Knowledge, Attitudes, and Practices (Kap) Toward Covid-19: A Cross-Sectional Study in Rural Pakistan

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<th>ARTICLE DETAILS</th>
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<tr>
<td>History:</td>
<td>Covid-19 has quickly transformed the lifestyles and behaviors of people across the globe. It has claimed millions of lives worldwide and thousands in Pakistan. Pakistan’s national response to the pandemic was effective despite limited resources. The nature of this pandemic was unique and hardly experienced by human beings over the last century. In the absence of an effective cure and reliable vaccination, this pandemic had the potential to devastate human cultures and economies. The only thing that worked before the advent of vaccination has been the use of masks and social distancing. The adoption of these measures by hundreds of millions of people without adequate knowledge was a gigantic task. Therefore, it was important to explore the knowledge, attitudes, and practices (KAP) of people during the current pandemic to know community tendencies and actual behaviors during emergencies. The study area for the current study was three districts from South Punjab namely Khanewal, Rahimyar Khan and DG Khan. The study employed univariate and bivariate analysis on cross sectional data collected through a well-structured questionnaire and analyzed in SPSS. After the reliability tests the generated results highlighted that rural people in South Punjab had knowledge of the pandemic, their attitude was positive towards the pandemic however, adoption of precautionary practices was restricted mainly due to socio-economic conditions of rural people in South Punjab. Hence study concluded the adoption of precautionary measures greatly depends upon socio-economic factors like age, gender, education and economic status. The study also highlighted that aggressive media campaigns and structured policy response from the government could lead to quick behavioral transformation among the rural people.</td>
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<td>Keywords:</td>
<td>COVID-19 Knowledge Attitude Practice South Punjab</td>
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1. Introduction

The world has recently faced a formidable challenge to overcome the COVID-19 global outbreak, and health care systems are under pressure globally. COVID-19 is the most devastating pandemic disease which affected the economies and health infrastructure across the globe. Developing nations are more vulnerable to COVID-19 mainly due to their large population, poor rural infrastructure, limited health facilities, high poverty rates and illiteracy. The COVID-19 infection spread so fast that hardly it came under any calculations. The recent experience of dealing with three waves of COVID-19 only suggested the quick and effective alteration in human behavior is the only option for immediate response to any such disease. However, altering human behavior and that too over a short span of time requires greater transparency in communication and a level of trust in the information provided (Bekele et al., 2021).

As a result of a lack of knowledge of the epidemiological evidence of the illness, including its transmission dynamics, epidemic doubling time, and reproductive frequency, developing a response to the pandemic has become an extremely difficult task (Li et al., 2020). At the time of viral spread, there were no therapies or vaccinations that could prove a shield against the pandemic. Concerns about a lack of clinical measurements have prompted a need for more public participation in preventative measures and policy-level illness response and monitoring (Nelson et al., 2007; Lee et al., 2020). Educating, involving, and organizing the public to take action during pandemics may increase public health emergency preparation and decrease population-wide risk (Lee et al., 2020). Recent research has shown that individual activities may significantly reduce morbidity and fatality rates of COVID-19, therefore it is feasible to restrict the spread of the illness when individuals collectively participate in preventative behaviors including personal cleanliness and preserving social distance (Anderson et al., 2020; Ferguson et al., 2020). Accordingly, the public's adoption of preventive measures as the norm is urgently required.

It is important to focus on the most at-risk groups when implementing public health initiatives and policies. To better target public health interventions, KAP surveys are often used to uncover knowledge gaps and behavioral trends across sociodemographic groupings. The problem of health disparities emerging during pandemics has been studied extensively (Bambra et al., 2020). For instance, the burden of new influenza A (H1N1) was significantly higher for those with lower levels of education and who resided in more economically depressed areas (Lowcock et al., 2012; Rutter et al., 2012), and who had more financial hardships (Biggerstaff et al., 2014). Lee et al. (2015) looked at the correlation between MERS and a variety of social factors and found that some of them (gender, education) were directly associated with preventative action while others (age, education, income) were indirectly related to it (Lee et al., 2019). Rapidly growing evidence also points to an unfair burden of COVID-19. People in low-income, racially and economically segregated communities had significantly higher COVID-19-related morbidity and death rates (Chen et al., 2020).

Although the urgent response from national and international medical institutions lead to produce multiple variants of vaccines in a short time yet the pandemic has exposed the existing vulnerabilities in our socio-economic and health systems. It is important to note that governments cannot prevent the spread of this pandemic alone, without active public participation in the coping mechanism. During the first three waves of COVID-19 countries with better incomes and empowered communities appeared well in handling the pandemic.
Further, in some European countries with even higher incomes but poorly disciplined communities and a lack of trust between the public and government, huge losses occurred. During the first wave of the pandemic when there was no vaccine available nor any cure for the disease, preventive actions like social distancing and self-isolation were the only available means to keep the pandemic spread under control. Compliance with any preventive measure usually depends on individual attitudes and willingness. The precautionary attitude of individuals is influenced by many factors like socioeconomics, cultural values, knowledge, beliefs, risk perception, and effectiveness of measures implemented. These factors may vary from society to society and country to country. Each country can take its preventive measures according to the situation and keeping in view the ground realities. The risk of infection due to COVID-19 can further motivate people to take preventive actions according to their local health advisory (Haq et al., 2020).

