Knowledge and Acceptance of a COVID-19 Vaccine A Multicity Study of Pakistan

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ABSTRACT

Vaccines as most effective intervention are considered integral part in preventing the pandemics and infective diseases. The major hurdle in the appropriate management of COVID-19 was considered as hesitancy to vaccination. The population had no previous knowledge and experience of such vaccines therefore current study was conducted. A descriptive and cross-sectional study for a period of four months from Jan-Apr 2021 was conducted. One thousand samples had recruited on the basis Rao-soft formula. The confidence interval was 95% with + 5% limitation error. A series of questions were prepared related to knowledge and acceptance of COVID-19 after an extensive literature survey. The data has descriptively analyzed by using standard parameters. The demographic detail of 1000 participants showed that majority were males 61.2% (n=612), while 38.8% (n=388) were females. The more percipients were found with age group of 31-50 years 43.6% (n=436). The most common reason was concluded as lack of awaraness/lack of knowledge 39.5%, however the other contributing factors were fear of adverse effects/side effects 14.1%, and not taking the Pandemic as myth 30.1%. The least common reason was unneccesary use of vaccine as population belived that administration of vaccine does not make any difference. The current study indicated that the Participants of the study had moderate level of education in different cities of Sindh Pakistan, However the population's intension towards the acceptance of vaccines are somehow unfavorable. The health provider must activate their role to educate and clear the safety profile of vaccines. This could be achieved by several campaigns, educational programs and counselling sessions.

1. INTRODUCTION

The corona virus disease (COVID-19) started in end of 2019 from city of china Wuhan, the megacity of the China [1]. The COVID-19 disease outbreak as pandemic in all countries worldwide, and more than 7.5 million confirmed cases and 421801 of confirmed death cases were reported due to COVID-19 pandemic and still the number are on the rise [2- 4]. During the early period of Pandemic population adopted preventive measures and self-medication due to no approved treatment of COVID-19. The observed causative agent for COVID-19 was severe acute respiratory syndrome coronavirus-12 (SARS-2 COV-2) [5- 6]. About 30 different strains were isolated during the initial 6 months of outbreak [7]. Vaccines as most effective intervention are considered integral part in preventing the pandemics and infective diseases. Vaccines are specially needed for the front-line warriors as health workers, Nurses and pharmacist dealing the patients directly [8]. The development of vaccine is a big task as part of financial concerns of the country, population hesitancy and safety profile of active product. The elder patient's with comorbidities are prone to catch the viral infection and around 8.1 % of the total cases were reported by geriatric patients with the mortality rates of 3.2% [9] in the mid-year of 2020 the safety of elders was the main issue, the availability of vaccines was the only effective approach to prevent the population hence the elder patients should be administered the vaccines promptly. The major hurdle in the appropriate management of COVID-19 was considered as Hesitancy to vaccination treatment against COVID-19 pandemic. The population had no previous knowledge and experience of such vaccines, no reported side effects and unknown post vaccination effects made this decision more difficult [10]. The unavailability of FDA approved treatment made the path narrower and vaccine was the only promising intervention at present time. The effectiveness of vaccines is still unclear, and safety perception of vaccines made it more difficulty for acceptance [11]. The high vaccination coverage is mandatory to get rid of COVID-19 completely. Pakistan as lower income country where the awareness and education levels are negligible requires more powerful strategies to adopt the interventional pathways and acceptance of vaccination treatment. The population of developing countries like Pakistan is more hesitant to believe and accept the infection and vaccination as the only treatment available. The population should be guided to avoid the myths and treatment hesitancy against the emerging and reemerging pandemic infections. The causes of vaccination hesitancy was previously reported by several studies, the wide spread personal beliefs, Myths regarding use of vaccines and COVID-19 infection, safety concerns and post treatment adverse drug reactions. The current study aims to evaluate the knowledge, and acceptance to the COVID-19 vaccine in different cities of Sindh Pakistan.

