

Investigating the Health Workers' Disposition Towards the Use of Covi-19 Vaccine in Pakistan: An Empirical Analysis

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Abstract: *The emergence of the infectious pandemic becomes a transferrable factor to reach across the globe to affect people of all race and faith except any discrimination and medical experts remains in compulsive order to meet the pandemic in appropriate means. Though it exploded a volcano of fear, impede the mental health satisfactory, and deplore the social and economic mobility in Pakistan due to lack of any appropriate and standard treatment and precautions in the country. While no triumphant of medical science to create an approved COVID-19 vaccine in the world still rise the questions of unsatisfied health security and people's mistrust to meet the harms of the vaccine on their lives allow to produce obstacles in the implementation of COVID-19 vaccination process in Pakistan as well. This study applies the initiatives to investigate the health workers to vaccinate themselves and create an empirical analysis via a survey method and test of Hypothesis. For the data analysis 326 questionnaires were collected out of 400 from the health employees in Sindh regarding to be vaccinated with arrival of covid-19 vaccine in the country and data collection process carried out within two months. Prevailing inquiry is confined at narrow scale within province and survey items were designed in English language.*

Keywords: COVID-19, Vaccine, behavioral intention to use vaccine, health security

Introduction

Infectious diseases have always affected a most important concern to a public health like coronavirus left its deep implication not only to health but also affected social, economic and political institutions of life. The Covid-19 outbreak infected people quickly and mobilized speedily global impacts and has vitiated health security that remained the cause of chaos as WHO officially declared Covid-19 a pandemic in which Pakistan also one of the affected country with the natural calamity (Ali, 2020; Chandio, 2020; Shuja, et al., 2020). The multiple challenges due to COVID-19 pandemic affected the public health, and all other institutions of life like economic systems, political institutions, and social and culture patterns and it has been recognized as the natural disasters to human civilization.

COVID-19 pandemic is leading to the severe acute respiratory syndrome, as it came to identified in China (Wuhan) during December 2019, Pakistan has reported its first positive case in February 2020 and the first death was reported on March 20 (Ali, 2020). The COVID-19 pandemic step on the soil of Pakistan on 26 February as a positive test of a Karachi student reached on the surface as the patient came from Iran. Likely, the minister of health and concerning sources of Pakistan health department made an official report that people who came from the infected regions have brought virus and transmitted it in the Society. It is the dire need to adopt collective preventive measures and precautions' to meet the worldwide safeguards and halt the spread of infectious disease for further diffusion and it becomes the reason behind emergence of threat, stress, mental health issues and obsessive disorder (Chandio, 2020; Lunn, et al., 2020; Yi, Y., Lagniton, et al., 2020).

It becomes a global challenge to encounter and halt the influence of the covid-19 spread in the society due to no availability of a standard vaccine and treatment (M'sahel, et al., 2021). Encountering the natural dilemma requires global efforts to halt the infectious and develop COVID- vaccine to be accessible on equitable basis to nations of the world (M'sahel, et al., 2021; Tregoning, et al., 2020). COVID-19 vaccine has been accepted as the necessity of a global public health in encompassing the pandemic. Moreover, the world communities apply diverse technologies concerning the vaccine in order to obstruct the pandemic (Enitan, et al., 2020). Vaccine must be considered as a widely strategy part to enable the old patterns of socialization to succeed the vaccination process. Significantly, the control of the infectious disease the production needs to be cheap, accessible to middle classes and small number of preclinical doses to vials filled enough to immunize the world population, which requires close collaboration with manufacturers and regulators and accelerating the clinical trials and produce multiple vaccines (Deming, et al., 2020). This review explores the intentional approach of the health workers to use vaccine in the way to control the pandemic and gather the perception to present their viewpoint how they perceive the use of the vaccine either it is protective against SARS-CoV-2 and the potential vaccine for securing immune system.

Review literature

People's assumption is to consider the vaccine to become lack of reliability to the treatment of the Covid-19 that urges to be studied and investigated to collect the intention to assist the vaccine companies to represent the public issues and meet their concern. Researcher tries to find out the empirical evidence on the health workers side to find the possible treatment alternatives

and produce notion concern the vaccines for future prevention in which it supports to bring the people's opinion on the surface. The dearth of concerned literature on the COVID-19 vaccination program to impact the globe and gathering public perceptual approach highlight it to become the domain as an important study in the to discover intentions to be vaccinated which can assist the policy makers and health sectors to adopt innovative and effective strategies to meet the short comes to vaccinate the nation (Ali, 2020). Positive effects contain the universal recognition for coronavirus vaccine can increase people's confidence and appreciation for vaccines that results to become easy to implement vaccination program successfully (Liu, et al., 2020; Tregoning, et al., 2020; Shigemura, et al., 2019).