Pakistan, which has the unusual obstacle of having very porous borders, is located in the middle of two epicenters of Corona, namely China and Iran. The country of Pakistan has an inadequate healthcare system. Recent actions taken by the government to increase its readiness against COVID-19 include the design of policy and the execution of national emergency preparedness, required thermal screens at all ports of entry, surveillance and contact tracing via data gathering, and thermal screenings at all points of entry (Mughal, 2020). Polymerase Chain Reaction (PCR) kits have been imported for use in SARS-COV-2 diagnostics, which has increased testing and diagnostic capability (Ramzan, 2020). The World Health Organization (WHO) suggested that resources be mobilized to build up quarantine facilities for suspected cases in many cities and hospitals (Gillani, 2020), and monitoring units have been formed to track contacts of confirmed cases. Both of these actions have been taken.

The National Institute of Health in Pakistan has also disseminated the guidelines and organized training sessions to strengthen preventative measures. These sessions focused on the importance of frequently washing one’s hands, wearing face masks when they are required, and maintaining social distancing. Massive public education and awareness efforts addressing preventative measures have been conducted by governmental and nongovernmental groups, as well as print, electronic, and social media (Ali and Bhatti, 2020). Despite this, the cultural norms of Pakistan having a friendly society make it difficult to keep social distance over the course of a prolonged length of time. The scientific data also developed at a quick pace daily, mirroring the rapid spread of the illness. Another aspect is that there is a lack of consistency in the information that is available regarding the disease. In addition, a significant amount of the incorrect information that is spread through social media contributes to the development of an "infodemic," which leads to unwarranted fear among the community (O’Connor and Murphy, 2020).

Community concerns, knowledge, attitude, and behavior can be crucial during such an infectious disease regarding effective communication from health departments across different countries (Balkhy et al., 2010). Countries like Pakistan cannot afford extended lockdowns to avoid spread and when public mobility is increased the spread also increases. In such a clumsy situation it is important to inquire about the factors that motivate the public to effectively respond by adopting precautionary measures. These factors could eventually determine the first deterrence against the pandemic meanwhile governments get time to respond in an organized way.
It is important to evaluate whether or not the population has received accurate knowledge about public health practices and how the public's general attitudes and beliefs affect behavior in order to ascertain whether or not public health strategies are successful. This evaluation is necessary for determining the efficacy of public health strategies (Lunn, 2020). Knowledge, attitudes, and practices (KAP) in relation to COVID-19 may have a significant impact on a person's ability to comply with health preventive behaviors, which are needed (Ajilore et al., 2017; Tachfouti et al., 2012).

South Punjab is one of the underdeveloped regions in Pakistan with huge health inequalities, poor infrastructure and a lack of adequate education among the masses. While the government’s strategy was effective in urban areas in containing the viral spread the conditions in rural areas were such that it can burst into a crisis anytime. Currently, there are very few studies on knowledge and perceptions of the new Novel Coronavirus pandemic. Therefore, it is important to inquire about the knowledge, attitude, and practices of rural people towards this pandemic. The data from the research is essential for the creation of public health policies and the execution of such policies in order to plan a response to the epidemic in a timely and consistent manner. In light of the above explanation, the purpose of the present research was to determine the extent to which the general community in Pakistan is aware of the transmission of COVID-19, its symptoms, and the preventative measures that may be taken against it. In addition, the research aimed at providing a summary of the degree to which Pakistani citizens take appropriate safety precautions. As a result, the purpose of this study is to investigate the knowledge, attitudes, and behaviors of individuals living in rural areas in South Punjab about the implementation of preventive measures against the pandemic (Covid-19).

*Conceptual framework for this study was developed by the researcher

**Figure 1: Conceptual Framework**

2. Review of Literature
The Food and Agriculture Organization (FAO) has introduced the Farmers Field Schools to educate the farmers on adaptation of improved farming techniques. Ahmed (2020) shared in his article that FAO has decided to incorporate Covid-19 related content mainly precautionary measures in their curriculum of Farmers Field Schools to educate the rural communities to curb Covid-19 and safe agricultural practices and handling of pesticides. Special content to curb Covid-19 has been included in farmers’ field school curriculum and sessions. Through this modification in curricula FAO intends to utilize the field schools as a tool to educate small scale farmers in rural areas which will help farmers to learn climate resilient and modern agricultural practices, innovation, and basic entrepreneurship skills and develop their linkages with markets. He further stated that the impact of pandemic resulted into food supply chains disruption as well as create gaps in farming inputs with increase in unemployment. In this regard FAO continued its operations and implementation in fields with the implementing organizations to facilitate farmers and vulnerable communities to come out of this economic shock. Whereas FAO kept its utmost priority intact regarding vulnerable population safety, proper planning and social safeguarding measures while delivering the support in the field area. It has been stated that more than 81,000 most vulnerable people, including men and women, have been directly engaged through frontline workers to support communities by protecting them against Covid-19. It is worthwhile to share that FAO presented Pakistan’s agricultural response to Covid-19 to the diplomatic community at FAO headquarters in Rome. Where best practices and country examples of FAO work to help mitigate the pandemic’s damage to people’s lives and livelihoods was examined.

Fatmi et al., (2020) conducted a cross sectional survey with 906 adults (18 years old and above) in Pakistan to assess the KAP and their determinants regarding Covid-19 in Pakistan. The findings revealed significant gap in Covid-19’ knowledge, attitudes and practices among various participants’ groups mainly living in rural areas. It has been observed in the study that all participants’ groups whether literate or illiterate have uniform gaps in information regarding the transmission of disease, duration of quarantine and treatment option. Study recommended for comprehensive and contextually congruent awareness raising strategy is needed for rural and urban population to curb Covid-19. The study findings stated that a majority ranging 76 percent to 92 percent had awareness about common symptoms and signs of Covid-19 which includes shortening of breath, cough and fever where only 40 percent reported joint or muscular pain as symptom or sign. Whereas few participants i.e., about 12.7 percent had information that Covid-19 can be present without any sign or symptom.

