Predictors of COVID-19 Vaccine Hesitancy

Subjects: Health Care Sciences & Services
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Modifiable predictors of vaccine hesitancy at the start of South Africa's COVID-19 vaccination rollout have been identified here. These factors should be addressed by different stakeholders involved in the national immunization program through tailored communication and other effective strategies that increase vaccine literacy, reach low-income households, and engender confidence in government.

Keywords: immunization ; vaccine acceptance ; behaviors ; social drivers ; SARS-CoV-2

1. Introduction

South Africa has reported the highest number of cases of COVID-19 in Africa despite implementing various control measures [1]. The country responded to the COVID-19 pandemic by imposing an extended period of nationwide lockdown beginning on 26 March 2020 [2]. In addition to the lockdown, the country's pandemic response included implementing infection prevention and control measures such as frequent handwashing, use of alcohol-based hand sanitizers, and cough hygiene [3]. The government also imposed mandatory use of various preventive non-pharmaceutical interventions in public (including face masks and physical distancing) as well as containment measures (such as case identification, isolation, contact tracing, and quarantine) that have played an important role in decreasing transmission [4][5]. The hope for the return to normalcy has been renewed with the development and approval for emergency use of several vaccine candidates against SARS-CoV-2 to complement the non-pharmaceutical interventions [6][7]. Current evidence suggests that vaccines are among the most effective prevention tools available to address the unprecedented global health crisis as they prevent infection transmission and reduce hospitalization and death [8]. Thus, efforts to control the COVID-19 pandemic largely depend on the development, acquisition, and administration at large scale of effective vaccines.

2. Current Insights

In this community-based cross-sectional research, one-third of participants reported their intention to delay or refuse the vaccine once available. Factors independently associated with COVID-19 vaccine hesitancy covered various aspects of the BeSD domains, including sociodemographic variables (age, race, low monthly income), practical issues (lack of access to government COVID-19 registration platform), thinking and feeling (government distrust, concern about safety/side effect, misinformation) and social processes (not holding oneself responsible for the final decision to vaccinate). These findings point to three features that should shape an approach to vaccine promotion in South Africa, which may be applicable to other LMIC contexts.

2.1. Community Profiles: Sociodemographic Variables and Trust in Government

Regardless of education level, the likelihood of vaccine hesitancy was predicted by young age [9][10], racial disparity [11][12], and low monthly income [13][14]. Consistent with other COVID-19 studies [15][16], government distrust was associated with vaccine hesitancy among these respondents. Since people with low socioeconomic status have been unequally impacted, this might explain in part the association found between vaccine hesitancy, distrust, low monthly income, and ethnic disparity [17][18][19]. Vaccination uptake in Africa is associated with the level of trust communities have for government. For example, one study of child vaccination rates in Africa found a significantly reduced rate of vaccination in regions where the local population was distrustful of local authorities, with a one standard deviation increase in the institutional mistrust index being associated with a 10% increase in the likelihood that a child had missed any of the eight basic vaccines [20].

2.2. Priority Messaging: Addressing Concerns about Vaccine Safety and Side Effects

The findings align with earlier studies that found vaccine hesitancy among adults (parents/caregivers) and is associated with concerns about side effects [21][22]. For example, a range of studies conducted before [23][24][25] and after [26][27] the introduction of the school-based human papilloma virus (HPV) vaccination program in 2014 all revealed that parents might

have various concerns regarding the HPV vaccine, including its safety and efficacy, and its short- and long-term side effects. A global multi-country study analyzing COVID-19 vaccine willingness in June 2020 [28] with a one-year follow-up in June 2021 [29] showed that the level of hesitancy remained high in LMICs and urged health policymakers to provide accurate information regarding efficacy and safety of COVID-19 vaccines in comparison to illness risk. The Ipsos [30] study (country = 15, participants = 5932) conducted in partnership with the World Economic Forum found that perceptions of risk to health (side effects and speed of vaccine to market) perfectly described the reason for unwillingness to vaccinate against COVID-19. A similar pattern was reported in Ghana [31] and Nigeria [32]. Furthermore, in a survey of 5416 Africans, 37% of participants were hesitant to accept the COVID-19 immunization once available to them (with the highest level of hesitancy observed among participants from Central Africa; 67%), and 79% were concerned about its negative effects [33]. Increasingly in South Africa, more people are engaging with fake information about vaccination which informs a false picture of risk [27]. It has been found that not having access to government information platforms and believing in conspiracy theories strongly predicted hesitancy towards the COVID-19 vaccine. Where social media has been allowed to dominate vaccine messaging, one global study found that this directly impacted vaccine uptake by increasing public doubts of vaccine safety [34].

2.3. The Value of Socially Embedded Approaches to Vaccine Promotion

Approaches to vaccine hesitancy should also consider addressing personal motivation and social influences as well as creating an enabling environment [35][36][37]. Most participants believed that people who do not get the vaccine are taking risks both for their own health and that of the wider community. Additionally, respondents expressed optimism that the majority of adults in their local communities will receive a COVID-19 vaccination and that a variety of stakeholders, including family, friends, and local and political leaders, will advocate for them to do so. This is critical to behavior change in a community since personal, interpersonal, community and social/political factors need to be addressed for a change in behavior to occur in many people and then be maintained and sustained [38]. This is because the enablers or barriers to behavior change can be readily identified. For example, if a local faith leader is speaking out against vaccination it will most likely have an impact on the social norms of the local community. Furthermore, it has been found that half of the participants considered healthcare workers (nurse/doctor) as their reliable source of information [39] when confronted with confusing information, while more than half of respondents indicated that they would prefer to be vaccinated in a health-related facility such as a hospital, clinic, or pharmacy. Consequently, if vaccine hesitancy is high among healthcare workers [40] or if the local clinic has a reputation for providing a poor service, then these too will affect vaccine uptake as they will constitute a barrier to an enabling environment.

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