Vaccination is an important debate whereas world communities go to mobilize and sale the vaccine to other nations of the world and it is a vital discussion for the reason that delays or stops in such programs can be cause of outbreak of other infectious diseases (Ali, 2020). The rumors of the positive and negative implications of the COVID-19 vaccine are to ensure its use to result and make the pandemic as a vaccine-preventable disease (VPDs). Hence, this study encompasses to determine the perception of health workers whether they use the vaccine or not and consider the vaccine as to be vaccine-preventable pandemic and useful for their strengthening immunity to encounter the infection. It is presumed to highlight the risk of the vaccine indicates to pursue the controversy to an assumption to match the vaccine to become unreliable to the treatment of Covid-19 (Deming, et al., 2020). It is the dominant perception of the negative impacts of the COVID-19 vaccine to drive the public attention to comprehend the pandemic as a fact and low resource world communities also face the delayed vaccination program to prevent the outbreak of pandemic.

Infectious diseases always deeply impacted the public health and world health organization (WHO) initiated scheme Expanded Program on Immunization (EPI) earlier to encounter the infectious illnesses via adoption vaccination against the eleven vaccine-preventable diseases (VPDs) such as Measles (Measles vaccine), Childhood TB (BCG vaccine), Poliomyelitis (OPV+IPV), Rota Diarrhea (Rota vaccine), Pneumonia and meningitis due to *S. pneumoniae* (Pneumococcal conjugate vaccine (PCV10)), Diphtheria, Tetanus, Pertussis, Hepatitis B, and Hib pneumonia and meningitis (Pentavalent vaccine (DTP+Hep B + Hib)) (Ali, 2020). The explosion of vaccine development has been caused by the emergence of COVID-19 pandemic at the end of 2019 and it initiated the race of clinical trial of the vaccine by September 24, 2020 43 clinical trial entered the club of competition as some of them have not been licensed earlier as the vaccine for human (Tregoning, et al., 2020). Stakeholders such as governments and the WHO should take the prevailing moment to build effective policy making to vitalize the COVID vaccination programs and WHO accelerate the initiatives to ensure vaccine manufacture to deliver across the world. As the world researches to find out the standard treatment and produce the vaccine of the coronavirus pandemic and number of nations developed the vaccine as china gifts it Pakistan that results to control the spread of infectious in the country.

Stress and an anxiety approach

Emergence of an uncertain situation articulate the behavior with impacts of the pandemic to self-confinement, lack of an appropriate treatment for the infectious disease led to stress and inciting situation (Chandio, 2020; Lunn, et al., 2020). The discomfort due to lack of reliability and infectious risk in the society regarding one's proximity to others social contact and it has been observed to psychologists complain of the mental health issues in rise during the covid-19 pandemic. Initially it was assessed to public emotions response with an extreme fear, psychological stress, uncertainty, anxiety, insomnia, depression, and frustration (Chandio, 2020; Shuja, et al., 2020; Shigemura, et al., 2019; Wu, et al., 2009). In the early studies concerning to SARS, patients alleged COVID-19 suffered loneliness, anger, hysteria, frustration and isolation (Chandio, 2020; Xiang, et al., 2020; Shigemura, et al., 2019).

Quarantined patients had become cause of the symptoms of stress, and it also brought the health workers at a high risk at the units of SARS (Yi, Y., Lagniton, et al., 2020; Wu, et al., 2009). Moreover, medical professional and health workers dealt the SARS patients during the outbreak spread the state of anxiety, fear, frustration and depression (Wu, et al., 2009). The nation as Pakistan uncertainty has not only occupied due to COVID-19 but also for numerous about their life survival as meal and interrupted work life because of lock down emotional disturbances such as aggression and frustration sustain to become common. While it has not yet been possible to create a working vaccine for COVID-19, there is a general feeling of distrust in medicine among the masses, leading to less use of medical facilities and health management (Burkle, 2020). As an example concerned to Pakistan where uncertainty has employed towards the general use of medicine and prefer dosage to treat an illness while avoiding mental health professionals for lack of knowledge, believing in myth and fear to be denounced.

