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HOW RAISING KNOWLEDGE, BEHAVIOR AND AWARENESS INFLUENCED PAKISTAN'S REACTION TO THE COVID-19 PANDEMIC

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Abstract
There is an increasing trend toward utilizing behavioral insights to offer empirical justifications for decision-making. The efficacy of societal functioning can be enhanced through the removal of biases and other barriers that hinder the formulation of policies and strategies. This is first study to employ this methodology in examining the impact of COVID-19 on Pakistani society. As an instrument for guidance, the World Health Organization developed this online poll. The research is driven by two objectives. Comparing precautions with being well-informed about COVID-19 is the initial step. Assessing public sentiment regarding the reliability of sources and the information they deliver constitutes the second phase. Using quota and snowball sampling, 523 respondents were acquired in the course of a single month. The dependent variable of behavior was incorporated into a linear regression model, with an adjusted R-squared value of 0.374. We utilized behavior and knowledge evaluations. According to the study, while deception and unreliable information sources injured preventative behavior in society, increased knowledge aided it.

Keywords: knowledge, education, reaction, lower income country, Pakistan

Introduction

The World Health Organization (WHO) was told on December 31, 2019, in Wuhan, China, of the finding of a new strain of coronavirus. This discovery came about as a result of an increase in the number of cases of pneumonia (Huang et al., 2020). The rapid spread of the newly discovered virus prompted the World Health Organization (WHO) to declare a Public Health Emergency of International Concern on January 30 (Bilgin, Kurtkulagi, Kahveci, Duman, & Tel, 2020). This decision was made in reaction to the rapid spread of the virus. The World Health Organization

(WHO) predicts that by March 7, 2020, the number of confirmed cases around the globe would have surpassed 100,000. In addition, the number of countries that have been infected by the virus will have climbed to more than one hundred, despite the initial measures that were made to regulate it. According to the World Health Organization (WHO), 216 countries and territories have reported a total of about 25 million cases of the disease.

The country conducted repeated cycles of intermittent lockdown measures in response to the quick and extensive increase in cases across all regions after the confirmation of the first COVID-19 case on February 26, 2020 (Saqlain, Munir, Ahmed, Tahir, & Kamran, 2020). This was done in response to the increased number of cases that occurred across the country. As a result of Iran's first high fatality rate from the virus and the possibility that the earliest cases in Pakistan may have originated from there, Pakistan's geographical location was deemed to be particularly dangerous in comparison to the nations that are located in its immediate vicinity (Saqlain et al., 2020). Furthermore, China and Pakistan have extensive political and commercial relations that have been in place for a long time, and China is widely considered to be the primary source of the virus. It is absolutely necessary for society to take immediate action and work together in a cooperative manner in order to stop the sickness from spreading further (Khalid et al., 2023).

The crisis management protocols that were approved by the World Health Organization (WHO) were followed by the Pakistani government in order to reduce the likelihood of any disruptions to the day-to-day activities of the country and to slow down the rapid spread of the epidemic (Raza et al., 2023). In addition, they increased public awareness and put containment measures into place in order to tackle the disease. Alongside the relatively low literacy rate of the country, the most significant barrier to effective behavioral change in society is the deeply ingrained sociological, cultural, and religious traditions and tendencies that have been passed down through generations (Raza, Khalique, et al., 2023). In order to evaluate the current level of knowledge and widespread behavioral patterns in Pakistani culture, it would be preferable to make use of a survey instrument that is specifically developed to collect behavioral insights. The purpose of this preliminary study is to collect data that, when paired with existing national policies, can assist policymakers and other stakeholders in determining the precise demographics on which to focus their strategic endeavors (Betsch, Wieler, &Habersaat, 2020). This investigation is intended to be conducted in order to accomplish this goal. Given the small amount of native social research that is available in Pakistan, it is of the utmost importance to compile a thorough collection of information regarding Pakistani society. According to Zaidi (2002), this would contribute to the improvement of the academic climate in the country.

In order to determine the extent of the population of Pakistan's awareness, comprehension, and involvement with regard to the novel coronavirus COVID-19, the purpose of this research project is to conduct an assessment (Shehata et al., 2023). In addition to this, it will assess the public's attitude toward the ongoing pandemic control activities being carried out by the Pakistani government (GOP), determining the extent to which they are satisfied with the activity and the degree to which they believe various sources of information are effective. In the end, the research will do an evaluation of the effectiveness of COVID-19 awareness programs by comparing the patterns of behavior observed in society to those observed during the course of the study.

