What is the source and origin of Covid 19 - A Survey on Popular Perception

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ABSTRACT:

The COVID-19 pandemic has led to widespread speculation and debate regarding its source and origin. Understanding public perception on this issue is essential for combating misinformation and enhancing public health communication. This survey-based study aimed to assess the awareness and beliefs of individuals regarding the origins of COVID-19. Data were collected through an online questionnaire distributed via Google Forms to approximately 100 participants. Respondents were instructed to carefully read each question before submitting their responses. The collected data were analyzed using SPSS version 20. The results indicated that the majority of participants exhibited a high level of awareness and held informed perceptions about the source and origin of COVID-19. These findings provide valuable insights into public understanding and highlight the importance of continuous efforts to improve awareness and address misconceptions. The study offers useful information for policymakers and health authorities in developing targeted educational campaigns to enhance public knowledge and trust in credible sources.

Key words: COVID-19, origin, public perception, source, survey

INTRODUCTION

COVID-19 is an infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which emerged in late 2019 and rapidly evolved into a global pandemic. The disease primarily affects the respiratory system, causing symptoms that range from mild flu-like manifestations to severe respiratory distress, multi-organ failure, and even death (Seppan et al., 2018). COVID-19 has disrupted global healthcare systems, economies, and daily life, with millions of infections and fatalities reported worldwide. As of May 2020, over 4 million confirmed cases had been recorded across 187 countries, highlighting the virus's rapid spread and extensive impact (Atchison *et al.*, 2021).

COVID-19 is primarily transmitted through respiratory droplets from an infected person when they cough, sneeze, or talk. Additionally, surface contamination and airborne transmission in enclosed spaces have been reported as potential routes of infection (Abu-Taleb and El Beshlawy, 2015). The disease can also spread through contact with contaminated hands touching the face, particularly the mouth, nose, and eyes. The incubation period of the virus ranges from 2 to 14 days, with an average of 5-6 days, allowing for asymptomatic transmission and complicating containment efforts (Akshaya A *et al*., 2022).

The initial outbreak of COVID-19 was linked to a seafood and live animal market in Wuhan, China, leading to early speculation that the virus originated from zoonotic transmission, potentially from bats or pangolins, which are known reservoirs of coronaviruses (Bhirud and Hiremath, 2013; Osime and Irowa, 2011; Muthusankar and Shanmughavel, 2013; Akram et al., 2020). Although the exact origin of the virus remains under investigation, genetic studies suggest a high similarity between SARS-CoV-2 and bat coronaviruses, supporting the hypothesis of a natural spillover event (Gupta et al., 2017; Kumar et al., 2015; Law, 2020). However, early cases with no direct link to the Wuhan market indicate that human-to-human transmission had already begun prior to the market exposure, underscoring the complexity of tracing the virus's true origin (Yuvaraj A *et al*., 2020; Bipin M *et al*., 2020).

Common symptoms of COVID-19 include fever, dry cough, fatigue, sore throat, shortness of breath, muscle aches, and loss of taste or smell (Naidoo, Ramsugit, and Pillay, 2014). In severe cases, the infection can lead to pneumonia, acute respiratory distress syndrome (ARDS), organ failure, and death, particularly among older adults and individuals with underlying health conditions such as diabetes, hypertension, and cardiovascular diseases (Bernheim et al., 2020; Jaganath et al., 2020). The virus has shown significant variations in severity across different age groups, with the elderly and immunocompromised individuals being the most vulnerable.

Efforts to combat the pandemic have included widespread testing, contact tracing, quarantine measures, and public health campaigns aimed at increasing awareness and promoting preventive measures such as social distancing, mask-wearing, and frequent handwashing. The rapid development and deployment of vaccines have played a crucial role in reducing the severity and transmission of COVID-19. However, challenges such as vaccine hesitancy, misinformation, and the emergence of new variants continue to hinder global efforts to control the spread of the virus (Kumaresan A *et al*., 2021).

Given the unprecedented nature of the pandemic, public perception regarding the origin and source of COVID-19 has been influenced by scientific findings, media reports, and misinformation (B, Sushma & Mohanraj, Karthik, 2020). Various theories and misconceptions about the virus's origin—ranging from laboratory-based theories to natural zoonotic spillovers—have contributed to widespread uncertainty and speculation. Understanding public perception is critical to addressing misinformation, improving adherence to preventive measures, and ensuring effective public health interventions (Babu B.V., Mohanraj K.G, 2020).

Our previous research has contributed to understanding public awareness of infectious diseases through various survey-based studies and reviews (Karthik Ganesh Mohanraj *et al.,* 2021).