Table 1. Population and Sample Statistics

Health site	Sample	Proportionate Sampling		Response rate
		Percentage	Questionnaire Distributed	
SMBBMU	96	29.4%	100	96
GMMMC	68	20.8%	90	68
LUMH	67	20.5%	105	67
ASIMSS	95	29.1%	105	95
Total	326	100%	400	326

Hypotheses

H1. Perceived to be vaccinated for the provision of an effective health security has positive and significant influence on behavioral intention to COVID-19 vaccine users.

H2. Perceived to be vaccinated to become usefulness to a healthy society and strengthening immunity has the positive and significant impact on the behavioral intention to COVID-19 vaccine users.

H3. Social influence to be measured to use COVID-19 vaccine has positive and significant influence on behavioral intention to COVID-19 vaccine users.

The proposed determinants highlight the positive significant relationship of independent and dependent factors in which use of vaccine is supported by health workers and intent to be vaccinated when it is ensured the availability in the country. Moreover, it indicates that adoption of vaccine by health workers to be considered useful and people of society also encouraged them to be vaccinated in order to control the pandemic infectious.

Research methodology

This research follows the cross sectional based survey conducted within two months of November and December of 2020. In this study data was collected from the 326 respondents out of 400 among Pakistani health to gather their perception regarding the use of Covid-19 vaccine. Moreover, population has been gathered from the Chandka Medical College Hospital Larkana, Ghulam Muhammad Mahar Medical College (GMMMC), Liaquat University Hospital Jamshoro, and Syed Abdullah Shah Institute of Medical Sciences Sehwan. Detail of drawing sample from the whole population is given in table 1. The data was analyzed by using the SPSS version 24.0.

Sampling distribution follows that 100 questionnaires were distributed Chandka Medical College Hospital Larkana and ensured the feed of 96 respondents (29.4%), Ghulam Muhammad Mahar Medical College (GMMMC), 90 and feedback remained 68 (20.8%), Liaquat University Hospital Jamshoro, 105 and returned 67 (20.5%) whereas Syed Abdullah Shah Institute of Medical Sciences Sehwan out of 105 questionnaires respondents rate sustained 95 (29.1%).

Data analysis

Data collection was collected from the health workers in whom 326 respondents produced their feedback. Though, the data analysis of health employees remained under satisfactory to vaccinate themselves except any risk and fear. Numerous statistical methods have been applied to compare the respondents to collect data of 326 of health employees. These methods encompass the cross sectional study, regression and correlation analysis and implemented an analytical approach to sustain the relationship of diverse determinants. Internal consistency was measured via using Cronbach's alpha value to determine scale reliability and internal consistency mentions to estimate reliability which is based on the average correlation between items in a test. Reliability of the concerned items of this study has been verified by computing the Cronbach's alpha and it suggested and preferred that a minimum alpha of 0.6 sufficed for early stage of research.

Results and discussion

Researchers distributed 400 questionnaires among the health workers including doctors, staff nurse and other related paramedical staff in which 36 respondents maintained their feedback to meet the and that meets the 81.5%. In the respondents participation male and female ensured their feedback via filling the questionnaire survey. The participants were 15.3% female and 84.9% male whereas education contains graduation in high percentage 62.8% and job experience were in majority between 1-3 years 53.9%.

Table 2: Demographic Characteristics of the respondents

Variables	Description	Frequency	Percentage
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Gender	Male	277	84.9
	Female	49	15.3
	30-40	176	53.9
	41-50	89	27.3
	51-60	61	18.7
Education	Graduation	205	62.8
	Master	117	35.8
	M.Phil/ P.hd	4	1.2
	1-3 years	176	53.9
	3-5 years	123	37.7
Job Experience	6-30 years	27	8.2

In this study, 12 survey items were applied to collect the data collection and the five point likert scale was followed. Besides, mean and standard deviation was used.