Objectives of the study

1. To assess how COVID-19 education and awareness influenced the health-related behaviors and adherence of different groups in Pakistan.
2. To examine how COVID-19 awareness programs in Pakistan's urban and rural areas are impacted by educational initiatives promoting responsible and responsive conduct.
3. To evaluate how community networks, social media, and news organizations affected the safety and vaccination rates of COVID-19 in Pakistan.

2. The Methodology and Procedures

For the purpose of this investigation, the data was collected through the use of a survey that was specifically designed to collect quantitative information. Due to the lockdown and social isolation measures that were implemented as a result of the pandemic, it was not possible to conduct in-person interviews or any other face-to-face encounters. It was determined that surveys were the most practical instrument because of their capacity to rapidly collect a significant number of responses (Jones etal., 2013). It was the WHO behavioral insight instrument that served as the basis for the survey that was applied in this investigation (WHO, 2020b).

Sampling Strategy

It was obtained through the use of quota sampling as well as snowball sampling. In order to ensure the confidentiality of the participants' personal information, we distributed the survey through Google Forms, which we distributed via email and several social media platforms such as Facebook and WhatsApp. We included a message in which we asked respondents to share the study with their personal and professional networks in order to spread the news about the study and the potential benefits it may have and to increase its visibility. Any individual who went to a public or private establishment was required to comply in the same manner. Because of the sampling approach, the objective was a sample that was extremely representative of the population as a whole rather than the population as a whole. To ensure gender parity across all demographics, including but not limited to age, education level, and geographic location, it was necessary to ensure that they were treated equally.

In order to choose the sample, the only requirement was that the respondent must be at least 18 years old. In order to accommodate time restrictions and a poor response rate to the online survey, the initial objective of 700 respondents was decreased to 500 responses.

Due to the fact that the survey was brief and simple to comprehend, there was no overt intervention that was intended to affect the responses of the respondents. The only option for the researcher to communicate with the participants after the survey had been distributed through social media or email was to share it with social media users. The result of this was that individuals were not required to participate in the survey. The first page of the survey contained both information and a box for consenting to the survey. We gave the participants the assurance that they could quit the survey at any time if they felt uncomfortable, and that our method of data gathering would not cause any harm to either the data set or the individual.

In the event that respondents desired to receive survey updates via email, they were able to do so once the survey was completed. Because these particulars are not a part of the research, they will be eliminated in order to provide participants with information regarding the essential results of the survey. The identities of the remaining participants were concealed.

Instruments

136 questions were included in the final survey for the research project, and these questions were arranged into a variety of categories. Every other question was provided in a manner that consisted of multiple-choice answers, with the exception of three specific circumstances.

1. **Participants' information:** The survey employed a multipart questionnaire. The poll consisted of eleven questions pertaining to age, gender, education, career, and income in its introductory section. The subsequent two inquiries investigated the respondents' possible exposure to the new coronavirus, encompassing their recent visits to impacted regions or interactions with individuals who had received a diagnosis. Finally, a self-assessment question was included to examine the respondents' degree of awareness on COVID-19, including its symptoms, transmission channels, and prevention strategies.
2. **Covid-19 related Knowledge:** The study investigated the respondents' understanding and viewpoints on COVID-19 from several aspects. The study employed a 16-question assessment to evaluate the participants' ability to identify the symptoms associated with a viral infection. The subjects of seven consecutive inquiries pertained to virus ecology, transmission, and effect.

Moreover, the participants' comprehension of COVID-19 preventive measures in Pakistan was assessed by a set of fourteen questions. Sanitizers, masks, social isolation, and hand washing were all enforced. The survey concludes with six questions aimed at eliciting opinions evaluating the significance and efficacy of these measures in preventing the spread of the COVID-19 pandemic.

3. **Covid-19 related information source:** The poll included a thorough inquiry of the respondents' endeavors to acquire information regarding the COVID-19 epidemic. The survey investigated the origins of respondents' knowledge about the epidemic using 12 questions. Various sources, such as mainstream media, social media platforms, authoritative health websites, and personal endorsements, were scrutinized. The respondents' trust in the dependability and accuracy of these sources of information was assessed by an additional set of 12 questions. In one question, participants were queried about the frequency with which they stayed informed about the newest developments about the outbreak. This survey aimed to investigate the frequency at which participants engage in reading about pandemics.

