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RESEARCH ARTICLE

FACTORS INFLUENCING THE UPTAKE OF COVID-19 VACCINE

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Abstract

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WHO identified this severe form of pneumonia caused by a new corona virus leading to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on December 31, 2019 in Wuhan, China. Coronavirus disease 2019 (Covid-19) is a respiratory disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).COVID-19 disease is believed to be transmitted primarily through contact with respiratory droplets produced by infected people, and its clinical manifestations range from asymptomatic cases and mild upper respiratory tract infections, to cases of pneumonia and severe respiratory failure and death. Globally, the new coronavirus has infected nearly 132 million people. Vaccination is an important strategy to control the COVID-19 pandemic. Participants who agreed or strongly believed they had some immunity to COVID-19 were also significantly less likely to accept the vaccine. Participants with a history of vaccine hesitancy for their children were also significantly less likely to accept the COVID-19 vaccine.

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Introduction:-

Corona virus disease-2019(COVID-19) is an emerging public health problem threatening the life of over 2.4 million people globally [1-3]. The WHO identified this severe form of pneumonia caused by a new corona virus leading to severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) on 31 December 2019in Wuhan, China [5-7]. On march 26, 2020, it was declared as a pandemic disease [8-10].Coronavirusdisease2019(COVID-19)isthediseaseoftherespiratorytractcausedbythesevere acute respiratory syndrome corona virus 2 (SARS-CoV-2) [11-13]. COVID19 disease is said to be mainly transmitted throughcontact with respiratory droplets produced byan infected person and its clinical manifestations range from asymptomatic cases and mild upperairway infection, up to severe and fatal cases with pneumonia and acute respiratory failure[14-16].

Globally, the new Corona virus has infected close to 132 million people with more than 2.8million deaths as of April 7, 2021. In the United States alone, the number of COVID-19 casessur passed 30.5 million with more than 552,000 deaths. The infections and associated morbidityand mortality continue to increase worldwide with intermittent flare ups even in countries that were assumed to have brought it under control [17-19]. Currently, the WHO reports that COVID-19 deaths in Africa have surged by 40% ever since the virus was reported onthecontinenton14February 2020.ThissurgecomesasAfricaisbattlingnewandmorecontagious variants for which it has geared up its largest-ever vaccination drive [20-21].

PriortotheintroductionoftheCOVID-19vaccineandeffectiveexperimentaltreatments,countries have beenrelying on a combination of non-pharmaceutical interventions (NPIs)suchas face coverings and physical distancing, and policy measures such as severe restrictions onpublicgatherings,temporaryclosureofinstitutionsandworkfromhome(WFH)policies [17].

Uptakeof COVID-19vaccine
According to the Ministry of Health, Uganda aims at vaccinating at least 49.6% of its population(21,936,011)withOxfordUniversity–AstraZenecaCOVID-19vaccineatdifferentphases.Unfortunately, there has been no mass education about this activity and so many people could beliving in fear especially after reading about how similar vaccines have been stopped in somecountries all over the world [20]. Data on knowledge, attitudes, and practicestoward COVID-19 are limited [22], and little is known about acceptance ofreceivingthevaccineamongUgandans,andreportsfromthegovernmentofUgandaalsoindicate there is a slow uptake of the COVID-19 vaccine in the country, with only about 400,000peoplevaccinated by10May2021[23].

According to Viswanath et al., (2021), about 65–68% of the sample in their study was willing toget a vaccine for themselves or children. These numbers have improved somewhat in the UnitedStatesbutthevaccinehesitancyamongcertainsectionsstillremains.TheWorldHealthOrganization (WHO) reports that immunization programs save 2–3 million lives every year withvaccines to prevent 20 different diseases such as polio, diphtheria, tetanus, smallpox, pertussis,influenza and measles among others. Despite the strong science, and solid health and publichealth reasons to vaccinate, the proportion of people questioning vaccines, vaccine hesitancy, is agrowingthreat [17].

Immunization is an important strategy for controlling the COVID-19 pandemic. COVID-19vaccination was recently launched in Uganda, with prioritization to healthcare workers and high-risk individuals. In their study that aimed to determine the acceptability of COVID-19 vaccineamong persons at high risk of COVID-19 morbidity and mortality in Uganda, Bongomin et al.[23] determined that out of a total of 317 participants, 216 (70.1%) participants were willing toaccept the COVID-19 vaccine and the odds of willingness to accept COVID-19 vaccination werefourtimesgreaterifaparticipantwasmalecomparedwithifaparticipantwasfemale.Participants who agreed or strongly believed that they have some immunity against COVID-19werealsosignificantlylesslikelytoacceptthevaccine.Participants whohadahistoryofvaccination hesitancy for their children were also significantly less likely to accept the COVID-19vaccine.