Survey Items	Mean	SD
Q1: I make intention to be Covid-19 vaccinated (BIT).	3.691	.9643
Q2: I expect to use of Covid-19 vaccine (BIT).	3.7468	.85112
Q3: I envision a plan to vaccinate myself (BIT).	3.7124	.86536
Q4: Using Covid-19 vaccine is easy and harms free dosage to produce the immunity capacity (P).	3.6752	.84560
Q5: The use of the vaccine is the trouble-free and ensure the health security (P)	3.7210	.76245
Q6: It would perceive to vaccinate myself when it can be supplied in the country (P)	3.7897	.72723
Q7: The use of Covid-19 vaccine useful to encounter coronavirus and its pandemic infectious and faster strengthen immune system (PU)	3.8359	.76509
Q8: Covid-19 vaccine is fruitful to public health and encounters the effect of infectious (PU).	3.8842	.74241
Q9: Vaccine can assist to produce my performance level and eliminate my psychological stress and boost up my immunity level (PU).	3.7568	.78354
Q10: People influence me to vaccinate myself for health security means (SI)	3.7124	.74201
Q11: Influential people consider the use of vaccine can bring effective outcome to control the pandemic and guarantee the health security (SI)	4.0043	2.68215
Q12: the most significant people consider the vaccination to be applied to ensure the beneficial in the evaluation process of our health system (SI)	3.8165	.76320

Table 3. Survey items, standard deviations and mean

Table 4. Cronbach's alpha	
Variables	Cronbach's Alpha
Behavioral intention to use	0.671
Perceived to be ease in use	0.751
Perceived usefulness	0.732
Social influence	0.786

Table 4. Cronbach's alpha

All variables possess the alpha values greater than 0.6 the determinants were therefore deemed to have acceptable reliability. Checking multivariate correlations signifies to studying relationships between factors. Thus, a test was performed to examine the relationship between the independent variables and dependent factor via Pearson's correlation. While all constructs in the conceptual model for this study are supported, the results show a significant relationship at the 0.1 level.

Table 5. Pearson correlation (Note: Behavioral intention to use *dependent variable for this study)

	BIT	P	PU	SI
Behavioral intention to use (BIT)	1			
Perceived to be ease in use (P)	.589**	1		
Perceived usefulness form human health security (PU)	.578**	.505**	1	
Social influence (SI)	.522**	.511**	.513**	1

Tbale 5. The correlation

The correlation of the constructs lies between (.505 to .589) whereas the construct Perceived to be used (P) (.589) PU (.578-.505) and SI (.511-513) has been confirmed. The correlation at its highest degree has been depicted between PP and BIT (.589**) and lowest correlation is between PU and SI (.505). The multiple regression analysis was occurred to find out the effect of independent constructs and dependent factor or test the hypothesis. All hypotheses have been developed successfully on the basis of the given results of the regression. Also, the beta, “t” values of the constructs can be mentioned as below given table.

Table 5: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.Error	Beta		
1 (Constant)	.645	.302		2.172	.031
P	.426	.082	.327	5.313	.000
PU	.369	.081	.271	4.594	.000
SI	.368	.080	.275	4.327	.001

a. Dependent Variable: Behavioral intention to use (BIT)

The population of the concerned study comprises the health workers intentions measurement regarding use of Covid-19 vaccine in Pakistan and the sampling of the existing study is confined to investigate the degree of perception of health employees to be vaccinated. The key sources of the respondents belong to health workers and concerned staff whereas researcher distributed and collected 326 questionnaires randomly and five point Likert scale was used in questionnaire for data collection. The survey instrument was distributed to respondents by the personal visit of the researcher, third party as workers and applies the online survey method of the concerned organization and survey items were written in English language and the instructions of Krejcie and Morgan (1970) were followed for sampling. The analysis in this study shows the behavioral intention to use Covid-19 vaccine factors impact the perception of users to vaccinate the new produced vaccine and it is recommended to investigate the citizens’ attitude to use the vaccine for the health security purpose in Pakistan.

Conclusion

Although the spread of covi-19 pandemic not only become the reason of fear, frustration, and other mental health related disorder it also impacted the social, political, and economic intuition of life and need of a solution is based on the Covid vaccine to encounter the infectious. In Pakistan use of covid-19 vaccine is preferred by the health workers a to be useful for their health security and social influence also maintained an encouragement to doctors and other health workers to use the vaccine and a thorough research is required to interpret the public opinion on the use of new vaccine in the society. Also, an attention must be paid on the pandemic parameter and hindrance capacity of the dosage and side effect to be measured by the medical experts.

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