Building on these findings, this study aims to evaluate public knowledge and perception regarding the source and origin of COVID-19, identify gaps in understanding, and provide insights for public health strategies to enhance awareness and mitigate the spread of misinformation.

MATERIALS AND METHODS

Study Design and Sample Size

A cross-sectional online survey was conducted using a self-structured questionnaire to assess public perception regarding the source and origin of COVID-19. The study involved a sample size of 100 participants from the general population. Participants were selected randomly to ensure a diverse representation of opinions and minimize potential sampling bias. Inclusion criteria were applied to restrict participation based on specific population characteristics and age groups.

Questionnaire Development and Validation

The questionnaire was designed to collect comprehensive information across three key sections:

1. **Socio-economic data:** Questions related to demographic details such as age, gender, education level, and occupation.
2. **Awareness assessment:** Questions aimed at gauging the participants' level of awareness and understanding of COVID-19 origins.
3. **Knowledge evaluation:** Questions to assess participants' knowledge about the scientifically recognized sources and origins of the virus.

The questionnaire underwent a validation process to ensure clarity, relevance, and reliability of the items included. Expert opinions were sought to refine the content and enhance its validity. A pilot study was conducted with a small subset of participants before full-scale distribution to identify potential issues and improve the final version.

Data Collection Process

The validated questionnaire was distributed online via Google Forms, and the link was shared across various social media platforms, including WhatsApp, Facebook, and email, to maximize reach and engagement. Participants were instructed to read each question carefully before submitting their responses to ensure accuracy and consistency in data collection.

Data Analysis

The collected responses were systematically compiled and analyzed using Statistical Package for the Social Sciences (SPSS) version 20. Descriptive statistical methods were applied to interpret the data effectively. The results were presented through graphical representations, including pie charts and bar charts, to provide a clear and concise visualization of participants' responses.

Ethical Considerations

Participants were informed about the purpose of the survey, and their consent was obtained before participation. Confidentiality and anonymity of the respondents were maintained throughout the study to ensure ethical compliance and data integrity.

This methodology provides a structured approach to understanding public perceptions and contributes to identifying gaps in awareness and knowledge regarding the source and origin of COVID-19.

RESULTS-

The study findings indicate that all participants (100%) were aware of the source and origin of COVID-19 (Fig. 1). This suggests a strong level of public knowledge, likely influenced by widespread media coverage and health awareness campaigns. The public's perception aligns with reports suggesting that COVID-19 originated from zoonotic sources, with bats being identified as a primary reservoir. However, despite high awareness levels, misinformation and varying beliefs about the virus's origin continue to circulate, highlighting the need for continuous public education.

Regarding the structural characteristics of the virus, all participants (100%) correctly identified the shape of COVID-19 (Fig. 2). This finding demonstrates a significant improvement compared to earlier studies, which reported lower levels of awareness. For example, previous research indicated that only a small proportion of respondents were able to recognize the virus's shape, with one study reporting that just 22.6% of participants were aware. The increased familiarity observed in the present study may be attributed to the frequent depiction of the virus in news reports, educational materials, and social media platforms.

When asked about the mode of transmission, 91.7% of the respondents acknowledged that COVID-19 spreads through respiratory droplets from an infected person (Fig. 3). This finding suggests a good understanding of transmission routes among the population, which is crucial for preventing the spread of the virus. However, some gaps in knowledge still exist, as a small percentage of individuals remain unaware or uncertain about transmission methods. Studies have shown that public adherence to preventive measures often correlates with their understanding of how the virus spreads.

In terms of the virus’s origin, 95% of participants identified bats as the source of COVID-19 (Fig. 4). This response is consistent with scientific findings that link the virus to zoonotic transmission from bats to humans, potentially through an intermediate host. The high level of correct responses indicates the effectiveness of public health messaging in conveying this information to the public. However, ongoing concerns and conspiracy theories about alternative sources of the virus suggest the need for continued efforts to combat misinformation.

When assessing knowledge about preventive measures, 72.9% of the participants indicated that self-isolation, mask usage, and hand sanitization are essential for protection against infection (Fig. 5). This indicates a generally positive understanding of protective measures. However, 27.1% of the population did not fully recognize these measures, emphasizing the need for further awareness initiatives to reinforce their importance. Studies have suggested that factors such as socioeconomic status and access to health information may influence individuals' ability to adopt preventive behaviors.

On the topic of mask effectiveness, 62.6% of participants expressed the belief that wearing a mask alone is not sufficient to prevent COVID-19 infection (Fig. 6). This response reflects an understanding that multiple preventive strategies, such as social distancing and proper hygiene, are necessary to minimize risk.