Aynalem et al., (2020) conducted cross sectional survey among undergraduate students of university in Ethiopia to investigate their KAP to respond Covid-19. The study reported that coronavirus (COVID-19) is highly infectious and tend into a global pandemic. The study showed that Virus was quite low in the start, but it spread rapidly afterwards. it was found that students had moderate level of knowledge with positive attitude towards responding the disease. This optimism, however, could lead young students to poor health practices within their community. Therefore, launch of educational campaigns could be highly effective in controlling the virus.

Ferdous et al., (2020) narrated in their study that different measures were adopted to curb the dissemination of covid-19 at large level whereas the measures will affect the KAP of thousand-hundreds of people. Measures like lockdown, handwashing, disinfection, and mask wearing had great effect on community build perception towards the pandemic. Where measures have raised awareness pandemic, on other side it also created fear and unrest among such people who did not infect or gave low risk of getting infected. Countries like
Bangladesh faced challenges to cope with pandemic and was not prepared to deal with situation. It was due to limited treatment and trained professionals’ availability as country experienced influenza pandemic before. So, it is important and need to understand the KAP of Bangladesh’ citizens regarding pandemic. Schools, markets and even mosques closure led to fear among the people and their response to the measures adopted were disproportionate as communities’ adoption of standard protective measures were not same. It has been also reported in the study that measures taken for past epidemics of same nature resulted into fear among public. Fear among people made it difficult to take measures against the pandemic. Public cooperation become difficult to control the transmission of the virus as disinformation usually take position to lead public responses.

A cross sectional survey with more than two thousand people of Bangladesh of age 13-88 was conducted by Hossain et al., (2020). The survey aimed to assess the Knowledge, Attitude, and Practice (KAP) level of citizens towards COVID-19 precautionary measures and its perceived fear among them. They found that individual as well as collective actions are needed to tackle the situation as curbing Covid-19 is long run process. They shared that to control the pandemic adequate testing, isolation of virus suspects and treatment of infected people is needed at large. Many countries are putting effort to make vaccine against this virus, but until availability of vaccine, only preventive measure is an option to be adopted to become safer from infectious pandemic. They further suggested that improved KAP towards community behaviors and their implementation is key towards designing a community romance.

Feroz et.al. (2021) explored the in-depth perspective, attitude and practices of Krachi’s community towards Covid-19. They stated in their study that there was poor adherence of precautionary measures in early stages of Covid-19 spread. Whereas community had good knowledge regarding pandemic and showed positive attitude towards the Standard precautions to prevent Covid 19 spread Risk. Community gained information mostly through electronic media, print media and social media platforms, which have pros and cons. It has also been reported in study that some people including the younger inhabitants had poor observance of safety measured. In such situation awareness raising through concentrated efforts were needed as well as misconceptions regarding pandemic should be resolved through proper community mobilization and sensitization. They findings of the study emphasized that necessary knowledge and awareness regarding Covid-19, appropriate trainings and mock exercises along with compliance to adoption of safety measures are required for better preparation to respond new wave of pandemic. They shared that such findings regarding the perception attitude and practices of people can be infer to small communities having same demographics and social settings but cannot be extrapolated beyond the observed social settings.

Mushtaque et al., (2021) conducted cross sectional survey to access the attitude of community towards Covid-19 vaccine in Pakistan and record responses of 1647 general public of ages 18-45 through E-survey in urban and rural of Pakistan. According to the study findings the urban respondents trust Covid Vaccine as safe. Similarly, participants of big cities with higher education level (College and above) showed positive attitude towards vaccine despite linking it with religious reasons. In contrasts people from rural areas did not believe in getting vaccines and refused to be vaccinates. It has been observed from the study that population from rural background having poor information and poor economic status did not trust on benefits of vaccine.
Naqvi et al., (2022) conducted KAP study in seven countries from the women. The study shared that three fourth (75%) of women practiced hand hygiene to avoid risk of Covid infection. Whereas 63.3 percent women wear masks and about 29.1 percent stayed at home to reduce the Covid-19 risk. Lowest hand hygiene had been observed in Pakistan (59.9%) and 57.8% in Democratic Republic of Congo (DRC). The other important practice to prevent pandemic was wearing mask and found that it was again found less in DRC (27.1%) and Pakistan (38.9%) than of other countries of the study. Whereas poor practice regarding avoid touching face has been observed in Bangladesh (6.2%) and Kenya (38.1%). A significant difference has been observed among the pregnant women regarding their knowledge, attitudes and practices. There was limited knowledge observed among pregnant women in all seven countries. Regarding attitude towards Covid-19, one fourth of the pregnant women limit their prenatal visits and 8 percent of them avoided their deliveries in hospital due to fear of pandemic exposure.

