EXPLORING RISK-TAKING PROPENSITY AND FEAR OF TAKING COVID-19 VACCINE ON INTENTION TO TAKE COVID-19 VACCINE AMONG NURSING STUDENTS OF THE UNIVERSITY OF IBADAN, NIGERIA

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ABSTRACT: The COVID-19 pandemic has affected the whole world and nearly every facet of human endeavours. This has necessitated government sourcing for and encouraging her citizens to take vaccine against contracting the virus and spreading it. This study was conducted to investigate factors influencing intention to take COVID-19 vaccine among nursing students. The study adopted cross-sectional survey using three instruments: General Risk-Taking Propensity, Fear of Taking COVID-19 vaccine, and Intention to Take COVID-19 Scale for data collection. Purposive and convenience sampling techniques were used to select nursing students and 200 participants, respectively, for the study. Three hypotheses were tested using zero-ordered correlation and standard multiple regression analysis at $p<.05$ level of significance. The result revealed that risk-taking propensity and fear of taking COVID-19 vaccine significantly correlated with intention to take COVID-19 vaccine among nursing students. Furthermore, risk-taking propensity and fear of taking COVID-19 vaccine independently predicted intention to take COVID-19 vaccine. The study concludes that risk-taking propensity and fear of taking COVID-19 vaccine are robust predictors of intention to take COVID-19 vaccine among nursing students of the University of Ibadan. It is recommended that training and seminars should be organized for nursing students on COVID-19 vaccine protocol in order to develop positive attitudes and have adequate knowledge on COVID-19 vaccine.

Keywords: Risk-taking propensity, Fear of taking COVID-19 vaccine, Intention to take COVID-19 vaccine, Nursing students, Ibadan

INTRODUCTION

Corona virus 2019 (COVID-19) is a severe acute respiratory infection caused by the corona virus-2 that causes severe acute respiratory syndrome (SARS-CoV-2). The contemporary COVID-19 has challenged healthcare systems worldwide including Nigeria (Ahmed et al., 2021; Iorfa et al., 2020; Obi-Ani et al., 2021). The first COVID-19 cases were detected in Wuhan, China and the disease was declared pandemic in March 2020 by the World Health Organisation (WHO, 2020). By August 27, 2022 more than 605, 272,158 million people have been infected with 6,486, 672 million deaths worldwide (WHO Coronavirus COVID-19 Dashboard, 2022). The African continent remains the least affected, with little over 9, 277,165 million confirmed cases and 134,809 deaths. In Nigeria, as at 27 August 2022,

about 263, 322 cases have been confirmed while 3,148 deaths have been recorded in the entire 36 states and the Federal Capital Territory [Nigeria Centre for Disease Control (NCDC), 2022].

During the period of high infection and deaths, real time knowledge about the virus and its management were generated. With no proven treatments or medicines found then, governments across the world imposed border lockouts, travel bans, and quarantine in a bid to halt the spread of the virus causing huge economic downturn. Also, the pandemic overwhelmed the healthcare systems worldwide as they were unable to cope with the unprecedented number of patients requiring Intensive Care Units (ICUs) and other special cares. Many doctors, nurses, and other healthcare professionals were infected with the virus as they were in direct contact with COVID-19 patients leading to a significant number of deaths (Deressa et al., 2021). Therefore, the WHO recognizes the vital role played by healthcare workers and labels them as 'the most valuable resources for health' (WHO, 2020). They are also the most vulnerable when it comes to disease infection.

The rapid spread of the virus and continuous increase in number of cases alongside the partial and/or total lockdown protocols in many countries necessitate the urgent development of accurate diagnostic methods, effective treatments, and finally the vaccines for the disease (WHO, 2020).

Vaccine is one of the most reliable and cost effective public health interventions ever implemented that saves millions of lives each year. Following the deciphering of the genome sequence of SARS-CoV-2 in early 2020 and the declaration of the pandemic by the World Health Organization (WHO) in March 2020, scientists and pharmaceutical companies were able to develop vaccines (El-Elimat et al., 2021) for the COVID-19 virus. As of December 22, 2020, at least 85 vaccines were in preclinical development in animals and 63 in clinical development in humans, of which 43 in phase I, 21 in phase II, 18 in phase III, 6 were approved for early or limited use, 2 were approved for full use, and one vaccine was even been abandoned. Pfizer-Biotech's (BNT162b2) and Moderna (mRNA-1273) vaccines were approved for emergency use in the United States of America and later around the world (Konopinska et al., 2021).

Vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite availability of vaccination services. It is a complex phenomenon which is a growing continuum between vaccine acceptance and refusal (MacDonald, 2015). It is influenced by factors such as complacency, convenience and confidence (WHO Report of SAGE Working Group on Vaccine hesitancy, 2014). Despite the proven effectiveness and safety of vaccines, an increasing number of individuals perceive vaccines as unsafe and unnecessary (Deressa et al., 2021). Presently, there has been a steady decline in vaccines coverage and an increase in the occurrence of vaccine-preventable diseases. For instance, there has been 30% rise in measles cases globally. Vaccine hesitancy is believed to contribute greatly to this. Nigeria with the population of over 200 million is the most populated country in Africa and has a convoluted history of vaccine hesitancy (Bendauet al., 2021; Uzochukwu, 2021). Vaccination coverage in Nigeria has continuously dropped since its peak of 81.5% in the 1990s and by 2013, only 25% of children under the age of 2 were fully vaccinated (Ogundele et al., 2021). Also, Olawale et al. (2022) found that only a quarter of their participants were willing to take COVID-19 vaccine, while only 5.5% of the Nigerian population were vaccinated.

One factor considered in this study as likely predictor of vaccine intention (or hesitancy) is risk-taking propensity. The America Psychological Association (APA, 2015) defines risk as the probability or likelihood that a negative event will occur, such as the risk that a disease or a disorder will develop. Risk propensity being conceptualized as an individual's risk taking tendency, is an individual's current tendency to take or avoid risk is considered as an individual trait which can change over time as a result of experience (Sitkin & Weingart, 1995). An individual's willingness to take or avoid risks could have significant effects on his decisions-making ability under the conditions of risk and uncertainty (Ahmed et al., 2021). Important decisions take place under conditions of incomplete information is impossible for an individual to gather all the information and take all risks into consideration before making wise decisions. When apply to this study, an individual's risk-taking propensity may play an important role in the prediction of the intention to either receive COVID-19 vaccine or not COVID-19 (Bendau et al., 2021). In a study on the role of general risk preferences in messaging about COVID-19 vaccine take up, it was found that individuals' risk-taking propensity positively correlated with vaccination intentions (Dabala-Norris et al. 2020; Trueblood et al., 2021).

The second factor considered in this study as likely predictor of intention (or hesitancy) to take COVID-19 vaccine among university nursing students is fear of COVID-19 infection. Fear is defined as a basic, intense emotional arousal by the detection of imminent threat, involving an immediate alarm reaction that mobilizes the individual by triggering a set of physiological changes (APA, 2015). Understanding fear is an important part of an individual and community well-being as it predicts how an individual participate in daily occupations (Cordina et al., 2021). Occupational participation is the ability of an individual to participate in occupations of their choice, and is the satisfaction given within boundaries of the culture (Patelarou et al., 2022). The fear affect how people react to control guidelines required as preventive measures that aid in the overall outcome of the disease transmission in the community. During the current COVID-19 pandemic, fear was about whether an individual will be infected or being infected by others (Ahmed et al., 2021). Therefore, the fear of COVID-19 infection has led many individuals to abort their participation in social activities.

Statement of the Problem

The COVID-19 pandemic has affected the whole world and nearly every facet of people's lives. As a result, there was a need for frontline healthcare workers in patient-facing roles. These healthcare workers were responsible for the large number of infected groups and because their work requires close personal exposure to patients with SARS-CoV-2, frontline health-care workers were at high risk of getting infected and contributing to further spread. This is because health care workers can be exposed to the victims of the disease and transmits it from infected persons to healthy individuals (Obi-Ani et al., 2021). As the number of cases and deaths due to corona virus increases, there was an increased of awareness and need to protect frontline workers from COVID-19 exposure and its consequences. In other to curb the spread of the virus, vaccines have been produced. Vaccination was central to controlling the spread of COVID-19. Its success relies on having high levels of uptake or acceptance by the public over time.