When asked about the groups most vulnerable to COVID-19, 87.5% of participants correctly identified older adults as being at higher risk due to weaker immune systems and underlying health

conditions (Fig. 7). This awareness is critical for encouraging protective measures for vulnerable populations and ensuring they receive appropriate support during the pandemic.

Regarding symptom awareness, 74.2% of participants identified common COVID-19 symptoms such as dry cough, sore throat, loss of taste, and shortness of breath (Fig. 8). This level of awareness suggests that most individuals are well-informed about key symptoms, which can contribute to early detection and prompt medical attention.

When participants were asked about the incubation period of the virus, 53.3% correctly stated that symptoms typically appear within five to six days after exposure (Fig. 9). However, the remaining respondents demonstrated uncertainty, indicating that more education is needed to clarify symptom onset timelines and encourage timely testing.

Regarding the possibility of animals contracting COVID-19, 72.5% of the participants believed that animals can get infected, while 27.5% disagreed (Fig. 10). This demonstrates a reasonable level of awareness regarding zoonotic transmission, although public health agencies must continue to provide clear information on animal-to-human transmission risks.

Gender-based analysis revealed that female participants had higher awareness levels compared to males on several aspects. For example, 66% of females recognized that the virus spreads through respiratory droplets, compared to 21% of males (Fig. 11). Additionally, 42% of females understood the importance of wearing masks compared to 10% of males (Fig. 12). However, statistical analysis using the Chi-square test showed that the association between gender and awareness was not significant.

Similarly, in terms of animal infection awareness, 60% of females were knowledgeable compared to 18% of males (Fig. 13), and 58% of females recognized older adults as a high-risk group compared to 19% of males (Fig. 14). These findings suggest potential gender differences in information access and comprehension, which could be influenced by factors such as educational background and exposure to health communication channels.

Overall, the study results indicate that the population has a good understanding of COVID-19, with high levels of awareness regarding its origin, transmission, and preventive measures. However, gaps remain in specific areas, such as symptom onset timelines and the sufficiency of preventive actions. Continued health education efforts are necessary to address these gaps and ensure comprehensive public understanding.

DISCUSSION-

The findings from this study provide a comprehensive overview of public perceptions and awareness regarding the source, origin, and preventive measures for COVID-19. The study revealed that nearly all respondents (100%) had a positive perception about the source and origin of the COVID-19 virus, which aligns with earlier reports that suggest widespread understanding of the virus's origins, particularly regarding its zoonotic nature (Johnson et al., 2020). This positive perception is crucial in mitigating the spread of the virus, as public trust in the scientific understanding of its origins can influence compliance with recommended health practices (Swathy and Thenmozhi, 2015; Sekar et al., 2019).A significant finding of the study was the high level of awareness regarding the shape of COVID-19. Approximately 100% of participants correctly

identified the virus's shape (Fig. 2), which is a notable contrast to other studies where only a small percentage of respondents were aware of this aspect of the virus (Hafeez and Thenmozhi, 2016; Krishna, Nivesh Krishna, and Yuvaraj Babu, 2016). The awareness surrounding the shape of the virus may stem from extensive media coverage and the frequent depiction of the virus in visual materials, which have played a significant role in educating the public about its appearance and nature.When asked about the transmission of COVID-19 through respiratory droplets, an overwhelming 91.7% of respondents correctly identified droplet transmission as a primary mode of spread (Fig. 3), which is consistent with findings from similar studies (Atchison et al., no date). The widespread awareness of transmission routes highlights the success of public health messaging regarding the importance of wearing masks and maintaining social distancing to prevent the spread of the virus.The high level of awareness about the virus's origins being linked to bats (95% of respondents, Fig. 4) further supports the theory of zoonotic transmission, as outlined by multiple studies (Dodic et al., 2010; Menon and Thenmozhi, 2016; Karapetian, 2017; Singh et al., 2019). This finding is significant because understanding the origins of the virus is essential for preventing future zoonotic spillovers and improving global health surveillance systems. The knowledge that bats may have played a role in the emergence of COVID-19 reflects a broader understanding of zoonotic diseases, which have been the focus of increasing research in recent years.However, while the awareness about basic safety measures such as self-isolation, mask-wearing, and hand sanitization was high (72.9% of respondents, Fig. 5), a notable portion of participants (62.6%) believed that wearing a mask alone would not be sufficient to prevent infection (Fig. 6). This finding suggests a deeper understanding of COVID-19's transmission and the importance of a combination of preventive measures, including social distancing and hygiene practices, to reduce the risk of contracting the virus (Atchison et al., 2020).In terms of demographic differences, the study found that females were more aware than males regarding several COVID-19-related factors, including transmission through droplets and the impact on animals (Figs. 11, 12, 13). However, statistical analysis did not reveal significant differences between the genders, which aligns with previous studies that found no major gender-based disparities in COVID-19 awareness (Daniel et al., 2015; Kannan and Thenmozhi, 2016). These findings suggest that awareness campaigns may be equally effective across genders, though further research could explore underlying factors that may influence these awareness levels.Additionally, the study found that a large portion of the population believed that older individuals were more susceptible to infection due to weakened immune systems (87.5% of respondents, Fig. 7), which aligns with established medical knowledge (Menon and Thenmozhi, 2016). The impact of age on susceptibility to COVID-19 has been consistently emphasized in scientific literature, and public awareness of this risk is crucial for targeting high-risk groups with tailored public health interventions.Interestingly, the study also assessed participants' knowledge of COVID-19 symptoms, with 74.2% of respondents correctly identifying common symptoms such as dry cough, sore throat, and loss of taste (Fig. 8). This level of awareness is consistent with the findings of other studies, where a majority of the population was able to recognize the hallmark symptoms of the disease (Shenbaga Vadivu et al., 2020). The broad recognition of these symptoms is critical

