID-19 vaccines among college students. A cross-sectional survey questionnaire was distributed to three universities in China. A total of 3256 students participated in the survey. 86% of the students were willing to receive vaccination, and 77.9% had good knowledge about COVID-19 vaccines. But 69.8% have negative attitudes toward vaccination. The main influencing factors towards vaccine uptake were gender, age, living environment, traveling to risk areas, spending level, specialty, grades, and family members' vaccination experiences. More attention should be paid to students in Science and engineering, Male students, Lower-income groups, and family members who didn't receive the vaccine. [19]

Andrew Marvin Kanyike et al. (2021) employed an online descriptive cross-sectional survey among ten medical college students in Uganda. The link was sent to the eligible participants through WhatsApp through a coordinator for each college. Out of 600 medical students, 377(62.8) were male. Vaccine acceptability versus hesitancy was 37.3% and 30.7%. Factors associated with acceptability were being single, very high, and perceived risk of getting COVID-19 in the future. The study concluded that medical students had low acceptance, and many relied on social media for negative information. It increases the risk of the COVID-19 battle, especially for health professionals [20]

Sylvain Gautier et al. (2022) conducted a web-based cross-sectional study among 4927 health care students from different training courses. A total of 1465 health care students were answered. A proportion of 44.5% was hesitant about vaccination, and hesitancy was higher among women than men. Medical students were less likely to be reluctant than in the other courses. Overall, vaccine hesitancy among health care students was high, and there are substantial differences between the training courses. Interdisciplinary lectures on vaccines may be implemented and evaluated to reduce these disparities. [21]

Theories related to COVID Vaccination intention among students

COVID-19 has devastated public health and increased the demand for vaccinations as a top priority. Herd immunity through vaccination requires a sufficient number of populations to be vaccinated. Therefore, research on factors that promote intention to receive the COVID-19 vaccination is warranted.

Chia- Wei Fan (2021) "investigated the students' intention to uptake the COVID-19 vaccines based on components of the TPB (i.e., attitude, Subjective norms, perceived behavioral control) and extended components (knowledge about COVID-19, risk perception of COVID-19 and experiences. Students' knowledge and risk perception of COVID-19 positively influenced their attitude toward the uptake of the COVID-19 vaccine. Also, students' attitudes toward COVID-19 and their previous influenza vaccine experiences were positively associated with the intention toward COVID-19 vaccination**.** [22]

Po-Ching Huang et al. (2021) assessed the willingness based on 'protection motivation theory (PMT)' incorporating perceived knowledge, adaptive response, and maladaptive response among Taiwanese university students through an online survey conducted from January to February 2021. The findings revealed that perceived knowledge was significantly associated with coping appraisal, and associated considerably with an adaptive response, maladaptive response, and intention. Moreover, a maladaptive reaction was negatively associated with choice. The study demonstrated a positive path between perceived knowledge, coping appraisal, and preference among university students. Therefore, improving knowledge among this population may increase the choice of vaccine uptake**.** [23]

Hila Rosental and Loira Shmueli (2021) explored behavioral-related factors predicting the intention of getting a COVID-19 vaccine among medical and nursing students by using an integrative model combing the health belief model and theory of planned behavior methods. An Online cross-sectional survey for a month (August-September) of 2020 was conducted. Medical students expressed higher intentions for vaccination than nursing students (88.1% Vs. 76.2%, $p<0.001$). This model was able to explain 66% of the variance $R^2=0.66$). Participants with higher levels of perceived susceptibility, benefits, barriers, cues to action, attitude, self-efficacy, and anticipated regret have a higher willingness to get vaccinated, and susceptibility is a predictor

of the intentions of getting vaccinated among nurses only. The study demonstrated that HBM and TPB models were important for predicting acceptance of the COVID-19 vaccine among medical and nursing students. Interventional programs will play a better guide and pay better attention to the female nurses and those who expressed low vaccine acceptance**.** [24]

Phoenix Kit-han Mo et al. (2021) examined among 6922 university students in mainland China the association between the perceived efficiency of the COVID-19 vaccination, use of social media for COVID-19 vaccine-related information, openness to experience, and descriptive norm to receive COVID-19 vaccination and the moderating role of exposure to experience COVID-19 vaccine. Free and self-paid vaccination intentions were 78.9% and 60.2%, respectively. Path analysis results showed that the perceived efficacy of the COVID-19 vaccination and the descriptive norm to receive the COVID-19 vaccination is more vital among those with a lower level of openness to experience. The study's findings supported the diffusion of innovations theory and the moderating role of exposure of experience in explaining intention to receive the COVID-19 vaccination**.** [25]

