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Vacunas



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Letter to the editor

Lack of COVID-19 vaccination in rural areas of Pakistan



Falta de la vacuna frente a la COVID-19 en zonas rurales de Pakistán

The spread of Coronavirus Disease 2019 (COVID-19) and its isolation became highly stressful for individuals worldwide. The best approach to deal with the pandemic and reduce the severity of infection rates was to make vaccines easily accessible worldwide. Pakistan initiated its immunization drive with the Chinese vaccine Sinopharm in February 2021. Following that, different vaccines, namely Sinovac, AstraZeneca, Cansino, Sputnik, Pfizer-BioNTech, and Moderna, were introduced and are being widely administered all over the country. However, despite the availability of multiple vaccines in Pakistan, only 44.61% of the total population has been fully vaccinated as of March 2022. This percentage majorly accounts for the population residing in urban areas. According to a case study published in 2021, vaccination attempts have been far less productive in rural areas of Pakistan.

Apart from COVID-19, the incidence of vaccinepreventableillnesses such as polio, measles, tetanus, and many more are also high in Pakistan due to the low vaccination coverage in rural areas over the years. A study conducted in 2020 focused on the extent of Expanded Program of Immunization (EPI) in Pakistan at the district level, stating Federally Administered Tribal Area (FATA), Khyber Pakhtunkhwa (KPK), and Balochistan as areas of crucial concern for lower coverage compared to Punjab and Sindh.4 This negligible vaccination status in rural populations is due to numerous reasons such as lack of education and knowledge regarding the significance of vaccination being a major one.5 In addition, myths and misconceptions regarding vaccination and the allegations about COVID-19 vaccines also hinder the vaccination rates of these individuals. Another contributing factor could be far-reaching vaccination centers creating conveyance issues faced by the public to access these outreach services. Pakistan's health authorities are also reluctant to purchase COVID 19 vaccines. Instead, they benefit from acquiring them from countries with

cordial relations and from World Health Organization (WHO) because of the country's poor economic state.⁶

To minimize the rate of morbidity and mortality from COVID-19, certain steps need to be carried out to expand the immunization program in rural areas of Pakistan. Firstly, our healthcare system must take the initiative to conduct vaccination campaigns to increase awareness, provide accurate knowledge, clarify all the misconceptions, explain the significance of receiving vaccination shots, and increase vaccine acceptance among the general population. Secondly, the government should provide free-of-cost transportation services to all far-reaching vaccination centers, along with proper surveillance and adequate supervision on a regular basis. Thirdly, door-to-door interventions should be provided in hard-to-reach places, along with hiring adequately paid vaccinators to overcome their reluctance to serve remote areas. Lastly, healthcare authorities should practice an integrative approach to stay prepared in advance to deal with the consequences of pandemics, especially with regards to immunization programs.

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AS conceived the idea of manuscript. AS, MR, AS performed the literature search. AS, MR, AS, SA wrote the manuscript. SA performed revision and supervised the project. All authors read and approved of the final manuscript.

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REFERENCES

- Zakar R, Momina Au, Shahzad S, Hayee M, Shahzad R, Zakar MZ. COVID-19 vaccination hesitancy or acceptance and its associated factors: findings from post-vaccination cross-sectional survey from Punjab Pakistan. Int J Environ Res Public Health. 2022;19(3):1305. https://doi.org/10.3390/ijerph19031305.
- Ritchie H, Mathieu E, Rodés-Guirao L, Appel C, Giattino C, Ortiz-Ospina E, et al. Coronavirus pandemic (COVID-19). Our world in data; 2020 https://ourworldindata.org/covid-vaccinations.

- 3. Moulabuksh M, Abbasi SB, Aftab N. The vaccine dilemma. A case study of Pakistan. Pak J Int Affairs. 2021;4(2). https://doi.org/10.52337/pjia.v4i2.197.
- 4. Umer MF, Zofeen S, Hu W, Qi X, Zhuang G. Spatiotemporal clustering analysis of Expanded Program on Immunization (EPI) vaccination coverage in Pakistan. Sci Rep. 2020;10(1):1–11. https://doi.org/10.1038/s41598-020-67839-0.
- Khan A, Khan S, Ullah I, Yaseen S, Khan GH, Rashid H, et al. Evaluation of immunization coverage in the rural area of Peshawar, Khyber Pakhtunkhwa. Cureus. 2019;11(1). https://doi.org/10.7759/cureus.3992.
- Saif A, Yaseen MO. The looming threat of a disastrous wave of COVID-19 and public health preparedness in Pakistan. Disaster Med Public Health Prep. 2022:1–4 https://doi.org/10.1017/dmp. 2022.17.

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