An uncertainty or unwillingness to receive vaccinations was major barriers to manage the COVID-19 pandemic (Paul et al., 2021). Taking COVID-19 vaccine was an important challenge to be addressed. A study conducted in USA found that low intention to receive

vaccines against COVID-19 was mostly driven by the ability to take risk and fear (Ahmed et al., 2021). In a recent study, more than one-third of lay people were unsure or did not intend to take the vaccine (Olawale et al., 2022). Also, the study identified attitudes of healthcare workers could affect their intentions to receive vaccines against COVID-19. In this study, general knowledge about vaccines, rejection of vaccines conspiracies, perceived severity of COVID-19 and risk factors for COVID-19, and politics were the significant predictor of intention to receive vaccines against COVID-19 (Iorfa et al., 2020). Since the healthcare workers were involved in direct care of patients, and were among the first to receive the vaccines, their concerns about the safety of vaccines was to be addressed as early as possible. It is important to consider their intention about COVID-19 vaccination to better address barriers to widespread vaccination acceptance. Acceptance of vaccination among healthcare workers was mandatory to minimize and reduce the chain of transmission of COVID-19 (Cordina et al., 2021). Therefore, this study was conducted to assess the extent of intention to receive COVID-19 and its predictors among nursing students in the University of Ibadan.

The following research questions guided this study:

1) Would there be significant correlation between risk-taking propensity and intention to take COVID-19 vaccine among nursing students in the University of Ibadan?
2) Would there be significant correlation between fear of COVID-19 infection and intention to take COVID-19 vaccine among nursing students in the University of Ibadan?
3) Would risk-taking propensity and fear of taking COVID-19 vaccine independently predict intention to take COVID-19 vaccine among nursing students in the University of Ibadan?

Purpose of the Study

The main purpose of this study was to explore influence of risk-taking propensity and fear of taking COVID-19 vaccine on the intention to take COVID-19 vaccine among nursing students of the University of Ibadan. The specific objectives of the study are (i) to explore the relationship among risk-taking propensity, fear of COVID-19, and intention to take COVID-19 vaccine among nursing students of the University of Ibadan, (ii) to determine whether risk-taking propensity will independently predict the intention to take COVID-19 vaccine among nursing students of the University of Ibadan, and (iii) to investigate whether fear of taking COVID-19 vaccine will independently predict intention to take COVID-19 vaccine among nursing students of the University of Ibadan.

This study will add to the emerging literature on the predictors of behavioural responses to COVID-19 including whether or not to get vaccinated. The result of this study will proffer psychological predictors of intention to take COVID-19 vaccines to reduce hesitant of taking the vaccine among the young population. Also, the study will assist policy-makers in formulating coherence policy to reduce vaccine hesitancy among the general populace. Finally, it will provide healthcare providers, counsellors and psychologists with the requisite knowledge in formulating and implementing vaccine policies in Nigeria.

Hypotheses

H1. Risk taking propensity will significantly correlate with intention to take COVID-19 vaccine among nursing students of the University of Ibadan.

H2. Fear of COVID-19 infection will significantly correlate with intention to take COVID-19 vaccine among nursing students of the University of Ibadan.

H3. Risk-taking propensity and fear of COVID-19 will independently predict intention to take COVID-19 vaccine among nursing students of the University of Ibadan.

METHOD

Research Setting

The study was conducted among nursing students of the University of Ibadan.

Sampling Techniques and Participants

Purposive sampling technique was used to select nursing students while convenience sampling technique was adopted to select 200 students to participate in the study. The descriptive analysis showed that 118 (59%) of the participants were female students while 82(41%) were male students with age bracket that includes 20(10%) with the age bracket of 17-20, followed by128 (64%) with 21-25 age bracket, 46 (23%) with 26-30 years age bracket, and 6(3%) with 31 years and above age bracket. Many participants 188 (94%) were singles while only 12(6%) were married couples. In term of their ethnic backgrounds, 120 (60%) were Yoruba, 58(29%) were Igbo, while 22(11%) were Hausa. Finally, 126(63%) of the participants considered themselves Christians, 71(35%) were Muslims, while 3(2%) did not indicate their religious affiliations.

Instruments

Three instruments were used for data collection.

General Risk–taking Propensity This was measured using the general risk taking propensity scale (GRiPS) developed by Zhang et al. (2018). It an 8-item presented on 5-point Likert's scale with response format of strongly disagree = 1 to strongly agreed = 5 scale. Sample items include: 'Taking risks make life more fun' and 'I am a believer of taking chances'. The scale has a Cronbach's alpha of 0.92.