Manoj Sharma et al. (2021) explained the correlation between COVID-19 vaccine acceptance among college students having hesitancy toward the COVID-19 vaccine and those who did not use the Multi theory model (MTM) of health behavior change. Almost half of the students (47.5%) reported hesitancy to receive COVID-129 vaccines. The three factors, i.e., behavioral confidence, participatory dialogue, and changes in the physical environment, were significantly associated with COVID-19 vaccine acceptance. An opposite effect was observed among the students who were hesitant to take to the COV ID-19 vaccine. The study provides evidence for the utility of MGTM as one of the interventions to enhance COVID-19 vaccine acceptability**.** [26]

Peng-Wei Wang et al. (2021) examined the prediction of the threat and coping appraisal by utilizing an extended protection motivation theory (PMT) for the motivation to have COVID-19 vaccination and the influence of various information sources on coping review among 3145 Chinese students from 43 universities. The constructs comprised motivation, threat appraisal, coping appraisal, knowledge about mechanisms, and information sources of COVID-19 vaccination. Perceived severity and receiving information concerning COVID-19 have strongly associated with COVID-19 vaccination. Online information regarding COVID-19 vaccination was associated with a more significant response. The study supported the prediction of perceived severity in the PMT for motivation to have COVID-19 vaccination. [27]

Lu Li et al. (2021) explained the intention of vaccination by increasing the motivation protection and control variables. A self-designed questionnaire was used to collect the data. 17.75% of respondents were hesitant or did not want to receive the vaccine. Vaccine safety and external rewards response efficacy were positively related to COVID-19 vaccination intention, while age, income, and response cost were negatively related. Education and publicity about vaccination should be the essential intervention to improve vaccine uptake by the students**.** [28]

Taslima Akther and Tasnima Nur (2022) conducted a study on key factors influencing the acceptance of vaccines developing a model based on 'reasoned action' and 'belief in conspiracy theory, awareness, perceived usefulness, and perceived ease of use by using an online google form questionnaire among the university students of Bangladesh. The results showed that the belief in conspiracy theory undermines the COVID-19 vaccine acceptance, negatively impacting individual attitudes, subjective norms, and individual awareness and positively impacting the attitude and acceptance of vaccination. The study recommended education and awareness to reduce vaccine misinformation and conspiracy. And also, the ease with which people can get the vaccine, and it is free of cost, encourages more students to be vaccinated to protect themselves, their families, and society [29]

Tom Rosman et al. (2021) investigated the epistemic beliefs (beliefs about the nature of knowledge and knowing) and the prosocial values as predictors of COVID-19 vaccination intentions among 314 German university students based on three hypotheses (Belief in justification by authority, positive relationship between prosocial values and vaccination intentions, Moderation of relationship between prosocial values and vaccination intentions by belief in justification). There was a significant positive relationship between justification by authority and vaccination intentions, but the hypothesis that included a prosocial value was not influential with the vaccination intentions. The study's findings highlighted the crucial role of science and public health communication in increasing the vaccination intentions regarding COVID-19 among students**.** [30]

Ryan Michael F et al. (2022) examined students' intention to attend a face to face classes on school reopening and its association among the core constructs of the theory of planned behavior among the undergraduate nursing students of a Philippine university through an online questionnaire. Results demonstrated that nursing students had a high intention to attend limited face-to-face classes. First and second-year students had significantly higher intentions to participate in fewer face-to-face classes than third and fourth-year nursing students. Inferential statistics results of multiple linear analysis suggested that attitude ($\beta = .127$, $p = .001$), subjective norm ($\beta = 0.400$, $p = .000$), and

perceived behavioral control (($\beta = .326$, $p = .000$) positively predicted students intentions to attend face-to-face classes. The study concluded that as the schools and colleges prepare for the gradual reopening of campuses, the different beliefs of students may be considered by nursing schools better to understand students' intention for face-to-face instruction**.** [31]

CONCLUSION

This literature review has looked at how researchers and authors have addressed COVID-19 Vaccination among college students and how vaccination paved the way to reduce the infection and COVID-related health problems among students from different parts of the world. Vaccines are crucial for curtailing the COVID-19 pandemic and may be a vital indicator for a return to normalcy on college campuses. For herd immunity against COVID-19, a substantial proportion of the population must be vaccinated, though vaccine hesitance and refusal are significant issues globally.