Kamal et al., (2022) investigated the perception, opinion, and experiences of pregnant women regarding impact of pandemic in their study conducted in Bangladesh. They stated in their study that Covid-19 put adverse effects on women who visited Maternal Health Care Services (MHCSs) in rural areas. Due to measures taken by government women visit to MHCSs had been decreased. Sudden shifting the role of healthcare professional in hospitals was another element which put adverse effect on women to visit MHCSs. The other factors which resist pregnant women to visit MHCSs for antenatal care were anxiety, poor environment of healthcare centers, poor quality of healthcare provision, stigma and avoiding risks to get infected. It has been suggested in the study that negative attitude of women towards visiting MHCSs in pandemic situation can be overcome by educating the women through Family planning workers as a primary source of interaction with women in rural areas. Moreover, need based health professionals to be recruited in this regard on urgent basis. The most important recommendation was to open One stop MHCS to be opened at each health facility to deal with pregnant women during pandemic situation. Legislators should take essential steps for reducing the anxiety among pregnant women and encourage women to visit MHCSs.

The literature about COVID-19 and community’s behavioral transformation in Pakistan is already limited and also such research focused on urban communities. In this regard the current study brings new insights from rural and underdeveloped areas of South Punjab. The adoption of precautionary measures against pandemics is complicated and challenging in rural areas compared to urban areas hence need through investigation. The current study in this regard will add to the already limited stock of research on KAP studies regarding pandemics particularly in the wake of COVID-19.

3. Methodology & Research Design

This study intended to find about the Rural people’ knowledge, attitude and practices in the adoption of precautionary measures against pandemic (Covid-19) in South Punjab. To achieve this objective, a study based on a cross-sectional survey was conducted. The choice of study area is crucial for any research to see if the problem is an area specific or vaster in nature. For this research, study area was Southern Punjab in Pakistan. Southern part of Punjab consists of three divisions Dera Ghazi Khan, Bahawalpur and Multan. It comprises 57 per cent of the total area and 36 percent of the total population of Punjab. Due to owing homogenous cultural setting, Multistage sampling technique was used to achieve research objectives. Twelve Tehsils from three districts (one from each division) has been selected randomly to represent the rural population of Southern Punjab. Sampling frame was obtained
from the voters lists for selected areas from which a sample of 300 respondents was taken using simple random sampling technique. Sample size was determined using Taro Yamane’s formula. Survey was conducted by the researcher along with trained enumerators. The data obtained was then screened for any errors and made corrections where needed. Statistical Package Social Sciences (SPSS) was used to analyze the data. Univariate analysis using mean and standard deviations was used to gain insights on socioeconomics of the sample respondents. Bivariate analysis using KAP indexation was used for obtaining the KAP score overall and individual scores for knowledge, attitude and practices.

**Geographical map of Selected Districts**

![Geographical map of Selected Districts](image)

Figure 2: Study Area Map

4. Results and Discussions

In behavioral studies socio-economic and demographic factors hold an indispensable position as behavioral change in short span is influenced through these variables (Koukouli et al., 2002; Mondal & Shitan, 2014).

4.1. Socio-economic and demographic characteristics:

The gender composition of the sample respondents reflects that 42% of them were females and 58% were male. In rural areas of Pakistan where gender roles are quite differentiated the behavioral response to emergency measures are also affected. Age of the respondent is another important factor that determine the influence on behavioral response. Young people are reportedly more responsive than older people for any expected behavioral change in the times of health emergencies. A vast majority (48%) of the sampled respondents in current study were young (between age 18-30) along with 31% belonging to medium age group (between 31-45 years) and 21.3% belongs to age group (above 46%). Pakistan’s emergency response to COVID-19 was appreciated globally which can be attributed partially to a responsive young population who is ready to change their behavior in short span of time. This result of young population in current sample from a rural area corroborates with some earlier cross-sectional studies confirming that majority of people were young i.e., Khan et al. (2022) also reported that the majority (60%) of the study population belonged to the young age group (16-30) and 30.0 percent had 31-45 years of age. Saqlain et al. (2021) and Iqbal and Younas (2021) also supported that the majority of people who participated were relatively young.

Study findings confirmed that a majority (55.3%) of the participants were illiterate, 18.0 percent had primary-middle level education and 13.0 percent were matriculated. However,
around 14% had above matric level education. The present study was conducted in rural areas of South Punjab where literacy rate is relatively low compared to other parts of Punjab province. Educated population usually respond with a quick change in behavior during the emergencies compared to population with low education. Literature also suggests educated people look for more time and validation before adopting a behavioral change which in emergencies is difficult where time to act is short. The case can be related with results from developed countries where policies of lockdown and compulsive precautions were difficult to implement.

Marital status and family size are important determinants of behavioral change in the wake of emergencies like COVID-19. People with families and dependents usually are more rationale and are quick to adopt precautionary practices. Current study revealed that despite a large young population majority of the participants (85.7%) were married, 13.3 percent were unmarred and only one percent was widowed. Similarly, around 60% of the respondents had children of which 28% had 3-4 children.
4.2. Knowledge among respondents regarding COVID-19

Figure 3: Socio-economic Characteristics of Respondents
The prevention of illness requires a comprehensive public education and awareness campaign in its most effective form (Kok et al., 2004). In addition to lowering the number of people who get the virus, the purpose of this teaching is to lower the total strain placed on the resources of our healthcare system and to prevent fatalities that may have been avoided. To determine whether public health strategies are effective, it is crucial to assess whether the population has received accurate information about public health procedures and how general attitudes and beliefs affect behavior. This evaluation is necessary for determining the efficacy of public health strategies (Lunn, 2020). Knowledge, attitudes, and practices (KAP) in relation to COVID-19 may have a significant impact on a person's ability to comply with preventive health behaviors, which are needed (Ajilore et al., 2017; Tachfouti et al., 2012). Therefore, the participants were asked about their knowledge about Covid-19. Table 1 summarizes the information received in this regard.