Statistical Analysis

Analyzed the dataset using both descriptive and inferential statistical analysis, SPSS utilized the conceptualization given above to build study variables and perform data cleaning. The coding process involved starting from the beginning by turning string responses into value labels and assigning a value based on the question, as most of the data was in string format. Based on our definition, in order to address incorrect knowledge or action, Likert and Categorical scales need a reversal of ratings based on intuition. Prior to obtaining the data, we utilized SPSS to restructure and compute the variables for Behavior and Knowledge Scores. In addition, the researchers calculated the number of sources used by the participants.

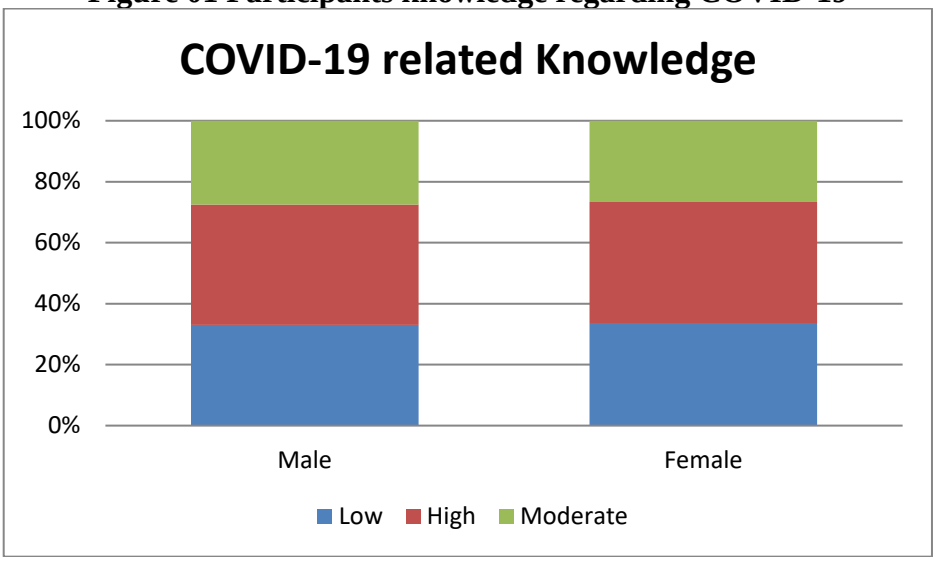
Results of the Study

Table-01 socio-demographic information (N= 523)

Variables	**F(%)**	**M(SD)**
Male	298 (56.9)	
Female	225 (43.1)	
Age		18.54 (9.32)
Rural	176 (33.6)	
Urban	347 (66.4)	
Received COVID-19 vaccine		
Yes	321 (61.3)	
No	202 (38.7)	

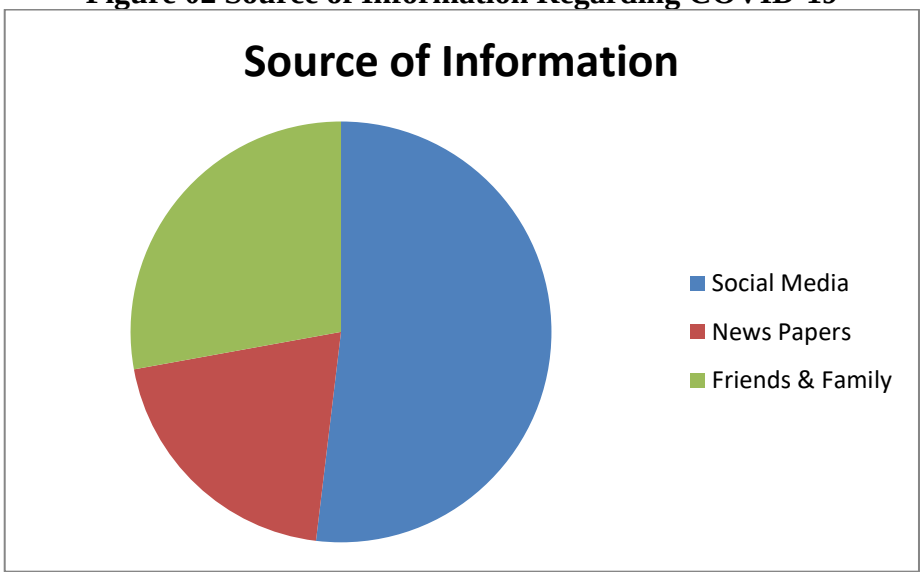
Table 01 presents the socio-demographic characteristics of 523 individuals. The participants are categorized by gender as follows: There were 225 women and 298 males, accounting for 56.9% and 43.1% of the total, respectively. The average age of the respondents is 18.54 years, with a standard deviation of 9.32, indicating a young demographic. The participants are divided geographically, with 176 (33.6%) residing in rural areas and 347 (66.4%) residing in urban areas. Out of the 321 individuals surveyed, which accounts for 61.3% of the entire sample, have received the COVID-19 vaccine. In contrast, a total of 202 individuals, accounting for 38.7 percent of the participants, had not been administered a vaccine.