REFERENCES

[1] Journals Serena Barello et al.,(2020), "Vaccine hesitancy among university students in Italy during the COVID-19 pandemic," European Journal of Epidemiology, 35, pages781–783 (2020)

[2] Michael Belingheri et al. (2021), "Attitudes towards COVID-19 vaccine and reasons for adherence or not among nursing students, Journal of Professional Nursing," Vol 37, Issue 5, Sep-Oct 2021, P(923-927). https://doi.org/10.1016/j.profnurs.2021.07.015.

[3] Norio Sugawara et al. (2021), "Attitudes of medical students towards COVID-19 vaccination: Who is willing to receive a third dose of the vaccine?" Vaccines 2021, 9(11), 1295; https://doi.org/10.3390/vaccines9111295.)

[4] Abanoub Riad et al. (2021), "Global prevalence and drivers of dental students' COVID-19 vaccine hesitancy," Vaccines 2021,9(6),566;https://doi.org/10.3390/Vaccines9060566

[5] Aleksandar Kecojevic et al., (2021) "Covid-19 vaccination and intentions to vaccinate among a sample of college students in New Jersey, J community health," 2021 Dec;46(6):1059-1068. doi: 10.1007/s10900-021-00992-3. Epub 2021 Apr 27.

[6] Scott Grauoensperger, Devon A Abdallah and Christine M Lee (2021), "Social norms and vaccine uptake: College students COVID vaccination intentions, attention and estimated peer norms and comparisons with influenza vaccine," Vaccine. 2021 Apr 8;39(15):2060-2067. doi: 10.1016/j.vaccine.2021.03.018. Epub 2021 Mar 17.

[7] Lovely Jain et al.,(2021), "Factors influencing COVID-19 vaccination intentions among college students: A cross-sectional study in India," Journal of front public health 2021 Dec 15;9:735902. doi: 10.3389/fpubh.2021.735902. eCollection 2021)

[8] Nevenka Kregar Velikonja et al. (2021), "Attitudes of Nursing students towards vaccination and other preventive measures for limitation of COVID-19 pandemic: A cross-sectional study in three European countries," Healthcare 2021, 9(7), 781; https://doi.org/10.3390/healthcare9070781.

[9] Jessica Silva, Jeffrey Bratberg, Virginia Lemay(2021), "COVID-19 vaccine hesitancy among college students," J Am Pharm Assoc.Nov-Dec; 61(6):709-714 doi: 10.1016/j.japh.2021.05.009. Epub 2021 May 21.

[10] Shan Qiao, Check Ci Tam Xiaoming Li,(2022), "Risk exposures, Risk perceptions, Negative attitudes towards general vaccination and COVID-19 vaccine acceptable among college students in South Carolina," Am J Health Promot. 2022 Jan;36(1):175-179. doi: 10.1177/08901171211028407. Epub 2021 Jun 24.PMID: 34164998).

[11] Wei Bai,(2021), "Attitudes toward COVID-19 vaccines in Chinese college students," Int J Biol Sci, 2021 Apr 10; 17(6):1469-1475. doi: 10.7150/ijbs.58835. eCollection 2021

[12] Ana Karina et al. (2021), "Dental students attitudes and hesitancy towards COVID-19 vaccines," J Dent Educ, 2021 Sep;85(9):1504-1510. doi: 10.1002/jdd.12632. Epub 2021 Apr 29.

[13] Shaimaa M Saied et al. (2021), "Vaccine hesitancy: Beliefs and barriers associated with COVID-19 vaccination among Egyptian medical students," J Med Virol, 2021 Jul;93(7):4280-4291. doi: 10.1002/jmv.26910. Epub 2021 Mar 25

[14] Jyoti Jain(2021), "COVID 19 vaccine hesitancy among medical students in India," Epidiomiol Infect. . 2021 May 20;149:e132. doi10.1017/S0950268821001205.

[15] Taysir Al Janabi, Ravi Chinsky, Maria A Pino, 2021), "Perceptions of COVID-19 vaccines among osteopathic medical students," Int J Osteopath Med.2021 Dec; 23-28. doi: 10.1016/j.ijosm.2021.10.008. Epub 2021 Nov 2.