Fear of Taking COVID-19 Vaccine This was measured using the Fear of COVID-19 Scale (FCV-19S) developed by Ahorsu et al. (2020). This scale complements the clinical efforts in preventing the spread and treating of COVID-19 cases. It a 7- item scale presented in a 5-point Likert's answers format ranges from strongly disagree, disagree, undecided, agree to strongly agree. Examples of items are: 'I am afraid of losing my life because of corona virus-19' and 'It makes me uncomfortable to think about the high score indicates a great fear of corona virus -19'. The scale has a Cronbach's alpha of 0.86.

Intention to Take COVID-19 Vaccine This was measured using the scale developed by Ahmed et al. (2021) to determine the intention to receive COVID-19 vaccine among health professionals working in public hospitals of Ilu Aba Bora and Buno Bedelle Zone Hospitals, Ethiopia. It is a 20-item scale that include items measuring knowledge, attitude, perception and intention presented on a 5-point Likert's format that ranges from strongly disagree, disagree, undecided, agree and strongly agree. Examples of items include: 'COVID-19 vaccine is very effective', 'the newly discovered COVID-19 vaccines are safe', 'I should have been vaccinated' and 'I intend to receive COVID-19 vaccine'. The scale has Cronbach's alpha of 0.82.

Procedure for Data Collection

The researchers obtained a letter of introduction from the Department of Psychology, University of Ibadan for official clearance. When informed consent and willingness to take part in the research was obtained, the potential participants were approached by the researchers who explained the purpose of the study to them. They were assured of confidentiality of their responses as no identify was attached to the questionnaire. Also, they were told participation was voluntary. Students who were interested and willing to participate in the study were given the questionnaires to complete. All the 200 copies of the questionnaires given to participants to fill were retrieved and used for the analysis.

Design and Statistics

A cross-sectional survey design was used for data collection in this study. All completed questionnaires were coded and analysed using Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistic was used to summarise socio-demographic variables. Zero-ordered correlation was used to test hypotheses 1 and 2 while standard multiple regressions analysis was used to test hypothesis 3. All hypotheses were accepted at $p < 0.05$ level of significance.

RESULTS

Hypothesis one: Risk-taking propensity will significantly correlate with intention to take COVID-19 vaccine. This was tested using zero-ordered correlation statistic and the result is presented in Table 1.

Table1: Zero-ordered correlation showing relationship between risk-taking propensity and intention to take COVID-19 vaccine among nursing students

Variables	N	Mean	SD	1	2
1 Risk-taking propensity	200	25.75	4.86	-	
2 Fear of taking COVID-19 vaccine	200	72.98	8.98	.283*	-

* Significance at 0.05

Table 1 shows the significant relationship between risk-taking propensity and intention to take COVID-19 vaccine. The result revealed a significant relationship between risk-taking

propensity and intention to take COVID-19 vaccine [r (198) = .283, p< 0.05]. Therefore, the hypothesis is accepted.

Hypotheses two: Fear of COVID-19 will significantly correlate with intention to take COVID-19 vaccine. This was tested using zero-ordered correlation statistic and the result is presented in Table 2.

Table2: Zero-ordered correlation showing the relationship between fear of taking COVID-19 vaccine and intention to take COVID-19 vaccine among nursing students

Variables	N	M	SD	1	2
Fear of taking COVID-19 vaccine	200	17.42	5.11	-	
Intention to take COVID-19 vaccine	200	72.98	8.98	.298*	-

Significance at .05

Table 2 shows a significant relationship between fear of taking COVID-19 vaccine and the intention to take COVID-19 vaccine. The result revealed a significant relationship between fear of taking COVID-19 vaccine and intention to take COVID-19 vaccine [r (198) = .293 p <0.05]. Therefore, the hypothesis is accepted.

Hypotheses three: Risk-taking propensity and fear of taking COVID-19 vaccine will independently predict intention to take COVID-19 vaccine. The hypothesis was tested with standard multiple regressions analysis and the result is presented in Table 3.