Table 1: Knowledge among respondents regarding COVID-19

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Statements</th>
<th>Not at all</th>
<th>To some extent</th>
<th>To great extent</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Covid-19 spreads from person to person within close distance of each other (Approximately 6 feet).</td>
<td>0 0.0</td>
<td>2 0.7</td>
<td>298 99.3</td>
<td>2.99</td>
<td>.082</td>
</tr>
<tr>
<td>2</td>
<td>Healthy food and drinking water increase the body immunity and resistance to Covid-19.</td>
<td>0 0.0</td>
<td>3 1.0</td>
<td>297 99.0</td>
<td>2.99</td>
<td>.100</td>
</tr>
<tr>
<td>3</td>
<td>It is necessary for children and young adult to take measures to prevent the infection by the Covid-19 virus.</td>
<td>0 0.0</td>
<td>6 2.0</td>
<td>294 98.0</td>
<td>2.98</td>
<td>.140</td>
</tr>
<tr>
<td>4</td>
<td>Persons with Covid-19 can spread the virus to others when the symptoms of Covid-19 are not present</td>
<td>0 0.0</td>
<td>9 3.0</td>
<td>291 97.0</td>
<td>2.97</td>
<td>.171</td>
</tr>
<tr>
<td>5</td>
<td>Antibiotic are effective treatment of Covid-19.</td>
<td>4 1.3</td>
<td>5 1.7</td>
<td>291 97.0</td>
<td>2.96</td>
<td>.261</td>
</tr>
<tr>
<td>6</td>
<td>General medical masks are effective to prevent the infection by Covid-19 virus.</td>
<td>0 0.0</td>
<td>15 5.0</td>
<td>285 95.0</td>
<td>2.95</td>
<td>.218</td>
</tr>
<tr>
<td>7</td>
<td>Test, trace and isolate (TTI) are the effective ways to reduce the spread of Covid-19.</td>
<td>4 1.3</td>
<td>7 2.3</td>
<td>289 96.3</td>
<td>2.95</td>
<td>.273</td>
</tr>
<tr>
<td>8</td>
<td>Covid-19 can be contracted by touching a surface or object, on which the virus is attached, and then touching once mouth, nose or perhaps, eyes.</td>
<td>0 0.0</td>
<td>16 5.3</td>
<td>284 94.7</td>
<td>2.95</td>
<td>.225</td>
</tr>
<tr>
<td>9</td>
<td>Work on an effective cure for Covid-19 is still underway but early symptomatic and supportive treatment can help out</td>
<td>8 2.7</td>
<td>12 4.0</td>
<td>280 93.3</td>
<td>2.91</td>
<td>.372</td>
</tr>
</tbody>
</table>
The participants were found to have a good understanding of the Covid-19 disease. The mean and standard deviations for each of knowledge variables are presented in Table 4.16 which are "Covid-19 spreads through respiratory droplets which occur when infected people cough and sneeze." (2.99±.08), "Healthy food and drinking water increase the body immunity and resistance to Covid-19" (2.99±.10), "Children and young adults must take measures to prevent infection by the Covid-19 virus" (2.98±.14), and "Persons with Covid-19 can spread the virus to others. These statements indicated that the respondents had the basic knowledge of disease mechanism. However, respondents’ view about the antibiotic as an effective treatment of Covid-19 (2.96±.26) was not aligned with the literature (Popp et al., 2021) which suggested antibiotics have no particular result in improving conditions affected by COVID-19.

The results indicated that respondents knowledge was substantial as they knew that simple medical masks could be effective to avoid a Covid-19 virus infection (2.95±.21), they were also familiar that test, trace and isolate (TTI) techniques appeared effective in reducing the spread of Covid-19 (2.95±.27), a person can be infected with Covid-19 by simply touching a surface or object exposed to virus, and then touching his/her mouth, nose or eyes (2.95±.22), although researchers are working on an effective cure for Covid-19 but timely medical assistance in the form of supportive treatment can be helpful to heal back to normal (2.91±.37), the spread of Covid-19 through tiny respiratory droplets during coughing and
sneezing (2.82±.56) and stuffy nose, runny nose, and sneezing are less common in persons infected with Covid-19 (2.71±.48). The mean values of these statements were also close ‘to great extent’ response. Similarly, findings were presented by Khan et al. (2022). They discovered that 96% of individuals believed that coughing, sneezing, and touching were also contributing factors in the transmission of the COVID-19 virus. However, respondents’ knowledge about the elderly people and people with preconditions are more susceptible to COVID-19 infection (2.35±.47), to reduce their risk of spreading the virus to others, people should stay inside their homes and avoid going out in public (2.20±.42), knowledge about the exact quarantine duration if a person is infected (2.12±.52), Breastfeed to child if mother/infant is infected with Covid-19 (2.12±.47), Eating/contacting wild animals would increase chances of contracting infection by the Covid-19 virus (2.03±.99), Hand washing is enough to prevent from Covid-19 (1.42±.73) and if vaccinated they will die and/or increase in infertility (1.38±.69) was not clearly indicative and the response was scattered.