[16] Mei Li et al. (2021), "Hesitancy toward COVID-19 vaccines among medical students in southwest China: a cross-sectional study," Hum Vaccine Immunoother.2021. Nov 2;17(11):4021-4027. doi: 10.1080/21645515.2021.1957648. Epub 2021 Aug 6.

[17] Hamzah Alzubaidi et al. (2021), "A mixed-method study to assess the COVID-19 vaccination acceptability among university students in the United Arab Emirates," Jum Vaccine Immunother, 2021, Nov 2;17(11):4074-4082. doi: 10.1080/21645515.2021.1969854. Epub 2021 Sep 17.

[18] Marie Pierre Tavolacci et al. (2021), "COVID 19 vaccine acceptance, hesitancy, resistancy among university students in France," Vaccines (Basel). 2021 Jun 15;9(6):654. doi: 10.3390/vaccines9060654.

[19] Ning Jiang et al. (2021), "Acceptance of COVID-19 vaccines among college students: A study of the attitudes, knowledge, the willingness of students to vaccinate" Hum Vaccin Immunotherapy 2021 Dec 2;17(12):4914-4924. doi: 10.1080/21645515.2021.2013077. Epub 2022 Jan 21

[20] Andreq Marvin et al.,(2021), "Acceptance of the COVID-19 vaccines among medical students in Uganda," Trop Med Health. 2021 May 13;49(1):37. doi: 10.1186/s41182-021-00331-1.

[21] Sylvian Gautier et al. (2022), "Cross-sectional study on COVID-19 vaccine hesitancy and determinants in healthcare students: Interdisciplinary training on vaccination are needed," BMC Med Educ. 2022 Apr 20;22(1):299. doi: 10.1186/s12909-022-03343-5.

[22] Chia Wei Fan (2021), "Extended theory of planned behavior in explaining the intention to COVID-19 vaccination uptake among mainland Chinese university students: an Online survey study," Hum Vaccine Immunother.2021.Oct 3; 17(10):3413-3420. doi: 10.1080/21645515.2021.1933687. E pub 2021 Jun 25.

[23] Po-Ching Hua g et al. (2021), "Expanding protection motivation theory to explain willingness of COVID-19 vaccination uptake among Taiwanese University students,

e-ISSN: 2582 - 9602

Vaccines 2021,9(9), 1046; https://doi.org/10.3390/vaccines 9091046.

[24] Hila Rosental and iora Shmueli (2021). Integrating health behavior theories to predict COVID-19 vaccine acceptance: Differences between medical students and nursing students," Vaccines 2021,9(7), 783. https://doi.org/10.3390/vaccines9070783

[25] Phoenix Kit Han Mo et al. (2021), "Intentions to receive the COVID-19 vaccination in China: Application of the diffusion of the diffusion of innovations theory and the moderating role of openness to experience," Vaccines 2021,9(2),129; https://doi.org/10.3390/vaccines9020129.

[26] Manoj Sharma, Robert E Davis and Amenda H Wilkerson (2021), "COVID-19 vaccine acceptance among college students: A theory-based analysis:" Int. J. Environ. Res. Public Health 2021, 18(9), 4617; https://doi.org/10.3390/ijerph18094617.

[27] Peng-Wei Wang et al. (2021), "Motivation to have COV ID-19 vaccination explained using an extended protection motivation theory among university students in China: The role of information sources." Vaccines 2021, 9(4), 380; https://doi.org/10.3390/vaccines9040380.

[28] Lu Li et al. (2021), "The intention to receive the COVID-19 vaccine in China, Insights from Protection Motivation theory." Vaccines 2021, 9(5), 445; https://doi.org/10.3390/vaccines9050445)

[29] Taslima Akther and Tasnima Nur (2022). A model of factors influencing COVID-19 vaccine acceptance: A synthesis of the theory of reasoned action, conspiracy theory belief, awareness, perceived usefulness and perceived ease of use," PLoS ONE 17(1): e0261869.https://doi.org/10.1371/journal.pone.0261869.

[30] Tom Rosman et al(2021), "Protect ya Gfrandma! The effects of students' epistemic beliefs and prosocial values on COVID-19 vaccination intentions," Front. Psychol., Jun 24, 2021, Sec.Health Psychology https://doi.org/10.3389/fpsyg.2021.683987.

[31] Ryan Michael F, Jerome V (2022), "Predicting nursing students' intention to attend face-to-face classes on school reopening: A theory of planned behavior application," Wiley Online Library https://doi.org/10.1111/nuf.12732.