2. Methodology

The design of current study was descriptive and cross-sectional for a period of four months from January 2021 to April 2021.Total of 1000 samples were recruited from four different cities of Sindh, Pakistan. The name of cities was Karachi, Hyderabad, Sanghar and Mirpurkhas. The sample size was calculated on the basis Rao-soft formula. The confidence interval was 95% with $\pm$ 5% limitation error. A series of questions were prepared related to knowledge, attitude and acceptance of COVID-19 after an extensive literature survey along with the consent of research team. The questions were also validated with all aspect including the time of reply. After the suggestions necessary changes were made in the final questionnaire and getting the data. The data has descriptively analyzed by using some standard parameters.

3. Results

The study included the 1000 participants from 5 different cities of Sindh Pakistan, equal number of samples were collected from each city. The demographic detail of 1000 participants showed that majority were males 61.2% (n=612), while 38.8% (n=388) were females. The more percipients were found with age group of 31-50 years 43.6% (n=436). The data showed majority of participants
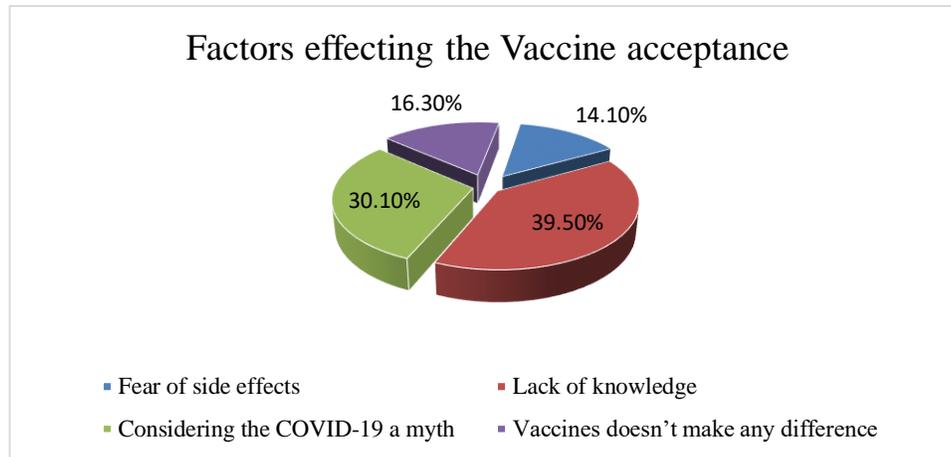
Table: 01: Demographic Detail of participants (N=1000)

S/No	Variables	Frequency	Percentage
1			Gender
	Male	612	61.2%
	Female	388	38.8%
2			Age
	18-30Y	154	15.4%
	31-50Y	436	43.6%
	More than 50Y	410	41.0%
3			Sampling from 04 Cities
	Karachi	250	25%
	Hyderabad	250	25%
	Sanghar	250	25%
	Mirpurkhas	250	25%
4			Locality
	Urban	389	38.9%
	Rural	611	61.1%
5			Education
	Uneducated	191	19.1%
	Primary	267	26.7%
	Secondary	388	38.8%
	College/University	154	15.4%

Were educated till secondary education level, 38.8% (n=388) as shown in table no. 1. The assessment of knowledge and acceptance to the COVID-19 vaccines were assessed by a questionnaire format with multiple variables among 4 different cities of Sindh Pakistan. The multiple factors were involved in the unacceptance of COVID-19 shown in table no. 2