These findings provide a foundation to conclude that, most of the participants were aware that the Covid-19 virus spreads through people’s close contact with each other, and that eating well and staying hydrated are effective ways to boost a person’s immunity and resistance to the Covid-19 virus. To avoid being infected with the COVID-19 virus, it is imperative that children and young adults practice proper infection prevention. The present findings were consistent with those of Khan et al (2022). They also observed that the use of a surgical mask (84%) was effective in preventing COVID-19. Some other studies reported that the rate of adequate knowledge is lower as reported by Azlan et al. (2020) in a Pakistani study (64.8%). A Malaysian study (80.5%) (Ullah et al., 2021) and a Chinese study (90%) (Zhong et al., 2020) while higher than an Ethiopian study (36.7%) (Desalegn et al., 2021). The apparent better knowledge about COVID-19 in current study appears because this study's survey was conducted in 2022 while other studies took survey during the early pandemic period. Over last few years governments and non-government organizations have run campaigns to make communities’ aware about the nature of the disease. This also indicates that knowledge about COVID-19 has effectively disseminated even among remote and rural communities.

4.3. Participants attitude towards COVID-19

The pandemic status of coronavirus disease 2019 (COVID-19) has been confirmed by the World Health Organization. Around the world, people are trying to educate people about how they can stop the disease from spreading further. People’s responses to the COVID-19 pandemic, including their actions and attitudes, play a significant part in the epidemic’s progression (Mahmood et al., 2020). The precautionary attitude of individuals is influenced by many factors like socioeconomics, cultural values, knowledge, beliefs, risk perception, and effectiveness of measures implemented. These factors may vary from society to society and country to country. Each country can take its own preventive measures according to the situation and keeping in view the ground realities. The risk of infection due to COVID-19 can further motivate people to take preventive actions according to their local health advisory (Haq et al., 2020). Therefore, the respondents were asked about their attitude toward Covid-19. Table 2 summarizes the information received in this regard.

These studies help us to conclude, that most of the respondents fully agreed that a lockdown would help society in terms of controlling the Covid-19 situation (2.97±.23), the government should implement travel restrictions on both leaving and entering high-risk locations (2.95±.24), believe that in the pandemic socioeconomic instability put pressure on the psychological health of people (2.95±.22), it is necessary to report any suspected cases of COVID-19 to the appropriate health authorities, and it is helpful for the government to take
preventative measures, such as imposing lockdowns, prohibiting public gatherings, and closing public areas, in order to safeguard the public from sickness (2.91±.28). The mean values of these statements were close to ‘to a great extent’ responses.

However, the majority of the participants felt that simple measures related to personal hygiene such as wearing masks or hand washing would protect them from infection (2.91±.82), the entirety of the community is in danger from the pathogen known as Covid-19 (2.90±.33), and the infected individuals should be isolated or quarantined, and they should receive treatment for their symptoms in the appropriate setting in order to be effective in preventing the spread of the virus (2.90±.30). The mean values of these statements also tended towards ‘to a great extent’ responses. However, respondents’ attitude towards statement like anyone who comes into touch with an infected person who is carrying the COVID-19 virus should be quarantined and isolated as soon as possible (2.22±.43) and Covid-19 will finally be successfully controlled (1.94±.98) was scattered. The mean values of these statements tended towards ‘to some & great extent’ responses.

Considering the results of the table 4.19, it was discovered that most of the participants believed that a lockdown would help society in terms of controlling the Covid-19 situation, and the government should restrict travel from and to areas of high transmission. This was in response to the fact that it was found that most of the participants believed that a lockdown would help control the situation involving Covid-19. The participants also held the belief that during the pandemic, people’s mental health was placed under stress due to socioeconomic instability, and it was stressed how crucial it was to report any suspected cases of COVID-19 to the relevant health authorities. To prevent individuals from illness, it is helpful for the government to take preventative measures. These measures may include the imposition of lockdowns, the banning of public meetings, and the closing of public areas.

Similar findings were also presented by Awan et al., (2021); Raza et al. (2021) and Khan et al. (2022). They found multiple precautions to prevent the spread of COVID-19 such as hand washing, wearing a face mask, use of sanitizer and social distancing. Awan et al. (2021) also noticed that social isolation and lockdowns (95.5%) were very important in preventing the disease from spreading further. In a similar vein, Saqlain et al. (2021) observed that washing their hands, wearing a face mask, and socially isolating themselves may protect them from being exposed to Covid-19. However, Khan et al. (2022) said that 41% of the population believed that the lockdown strategy could finally control the spread of the COVID-19 virus.

Table 2 : Attitude of Respondents about COVID-19

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Statements</th>
<th>Not at all</th>
<th>To some extent</th>
<th>To great extent</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do you think that a lockdown would help society in terms of controlling the Covid-19 situation?</td>
<td>4 (1.3%)</td>
<td>1 (0.3%)</td>
<td>295 (98.3%)</td>
<td>2.97</td>
<td>.23</td>
</tr>
<tr>
<td>2</td>
<td>Do you agree the government should restrict travel from and to areas of high transmission?</td>
<td>2 (0.7%)</td>
<td>11 (3.7%)</td>
<td>287 (95.7%)</td>
<td>2.95</td>
<td>.24</td>
</tr>
<tr>
<td>3</td>
<td>Do you believe that in the pandemic socioeconomic instability put pressure on the psychological health of people?</td>
<td>0 (0.0%)</td>
<td>16 (5.3%)</td>
<td>284 (94.7%)</td>
<td>2.95</td>
<td>.22</td>
</tr>
<tr>
<td>4</td>
<td>Do you agree that it is important to</td>
<td>3 (1.0%)</td>
<td>16 (5.3%)</td>
<td>281 (93.7%)</td>
<td>2.93</td>
<td>.29</td>
</tr>
</tbody>
</table>
4.4. Participants Practices towards COVID-19

It’s difficult to completely avoid a global pandemic, yet it needs to be reduced and contained by carefully keeping an eye on its spread. Infection can be prevented by engaging in a number of behaviors, including hand washing, face mask use, mouthwash use, social withdrawal (staying at home), and isolation of confirmed cases (Bazaid et al., 2020; Imran et al., 2021). The community as a whole benefit from these practices. The practices of the respondents toward Covid-19 are shown in the current section.