Table 3: Standard multiple regressions analysis showing risk-taking propensity and the fear of taking COVID-19 vaccine to intention as independent predictors of intention to take COVID-19 vaccine among nursing students

Model	β	t	p
Risk-taking propensity	.322	4.688	<.05
Fear of taking COVID-19 vaccine	.366	5.541	<.05

Table 3 shows the significant contributions of risk-taking propensity and fear of taking COVID-19 vaccine to intention to take COVID-19 vaccine. The result revealed that risk-taking propensity (β = .322, p < 0.05) and fear of taking COVID-19 vaccine (β = .366, p < 0.05) independently predicted intention to take COVID-19 vaccine. The hypothesis is accepted.

Discussion

This study investigated risk-taking propensity and fear of taking COVID-19 vaccine as predictors of intention to take COVID-19 vaccine among nursing students of the University of Ibadan. Two hundred students were accidentally sampled to participate in the study. Hypothesis one which stated that risk-taking propensity will significantly correlate with intention to take COVID-19 vaccine was confirmed. This implies that risk-taking propensity

is an important factor in a person's intention to take COVID-19 vaccine. This finding corroborated that obtained by Peter et al. (2021) that risk-taking propensity influences the intention to take COVID-19 vaccine. Also, the finding of Dabala-Norris et al. (2020) supported the finding in this study that taking risk is an important predictor of vaccine intention and older people were more willing to take risk to take vaccine against COVID-19 than young people.

Hypotheses two states that fear of COVID-19 will significantly correlate with intention to take COVID-19 vaccine. The result indicated a significant relationship between fear of taking COVID-19 vaccine and intention to take COVID-19 vaccine. This implies that fear of COVID-19 significantly influence students' intention to take COVID-19 vaccine. The study is in line with the result obtained by Levin et al. (2020) that initial public health messaging on vaccines focused actually created awareness and building trust among people about the efficacy and thereby reduces people's fear of taking the COVID-19 vaccine across various age brackets.

Hypothesis three stated that risk-taking propensity and fear of taking COVID-19 vaccine will independently predict intention to take COVID-19 vaccine among nursing students. The result revealed that risk-taking propensity and fear of taking COVID-19 vaccine independently predicted the intention to take COVID-19 vaccine among nursing students. In order of magnitude of prediction, fear of taking COVID-19 vaccine has higher prediction to intention to take COVID-19 vaccine follow by risk-taking propensity. The findings of this study corroborated with the result by Paul et al. (2021) who found risk-taking propensity and fear of COVID-19 to be robust predictors of intention to take COVID-19 vaccine among their study population.

Conclusion

The main purpose of this study was to investigate factors that predict intentions to take COVID-19 vaccine among nursing students. In line with the findings in this research, both risk-taking propensity and fear of taking COVID-19 vaccine significantly correlated with the intention to take COVID-19 vaccine. Also, risk-taking propensity and fear of taking COVID-19 vaccine independently predicted intention to take COVID-19 vaccine among nursing students of the University of Ibadan.

Recommendations of the Study

Based on the findings in this study, the following recommendations are put forward:

1. Nursing students should be provided with healthy and disease free learning environment in the context of COVID-19 pandemic.

2. Prevention of COVID-19 among health workers should be based on risk assessment and introduction of appropriate measures.

3. Lectures, seminars, etc., should be conducted by the university authority for nursing students on COVID-19 vaccines in order for them to develop positive attitudes towards and have good knowledge on safety measures to prevent contracting COVID-19 virus and the implication of not taking the COVID-19 vaccine.

4. Government should help in creating more awareness on the importance of having positive attitude towards COVID-19 to other stakeholders in the health sectors in order to reduce the spread of the virus and to increase acceptance of the COVID-19 vaccines across the general population.

Limitations and suggestions for further study

The study has the following limitations which need to be highlighted:

First, the study was cross-sectional survey which allows data to be collected once. As there were second and third waves and different variants of the virus, a longitudinal study is suggested in further study.

Second, since the population of the present study was only nursing students, and considering the sample size of 200 students, the result cannot be generalised to larger population. Hence, it is suggested that further study should use larger sample size and include students in allied professions such as medical laboratory staff and medical practitioners.

Third, data for the study was collected using structured questionnaire which cannot rule out response bias. Other methods such as documentary evidence and individual stories about COVI-19 and vaccine complains should be explored in further study.

Finally, only two independent variables (risk-taking propensity and fear of taking COVID-19 vaccines) were investigated in this study. Further study should include personality traits, social support, self-esteem, and government policies as possible predictors of intention to take vaccines including COVID-19 vaccine.

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