Figure 01 Participants knowledge regarding COVID-19



Among the 523 Pakistanis that were surveyed, there are obviously significant gender inequalities in the level of awareness regarding COVID-19 (figure-01). Within the male population that was polled, 36 percent had very little knowledge, 43 percent have a lot of information, and three percent have moderate knowledge. This stands in stark contrast to the results obtained from the female respondents, who ranked 2% as having a moderate grasp of COVID-19, 3% as having good knowledge, and 25% as having low awareness pertaining to the virus. There is a significant gender discrepancy in the knowledge and awareness of COVID-19 among the population that was surveyed in Pakistan, as seen by these data.

Figure 02 Source of Information Regarding COVID-19



Based on the results, social media significantly contributed to the dissemination of information about the COVID-19 outbreak (figure-02), making it the most widely used source (82 percent). A 32% score suggests that newspapers have a moderate influence in terms of disseminating news and updates about the virus. This score is inferior to that of other forms of media. Friends and relatives seem to exert slightly more influence than newspapers, accounting for 44% of the overall influence. This suggests that personal networks also play a significant role in how people get information about COVID-19. During the pandemic, different sources of information were used to different extents, as shown in the distribution displayed above.

Table 2 Regression analysis Independent (demographic) dependent variable (behavioral)

		Unstandardized Coefficients	Standardized Coefficients	Sig.
		B	Beta	
(Constant)		8.15		
Participants Knowledge		0.28	0.374	
Gender		3.04	0.031	0.203
Age		0.18	0.043	0.393
SOURCE OF INFORMATION	Social Media	-3.581	-0.65	0.301
	Newspaper	-0.582	-0.002	0.67
	Friends and Family	0.426	0.035	0.632

Table 2 displays the results of a regression analysis that takes into account demographic information and behavioral responses. The unstandardized coefficient of the model's intercept is 8.15. An unstandardized coefficient of 0.28 and a standardized coefficient (Beta) of 0.374, with no indication of the significance threshold, indicate that knowledge of COVID-19 predicts behavior. An unstandardized coefficient of 3.04, a standardized coefficient of 0.031, and a significance (Sig.) of 0.203 indicate that gender has a smaller impact on conduct than knowledge. Age does not predict behavior, as evidenced by its unstandardized coefficient of 0.18, standardized coefficient of 0.043, and significance level of 0.393.

With a standardized coefficient of -0.65 and an unstandardized coefficient of -3.581, the source of information demonstrates that behavioral reaction is negatively impacted by social media. It is not, however, statistically significant at the 0.301 level. With unstandardized coefficients of -0.582 and standardized coefficients of -0.002, respectively, and a high significance value of 0.67, newspapers have no influence; they have a negative correlation. A standardized coefficient of 0.035 and an unstandardized positive coefficient of 0.426 for friends and relatives ($p = 0.632$), indicating that they had no influence on behavior. When compared to other demographic characteristics and information sources, participants' awareness of COVID-19 is the strongest predictor of their behavioral reactions, according to the regression analysis.

Discussion

The objective of this study was to analyze societal behavioral tendencies in Pakistan. Our strategy enabled us to juxtapose individuals' understanding of COVID-19 with societal perceptions of the virus. The likelihood of COVID-19 thriving in Pakistan is significant due to the densely populated metropolitan regions and the high incidence of non-communicable diseases (Uphoff et al., 2019; Pal & Bhadada, 2020). This increases the likelihood of a high death rate in vulnerable people and makes the country more vulnerable to COVID-19. The battle against the pandemic relies on individual attitudes and awareness.