Table 3 represents the participants' practices during the peak spread of COVID-19 infection. Study findings revealed that a huge majority of the participants very likely follow the instructions of the health department regarding Covid-19 (2.99±.08), maintaining a physical distance from other people by keeping a distance of at least two meters or six feet at all times (2.97±.20), during this period of lockdown, you should avoid getting together with your friends or relatives (2.87±.33), limit contact (such as handshakes & hugs) (2.70±.62) and Got Covid-19 vaccine doses to prevent Covid-19 (2.64±.48). The mean values of these practices tended towards ‘very likely’ responses.

Mean values and standard deviations for precautionary measures against pandemic (Covid-19) responses which tended towards “likely to adopt” category are as; reuse a mask (2.43±.65), wear a mask when leaving home (2.38±.48), rest in isolation if you become ill with a common cold or flu-like virus during the transmission period (2.37±.48), when you
cough or sneeze, use your elbow or a tissue to cover your nose and mouth to prevent germs from spreading (2.24±.56), wash hands with soap & water frequently for at least 20 seconds (2.16±.55) and use others’ phones, or other tools and equipment (2.04±.48). This reflects community response to COVID-19 was effective as they were likely to adopt some recommended practices which provided a hedge against the infection.

Nevertheless, touching the front of the mask when taking it off (1.98±.41) and taking part in community transmission hotspots such as religious services, community events, social gatherings, and other large-scale gatherings (1.54±.72) were also widely adopted practices among survey participants. The mean values of these practices fell between ‘likely’ and ‘very likely’ but tended more towards ‘very likely’ category.

The data revealed that an extremely high proportion of the participants adhered to the instructions provided by the health department concerning Covid-19. During the period in which the lockdown was in effect, they always kept the required physical distance from one another by remaining at least 6 feet apart (or 2 meters), and they avoided seeing their friends and relatives. In addition, the responders practiced minimal contact, such as handshakes and embraces, and received doses of the Covid-19 vaccination to avoid catching Covid-19 infection. Awan et al. (2021) also discovered that the majority of people (40.1%) thought that the vaccine was the only treatment for COVID-19. The findings of Zhong et al. (2020) and Alahdal et al. (2020), which also reported that the majority (>90%) and (81%) of participants, respectively, were following precautionary measures, are also consistent with this. Even though only 50% of the population had sufficient knowledge, it’s possible that government campaigns outlining the causes, symptoms, and treatment options increased the prevalence of ethical behavior. However, the main emphasis of these awareness campaigns was on emphasizing preventative measures, such as using a facemask, isolating oneself from society, and washing one's hands frequently.

Table 3: Practices of Respondents about COVID-19

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Practices</th>
<th>Less likely</th>
<th>Likely</th>
<th>Very likely</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Did you follow the instructions of the health department regarding Covid-19</td>
<td>0 0.0</td>
<td>2 0.7</td>
<td>298 99.3</td>
<td>2.99</td>
<td>.08</td>
</tr>
<tr>
<td>2</td>
<td>Physical distancing by always remaining 6 feet/ 2 meters away from others</td>
<td>2 0.7</td>
<td>5 1.7</td>
<td>293 97.7</td>
<td>2.97</td>
<td>.20</td>
</tr>
<tr>
<td>3</td>
<td>Avoided to meet your friends/ relatives in this lockdown period</td>
<td>0 0.0</td>
<td>39 13.0</td>
<td>261 87.0</td>
<td>2.87</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>Behavior Description</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>Median</td>
<td>Min</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------------------</td>
<td>----</td>
<td>------</td>
<td>-----</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>4</td>
<td>Limit contact (such as handshakes &amp; hugs)</td>
<td>27</td>
<td>9.0</td>
<td>37</td>
<td>12.3</td>
<td>236</td>
</tr>
<tr>
<td>5</td>
<td>Got Covid-19 vaccine doses to prevent covid-19</td>
<td>0</td>
<td>0.0</td>
<td>109</td>
<td>36.3</td>
<td>191</td>
</tr>
<tr>
<td>6</td>
<td>Reuse a mask</td>
<td>28</td>
<td>9.3</td>
<td>114</td>
<td>38.0</td>
<td>158</td>
</tr>
<tr>
<td>7</td>
<td>Wear a mask when leaving home?</td>
<td>0</td>
<td>0.0</td>
<td>187</td>
<td>62.3</td>
<td>113</td>
</tr>
<tr>
<td>8</td>
<td>Stay home when/ if you were sick due to common cold-like infections during the transmission period.</td>
<td>0</td>
<td>0.0</td>
<td>188</td>
<td>62.7</td>
<td>112</td>
</tr>
<tr>
<td>9</td>
<td>Cover your nose and mouth during coughing and sneezing with elbow or tissue</td>
<td>21</td>
<td>7.0</td>
<td>187</td>
<td>62.3</td>
<td>92</td>
</tr>
<tr>
<td>10</td>
<td>Wash your hand with soap and water frequently for at least 20 seconds?</td>
<td>26</td>
<td>8.7</td>
<td>199</td>
<td>66.3</td>
<td>75</td>
</tr>
<tr>
<td>11</td>
<td>Use others’ phones, or other tools and equipment?</td>
<td>29</td>
<td>9.7</td>
<td>229</td>
<td>76.3</td>
<td>42</td>
</tr>
<tr>
<td>12</td>
<td>Touch the front of the mask when taking it off?</td>
<td>29</td>
<td>9.7</td>
<td>248</td>
<td>82.7</td>
<td>23</td>
</tr>
<tr>
<td>13</td>
<td>Participate in meetings, religious activities, events, and other social gatherings or any crowded place in areas with ongoing community transmission.</td>
<td>180</td>
<td>60.0</td>
<td>79</td>
<td>26.3</td>
<td>41</td>
</tr>
</tbody>
</table>
Use sanitizer frequently