Table No: 02 Knowledge and Acceptance of COVID-19 Vaccine

Questions	Karachi		Hyderabad		Sanghar		Mirpurkhas	
	Yes	No	Yes	No	Yes	No	Yes	No
Do you know COVID-19 vaccine?	97(38.9%)	153(61.1%)	73(29.2%)	177(70.8%)	168(67.2%)	82(32.8%)	187(74.8%)	63(25.2%)
Do you know COVID-19 is dangerous?	186(74.5%)	64(25.5%)	180(71.9%)	70(28.1%)	203(81.2%)	47(18.8%)	216(86.2%)	34(13.8%)
Use of mask can prevent COVID-19.	217(86.6%)	33(13.4%)	208(83.2%)	42(16.8%)	189(75.6%)	61(24.4%)	223(89.4%)	27(10.6%)
COVID-19 vaccine is safe.	139(55.6%)	111(44.4%)	163(65.3%)	87(34.7%)	153(61.3%)	97(38.7%)	129(51.7%)	121(48.3%)
Administration of vaccine can be dangerous	130(52.1%)	120(47.9%)	163(65.2%)	87(34.8%)	94(37.7%)	165(62.3%)	141(56.3%)	109(43.7%)
Do you think symptoms occurs post Vaccine?	138(55.2%)	112(44.8%)	160(64.2%)	90(35.8%)	116(46.3%)	134(53.7%)	188(75.2%)	62(24.8%)
Do you know the treatment of COVID-19?	160(63.8%)	90(36.2%)	110(43.8%)	140(56.2%)	91(36.5%)	159(63.5%)	116(46.2%)	134(53.8%)
Are you satisfied with overall COVID-19 vaccination program?	163(65.3%)	87(34.7%)	162(64.9%)	88(35.1%)	132(52.8%)	118(47.2%)	145(58.1%)	105(41.9%)

Factors effecting the Vaccine acceptance

16.30%   14.10%

30.10%   39.50%

- Fear of side effects
- Lack of knowledge
- Considering the COVID-19 a myth
- Vaccines doesn't make any difference

The Figure no. 1 showed the different factors leading to the unacceptance of Vaccines againnst COVID-19. The the most common reason was concluded as lack of awaraness/lack of knowledge 39.5%. however the other contributing factors were fear of adverse effects/side effects 14.1%, and not taking the Pandemic as myth 30.1%. The least common reason was considered was unneccesary use of Vaccine as population belived that administration of vaccine does not make any difference.

4. Discussion

Vaccine plays a strategic role in avoiding or stopping any disease and disorders. the general acceptance to the vaccines and at any stage of life is difficult considering the nature, post administration side effects of vaccine made it difficult to adopt and administration of vaccines [12], [13]. The COVID-19 Pandemic is a critical condition effecting the individual around the globe. As during the mid-Year 2020 more that 50% of individual got infected with COVID-19 [14]. The development of vaccine was major task for any country. In that scenario the Clinical trial and acceptance to the novel vaccine against COVID-19, the recruitment and believes on the vaccine was the most difficult situation [15], [16]. The negative protectives, False believe, Lack of Knowledge and fear of adverse events made the situation worse. The current study partially similar to the study conducted in UK and Nigeria [17], [18]. Similarly, the lack of knowledge and lack of confidence to a novel product is understandable, however the populations believe plays a vital role as negative thoughts and myths were frequently found in the study [19], [20] The acceptance of vaccine against infectious disease among general population has been assessed by many researchers and found the high hesitancy to a new vaccine and even for the existing vaccines. The same approach has been used for many studies in the past to assess the perception and adaptability to vaccines in general population [21]. The majority participants males were approached to assess the idea of vaccines and perception regarding it. The population of interior part of Country was more hesitant and less supportive to vaccines since no previous record of vaccines was discussed, few cities represented the majority of general population showed that knowledge about the COVID-19 infection was sufficient however the preventive measures and use of SOPs was difficult to adopt [22]. About 52.1% belied that administration of vaccine may cause any harm and can be dangerous, as reported by a study [23], [24] The general information about COVID-19 vaccine as reported by the studies the self-protection and responsibility to protect the family members is a driver to adopt the vaccines and get vaccinated but for the novel vaccine in the pandemic situation creates a confusion among the general population to go for the vaccination or not. The compared believes with existing vaccines and novel vaccines is highly significant.

5. Conclusion

The current study indicated that the Participants of the study had moderate level of education in different cities of Sindh Pakistan, However the population's intension towards the acceptance of vaccines are somehow

unfavorable. The health provider must activate their role to educate and clear the safety profile of vaccines and solving the population's concerns will play the role in the acceptance of vaccines. This could be achieved by several campaigns, educational programs and counselling sessions.

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