When Viswanath et al. [17], examined the individual, communication and social determinantsassociated with vaccines uptake, they noted that about 68% of the participants said that they wereready to get the vaccine for themselves and 65% agreed that they would vaccinate people undertheircaresuchaschildren.Theproportionofsampleswhoexpressedthelikelihoodofgettingthe vaccine themselves was higher than the likelihood of vaccinating people they cared about, forexamplechildren.

Inacross-sectionalstudythatwascarriedoutin1,500UKadultstoinvestigatefactorsassociated with intention to be vaccinated against COVID-19, 64% of participants reported beingvery likely to be vaccinated against COVID-19, 27% were unsure, and 9% reported being veryunlikely to be vaccinated. Personal and clinical characteristics, previous influenza vaccination,generalvaccinationbeliefs,andbeliefsandattitudesaboutCOVID-19andaCOVID-19vaccination explained 76% of the variance in vaccination intention. Intention to be vaccinatedwas associated with more positive general COVID-19 vaccination beliefs and attitudes, weakerbeliefs that the vaccination would cause side effects or be unsafe, greater perceived informationsufficiency to make an informed decision about COVID-19 vaccination, greater perceived risk ofCOVID-19toothers(butnotrisktooneself),olderage,andhavingbeenvaccinatedforinfluenzalastwinter(2019/20).Despiteuncertaintya roundthedetailsofaCOVID-19vaccination, most participants reported intendingto be vaccinated for COVID-19 [24].

A study conducted to investigate COVID-19 vaccine acceptance across nine Low- and Middle-Income Countries indicated that the prevalence of vaccine acceptance increased from 76.4%(90% effectiveness) to 88.8% (95% effectiveness). Malaysia, Thailand, Bangladesh, and fiveAfrican countries (Democratic Republic of Congo, Benin, Uganda, Malawi, and Mali) had loweracceptance odds compared to Brazil. Individuals who perceived taking the vaccine as importanttoprotectthemselveshadthehighestacceptanceoddsat95% effectiveness[25].Socio-DemographicFactorsinfluencingtheUptakeofCOVID-19Vaccine

COVID-19 has affected underserved groups- those from lower socioeconomic status, and racialandethnicminoritygroupsdisproportionatelycomparedtoothergroups[17], and health experts agree that widespread use of safe and effective vaccines will rapidlycontain the COVID-19 pandemic.

While examining the extent and determinants of COVID- 19 vaccine hesitancy in South Africa,Cooperetal.[26]foundthatvaccineacceptance,intentionandtrustvariedbycertaindemographics. For example, participants in the Northern Cape Province had lower rates on allthree dimensions (acceptance, intention, and trust) in comparison to other provinces and 83% ofparticipants in an urban suburb area indicated they would get vaccinated compared to between73% and 78% in other settings. Compared with other employment categories, government andpublic sector employees had the lowest intent of getting vaccinated (79%), while pensioners hadthehighest response rate(87%).

Inastudyaimedatdeterminingsocio-demographicfactorsassociatedwithacceptanceofvaccines and clinical trials of COVID-19 in western Uganda, the acceptance rate for COVID-19vaccination was (53.6%; 572/1067) with those aged 18–20 years, males. Elites at tertiary level ofeducation (degree or diploma), students, Muslims, married, non-salary earners and rural dwellershad better odds and likeliness to accept vaccination. Only 44.6% (476/1067) showed interest inclinical trials among which; males, primary school leavers, students, Christians, un-married,respondents who didn't earn any salary and rural dwellers had better odds and likelihood toparticipatein clinical trials[20].

According to Viswanath et al. [17], communities with larger proportions of minority andimmigrant populations and blue-collar workers or low wage earners bore the brunt of job losses,lack of access to health care services and information. The data in their study showed a mixedpicture. Those with higher education (schooling) were relatively more likely to vaccinate peoplein their care such as children compared to those with lower schooling. Among racial and ethnicgroups, non-Hispanic Blacks were least likely to agree to vaccinate self or people in their care.The data alsoshowedthatthosewho are notworkingare more likely togetvaccinesforthemselves andpeoplein theircare comparedto those whoare working. When they examinedthedata further,thelikelihood ofvaccinating washigheramong retired andstudent groups.

A study conducted to investigate COVID-19 vaccine acceptance across nine Low- and Middle-IncomeCountriesindicatedthatvaccineacceptancewaspositivelyassociatedwithCOVID-19

knowledge, worry/fear regarding COVID-19, higher income, younger age, and testing negativefor COVID-19.However, chronicdiseaseandfemale genderreducedthe oddsforvaccineacceptance. The main reasons underpinning vaccine refusal were fear of side effects (41.2%) andlackof confidencein vaccine effectiveness(15.1%) [25]. Knowledge,AttitudesandPractices regardingCOVID-19Vaccine

News media are major source of information on health and it is more so in the context ofCOVID-19 given how new the pathogen is. The fragmentation of mass audience, means thatthere are many choices for news and these platforms have distinct editorial slants on the natureandthreatofthePandemicaswellaseffectivenessofpublichealthmitigationmeasures[27].