|    | 209 | 69.7 | 42 | 14.0 | 49 | 16.3 | 1.47 | .76 |

Clean and disinfect frequently touched objects and surfaces

|    | 204 | 68.0 | 52 | 17.3 | 44 | 14.7 | 1.47 | .73 |

Touch eyes, nose and mouth frequently with unwashed hands.

|    | 202 | 67.3 | 58 | 19.3 | 40 | 13.3 | 1.46 | .71 |

Allowing any visitors/friends at your home

|    | 190 | 63.3 | 108 | 36.0 | 2 | 0.7 | 1.37 | .49 |

Eat or drink in restaurants?

|    | 255 | 85.0 | 40 | 13.3 | 5 | 1.7 | 1.17 | .41 |

**4.5. KAP Score Analysis**

Using SPSS, we conducted a reliability analysis to verify the predicted value of Cronbach's Alpha. Here we show the steps used to create an index for the first dependent variable (knowledge).

First, the researcher applied a reliability test to find out the Cronbach Alpha value all matrix questions related to the knowledge.

SPSS is often used in the process of estimating the Cronbach Alpha value. If the projected value of Cronbach Alpha fell anywhere between 0.7 and 1.0, this indicated that the dependability of the data was rather high, and it suggested that each of the statements included in the matrix questions most likely represented the same general concept.

The scores of all 18 statements that were included in the dependent variable "knowledge" were tallied up, and the total was used to determine the value of the dependent variable "knowledge." The total score ranged from 41 to 54, and the respondents were divided into three groups based on it: low, medium, and high, with the collection intervals ranging from 41 to 44, 45 to 48, and 49 to 54, respectively.

A similar method was used to compute the attitude and practices given below. The details of the indexation of different variables are presented table 4. This indexation helps to interpret the KAP score for participants. This holistic view of KAP among participants reflect that mean KAP score for respondents fall in medium category with high standard deviation. It reflected most respondents had medium level of knowledge about COVID-19. The table 4 also reflects that mean score for attitude fall in the high category which means most respondents shown a very positive attitude towards COVID-19. With adequate knowledge and a positive attitude, it was expected that prevalence of precautionary practices would also be high but contrary to expectation the mean score for practices falls in low category. These results are quite intriguing and demands more explanations. The reasons for low level of adoption of precautionary practices have roots in socio-economic dynamics of the sampled population. As majority of the participants were among low-income groups which restricts their ability to adopt any potential precautionary practice which cost even a marginal amount.
Secondly, as the study was conducted among rural areas where some of the precautionary practices were either unavailable i.e., masks, sanitizers or not accessible. Lastly, the social norms, peer group pressures and religious beliefs could be a barrier towards adopting precautionary practices among the participants. These factors need further extensive exploration to identify potential barriers in the adoption of precautionary measures.

Table 4 : KAP score of Participants

<table>
<thead>
<tr>
<th>Variables</th>
<th>No. of Matrix Question</th>
<th>Scale</th>
<th>Min. value</th>
<th>Max. value</th>
<th>Mean</th>
<th>S.D.</th>
<th>Alpha</th>
<th>Range Low</th>
<th>Range Medium</th>
<th>Range High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>18</td>
<td>3</td>
<td>41</td>
<td>54</td>
<td>45.79</td>
<td>3.12</td>
<td>.735</td>
<td>41-44</td>
<td>45-48</td>
<td>49-54</td>
</tr>
<tr>
<td>Attitude</td>
<td>10</td>
<td>3</td>
<td>21</td>
<td>30</td>
<td>27.58</td>
<td>1.49</td>
<td>.692</td>
<td>21-24</td>
<td>25-27</td>
<td>28-30</td>
</tr>
<tr>
<td>Practices</td>
<td>18</td>
<td>3</td>
<td>34</td>
<td>50</td>
<td>38.24</td>
<td>5.02</td>
<td>.708</td>
<td>34-39</td>
<td>40-45</td>
<td>46-50</td>
</tr>
</tbody>
</table>

5. Conclusion

This study provided detailed information about the knowledge, attitude and practice regarding COVID-19. It can be concluded that most of the participants were aware that the Covid-19 virus spreads from person to person when they are in close proximity to one another. Many participants relied on a facemask, social isolation, and hand sanitizer to protect from Covid-19. It was discovered that most of the participants believed that a lockdown would help society in terms of controlling the Covid-19 situation, and the government should restrict travel from and to areas of high transmission. Despite a positive attitude towards COVID-19 the mean score for adoption of practices was quite low which has its roots in socioeconomicities of the participants. The study concluded that with adequate knowledge and campaigning right attitude towards COVID-19 can be developed among the rural communities of South Punjab however, in order to translate this attitude into desired precautionary practices socioeconomic conditions of people must be improved.

References


