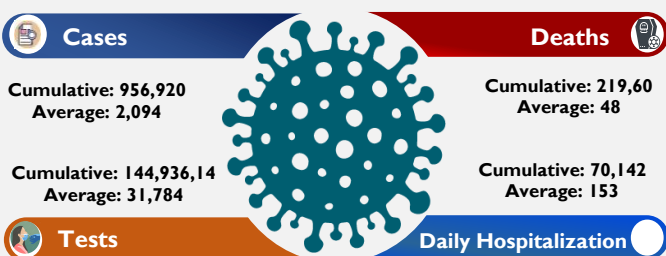


COVID-19 Vaccine Hesitancy and Attitudes in Pakistan: A Cross-Sectional Phone Survey of Major Urban Cities

Introduction

COVID-19 emerged as one of the biggest health and humanitarian crises in recent times which persists with resurgent waves. The mainstay of epidemic control was to limit contact between individuals, either by the use of personalized barriers such as masks, and protective gear or by limiting contact among people through lockdowns. The deployment of COVID-19 vaccines in late 2020 opened up the possibility of curbing the epidemic by rapidly inducing immunity in societies through mass vaccinations. Conversely, the delay in vaccination leads to the emergence and transmission of more contagious and severe variants, some of which may possibly override immunity conferred by vaccines or previous infections.

Figure 1: COVID-19 Statistics for the period 2020-21



Effective vaccine roll-out requires a comprehensive understanding of vaccine hesitancy and determinants of people’s motivation to receive the vaccine. For this reason, the study focuses on five densely populated urban centers of Pakistan and explores the intent and motivation of individuals to vaccinate against COVID-19.

Findings

Of the 2,270 respondents, only 3.5% of respondents reported having experienced the infection themselves and 5% reported it in a family member. Only 1% reported hospitalization for themselves or a family member.

800 (35%) were hesitant to receive vaccination. The most common reasons for hesitancy were ‘no need’ (n=284, 34%), and concerns with vaccine safety and side effects (n=1029, 70%). Out of 6,648 (including ineligible) respondents, 3,117 (47%) had the intention to receive vaccination (Figure 2).

Among the 2,270 that completed the interview, 1,470 (65%) were willing to receive the vaccine, but only 424 (19%) had registered to receive it (Figure 3). Those registered to receive vaccination were more likely 51-60 years old, had tertiary education, had previously experienced COVID-19, and described themselves as highly compliant with SOPs and were fully aware through the internet and SMS text. The main reasons for motivation appeared to be the protection of their own health (70%) and curbing the pandemic (24%).

Key Points

- Although 80% population is aware of vaccines - through internet or SMS - only half of the respondents are willing and of these only two-thirds registered for COVID-19 vaccination
- Willingness to receive COVID-19 vaccination increased with age, education, and work, and was similar among both sexes
- Those intending to receive vaccines also show higher awareness of risks and SOPs compliance.
- Mobile outreach may be applied to low-case communities to increase accessibility