Some studies show that the likelihood of getting a COVID-19 vaccine for self and people in theircare such as children depends on what groups of platforms serves as "major" source of COVID-19 news. People who relied on mainstream print outlets or newspapers such as the New YorkTimes or the Washington Post or the Wall Street Journal as a major source of COVID-19 newswere more likely to vaccinate self and children compared to those who did not rely on suchsources. Similarly, people who relied on online media news aggregators such as Google andYahoo news were more likely to vaccinate self and children compared to those who did not relyonsuch sources[17].

In their study,Bono et al., (2021) suggest that reasons for vaccine refusal differ according toregion. For example, participants from Asian countries (Malaysia, Thailand, and Bangladesh)recorded a high percentage for fear of COVID-19 vaccine side effects. On the other hand, thebelief that the COVID-19 vaccine was designed to harm others was endorsed to a great extent inallfive African countries.

AftertheirstudyinSouthAfrica,Cooperetal.[26]concludedthatoutofthe2844participants, 34%believed that vaccination could result in serious health side effects, while only28% were dismissive of this viewpoint. In terms of views about immunity, a larger share of theparticipantsbelievedthatinfection-acquiredimmunityispreferabletovaccine-acquiredimmunity; 40% agreed with this while 26% disagreed. In relation to vaccine effectiveness, 58%reportedthattheybelievethatvaccinationspreventthediseasetheyareintendedfor,incontrast to 10% who were skeptical about vaccine effectiveness. The percentage of respondents whobelieved that vaccinations can lead to severe health conditions increased from 28% in March2020 to 36% in February 2021, while the percentage of people who believed that infection-acquired immunity is preferable to vaccine-acquired immunity increased from 33% to 44%. Thepublic perceptions of the effectiveness of vaccines remained in a relatively positive light duringthisperiod, from March2020 to February2021.

On the other hand, when Laudisoit et al. [28]analysedcommunity knowledge, confidence,and trust in COVID-19vaccinesamong healthcare workers in Uganda,they identified a lowlevel of knowledge, confidence and trust of COVID-19 vaccine. In particular, there were nodifferences in the knowledge, trust and confidence scores with age. These observations highlightmistrust in the community with regard to COVID-19 vaccines in Uganda. These findings were inagreement with previous studies in Africa. They also found that the least educated, i.e., illiterateand certificate holders, had a higher confidence and trust level in the COVID-19 vaccines thanthose who had a higherlevelof education. Findingsinthe study are inagreementwiththosefromtheDemocraticRepublicofCongo(DRC)inwhichdoctorshadalow(27.7%)acceptabilityforCOVID-19 vaccines.

In France, healthcare workers were associated with increased vaccine acceptance, contrary tofindings from Uganda and the DRC (resource-limited countries). The study identified knowledgeas a barrier, if not well-nuanced and properly explained in the higher educated people. Highereducated people have also more access to internet and hence to the misinformation as well as thereal information. Of course, higher education is also associated with the need for greater demandfor information about risks and benefits before consent to participate in a trial would be given.This finding may indicate that insufficient information about COVID-19 clinical trials have beengiven to healthcare workers, and that health professionals do not feel consulted or adequatelyengaged in trial design and plans [28]. A study conducted to investigateCOVID-19 vaccine acceptance across nine Low- and Middle-Income Countries indicated thatvaccine acceptance was positively associated with COVID-19 knowledge, worry/fear regardingCOVID-19,higherincome, younger age,andtesting negativeforCOVID-19 [25].

In a study by Olomofe et al. [29], among respondents who indicated an intent not to getvaccinated, the main reason (34%) was that the vaccines were too new and they preferred to waitand see how it would work on other people. This reason was followed by worries about thepossible side effects (21%) and not trusting the government to make sure the vaccine is safe andeffective (14%). These three factors accounted for just over two-thirds of all the reasons whichrespondents gave for not wanting to get vaccinated. Belief that politics had played too much of aroleintheCOVID-19vaccinedevelopmentprocessandnottrustingvaccinesingeneralaccounted for8%and 6%of thereasons respectively.

Investigation carried out byMalesza[30] into potential predictors for the uptake of theCOVID-19 vaccination in Poland, showed that predictors for acceptance of the vaccination were:being talked through the importance of the vaccination and potential side-effects by a medicalprofessional; sharing living space with others; having a high-ranking occupation; suffering fromchronic illnesses; being able to access medical services by driving or walking rather than usingpublic transport or relying on others. Those who opted not to be vaccinated most frequentlyjustify their decision by saying that they were concerned about the efficacy of the vaccine or thattheywere worriedaboutside-effects.

Conclusion:-
Most people have the knowledge about Covid-19 vaccine and good attitude toward covid-19vaccine. Despitethe knowledgeofCOVID-19Vaccine, theuptakeofthevaccinehas remained lowwith most peoplefearing the sideeffects of the vaccine

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