Research indicates that Pakistanis possess a moderate level of knowledge. The 75th percentile for the knowledge score is 41 out of 60 as it is intended to function similarly to a quiz. Individuals with higher levels of education and greater wealth are more inclined to be included in the sample. Consequently, it is logical to infer that the populations mean and score will exhibit a considerable decrease compared to those at the upper end. Table 2 demonstrates that participants were able to effectively evaluate their own understanding of COVID-19 within the given sample by calculating the average of each stratified group's averages.

Individuals who believed they possessed a substantial amount of information actually achieved lower scores than anticipated on the knowledge scale. This outcome may indicate a state of complacency or a deceptive sense of confidence, considering the general trend of the population's rising educational attainment (Stutz, 2020). This is a hypothesis that warrants more investigation due to the relatively small variance of the means. Additionally, the elderly possessed a higher level

of knowledge regarding the epidemic. Perhaps this is due to their inclination to take more proactive measures in reaction to threats (Raza, Khalid, et al., 2023b).

The primary concern for Pakistanis is the propagation of false or misleading information. The lack of trust in news outlets stems from this issue. This is reinforced by the fact that several individuals utilize multiple sources of information. Engaging with multiple sources of information can be interpreted as a proactive approach to staying informed. However, when combined with a feeling of unreliability for each source, it suggests that individuals are experiencing confusion over the identification of accurate and unambiguous information. The absence of a singular source of information that has attained complete agreement adds credibility to this statement.

The linear regression model we used identified a positive link between knowledge and conduct. Consequently, COVID-19 awareness activities should lead to increased conformance. The survey's discovery of a median level of community knowledge specifically offers statistical evidence to support activities aimed at raising awareness. Pakistan has the ability to utilize its own resources to spread awareness throughout the country from the National Command and Operation Center (NCOC) headquarters. This would further enhance the progress of its e-health initiative in the context of the ongoing pandemic. As per previous studies, there is a positive correlation between higher levels of education and enhanced conduct (Zhong et al., 2020). There was no statistically significant correlation observed between medical expertise and demographic variables, such as income, which were hypothesized to impact behavior. According to the research conducted by Wolf et al. (2020), this statement has been confirmed.Given that 65% of the participants belonged to the middle-to-high income category, the association between low income and the findings reported by Wolf et al. (2020) lacks statistical significance.

The importance of addressing disinformation was further highlighted by the regression results, which showed a statistically significant negative impact on behavior. The users' activities were adversely affected by both of the most unreliable news sources. Contemplating the future and formulating a strategic plan brings clarity to one of Pakistan's enduring difficulties. The education budget in 2019 accounted for 2.4% of the total budget (GOP, 2019). Talal (2018) states that Martin Kobler, a veteran German ambassador to Pakistan, stressed the significance of raising this figure to 4.5 percent in order to adequately prepare the young population of Pakistan to lead the nation towards future success. This paper recommends that Pakistan should reassess that particular aspect.

Overall, our research indicates that enhancing knowledge, educational attainment, and the dependability and precision of communication platforms are essential for promoting positive changes in behavior. There appears to be a connection between them. Although the statistical significance is absent, demographic factors such as age, geography, and gender can still be employed to determine intervention objectives at a national scale.

Further investigation may reveal additional viable explanations and correlations, given our regression model only captures a limited amount of the variability in behavioral scores (Adjusted R square = 0.261). When combined with existing facts, more intricate ideas such as conspiracy theories, psychological stress, anxiety, and trust in institutions might assist in elucidating behavioral inclinations.

Finally, conducting research with diverse groups of individuals may provide varying results, particularly as we approach a return to normalcy while still being concerned about the possibility of a second wave.

The initial findings of this study have practical relevance as they provide a foundation for institutions and scholars to identify vulnerabilities and mitigate unwanted trends in a society severely impacted by the crisis. Individuals within the specific target audience who have thoroughly researched the subject may possess detrimental behaviors that are not immediately apparent.

Conclusion

In order to develop and execute a behavioral insight tool, the study investigated the impact of socio-demographic variables and viral knowledge on pandemic behavior. It uses the comparison of media, information, and public opinion to demonstrate the forecast of societal problems. There is an option

for mitigation planning and a reaction design that is tailored to the deployment. Beyond the current epidemic, this might be applied to other socioeconomic issues or public health disasters. It would also boost social science research and improve Pakistan's knowledge-generation and competency capacities, which will be useful for building local knowledge archives to track society throughout time.

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