Figure 2: COVID-19 Vaccine Intention and Registration

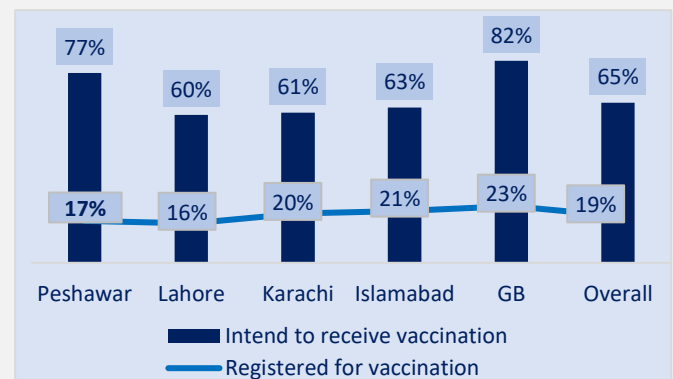


Figure 3: Reasons for Vaccine Hesitancy and Motivation

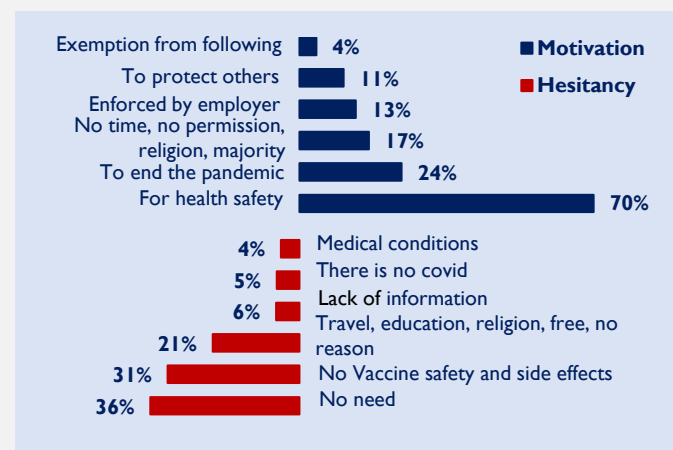


Table 1: Multivariate Regression of Predictors of Willingness and Registration to Receive COVID-19 Vaccination

VARIABLES	Willingness to Vaccinate	Vaccine Registration
City (Islamabad)		
Lahore	0.85 (0.62, 1.17)	0.84 (0.59, 1.20)
Peshawar	1.61* (1.11, 2.35)	0.73 (0.49, 1.10)
Karachi	1.08 (0.78, 1.48)	1.09 (0.77, 1.55)
Gilgit Baltistan	2.07* (1.10, 3.89)	1.13 (0.62, 2.05)
Age Group (18 - 30)		
31 - 40	1.91* (1.41, 2.59)	1.14 (0.82, 1.58)
41 - 50	2.77* (1.73, 4.45)	1.38 (0.91, 2.10)
51 - 60	3.09* (1.51, 6.33)	2.13* (1.20, 3.79)
Above 60	6.43* (2.20, 18.75)	0.77 (0.27, 2.22)
COVID-19 risk perception (Not risky at all)		
Moderately risky	2.44* (1.26, 4.71)	1.56 (0.70, 3.45)
Yes, extremely risky	4.50* (2.60, 7.76)	1.56 (0.79, 3.10)
Previous self-infection of COVID-19 (No)		
Yes	1.36 (0.64, 2.86)	2.03* (1.004, 4.11)
Previous infection of family members (No)		
Yes	2.24* (1.01, 4.98)	1.53 (0.83, 2.81)
Constant	0.20* (0.10, 0.42)	0.07* (0.030, 0.19)
Observations	1,903	2,014

*Values significant at $p < 0.05$. The categories in brackets after a variable name are base categories. The coefficients show likelihood odds ratios of outcomes in comparison with the base categories of every predictor

- The extra step of registering separately to receive the vaccine creates one more step that creates a drop-off.
- Since there are no major myths or misconceptions associated with this new vaccine promotion of vaccination coupled with its easy availability should lead to its high uptake.
- Although the COVID-19 vaccine was unusual in that it's the first-ever mass vaccination campaign for adults, there were no significant reservations voiced against it.
- Given the relatively low-lived experience with the virus in many communities, perhaps a community-based approach, for example, working with communities in the promotion and mobile outreach to make it accessible closer to home for many poor locales may be applied to low-caseload communities.
- This community approach may also help vaccinate women who have lower mobility and access to healthcare. The approach would also suggest the need to include community organizations and grass-root workers in mobilizing the vaccination effort

Methodology

A cross-sectional telephonic survey was conducted via telephone in June 2021 in Karachi, Lahore, Islamabad, Peshawar, and Gilgit. The eligible participants included unvaccinated urban individuals that were aware of COVID-19 and its vaccination drive in Pakistan (18 years and older). Random Digit Dialing (RDD) through multi-stage stratified random sampling is used to ensure representation of each target city and socio-economic class. Customers are stratified into tiers in terms of average revenue per user (ARPU) as a surrogate for wealth status. A total of 2,270 (20%) interviews were conducted from 11,027 call attempts.

The determinants of vaccine hesitancy and acceptance are modeled using multivariate logistic regression analysis. Post-stratification weights were computed in all regression analyses to match the distribution of population among cities with the target proportions from the most recent census data.

Policy Implications

- Our findings suggest that high awareness of vaccines does not necessarily translate into willingness to receive vaccines. Additional steps that make the vaccine more accessible may be needed.

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