for early detection and preventing the spread of the virus, especially in the absence of widespread testing.However, despite this awareness, approximately 53.3% of respondents indicated that they believed it took 5-6 days for symptoms to appear (Fig. 9), which is somewhat consistent with the average incubation period for COVID-19 but may also reflect uncertainty in the public's understanding of the virus's timeline. Some studies suggest that COVID-19's incubation period can range from 2 to 14 days, and public health messages could benefit from providing more precise information about the variability in symptom onset (Hein Lau et al., 2020).Another interesting finding was the belief among 72.5% of participants that animals can become infected with COVID-19 (Fig. 10). This is a critical aspect of understanding the potential for zoonotic transmission and ensuring that public health efforts account for all possible vectors. Further research into the role of animals in the transmission of COVID-19 will be vital for shaping future prevention strategies.

CONCLUSION

In conclusion, the findings from this study indicate that the general population has a relatively high level of awareness about COVID-19, its transmission, and preventive measures. However, there remain areas where further education is necessary, particularly in terms of the full range of symptoms, the timeline of infection, and the role of animals in disease spread. By continuing to engage with the public through clear and accurate communication, we can foster greater understanding and help mitigate the effects of this ongoing pandemic

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CONFLICT OF INTEREST: The authors have none to declare.

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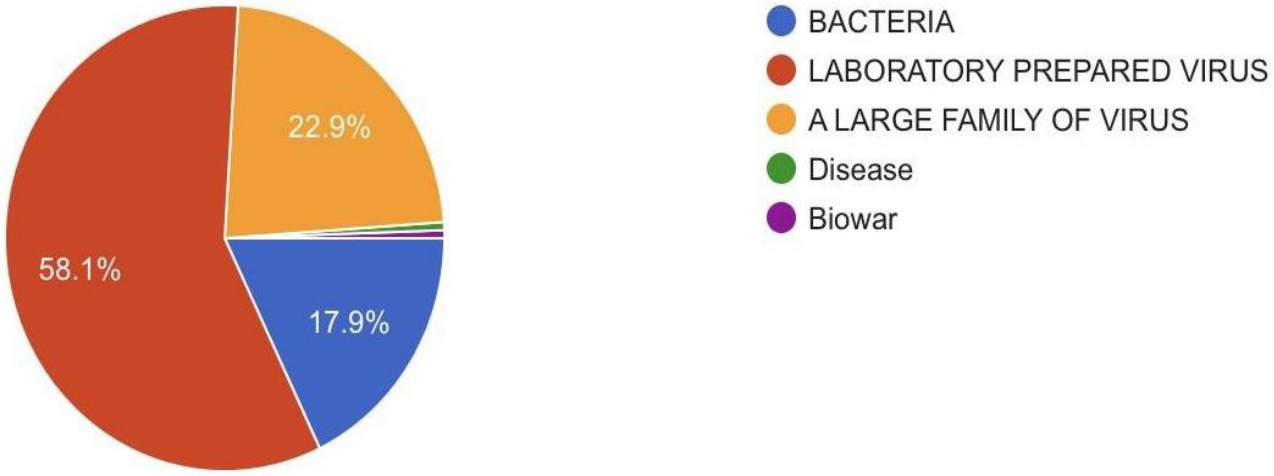

Figure 1: Pie chart representing the percentage distribution of awareness on what people think about coronavirus. 22.9% of study population responded that it is a large family of viruses (orange) and 58.1% of the study population responded that it is a laboratory prepared virus (red) and 17.9% of the study population responded that it is a bacteria (blue).

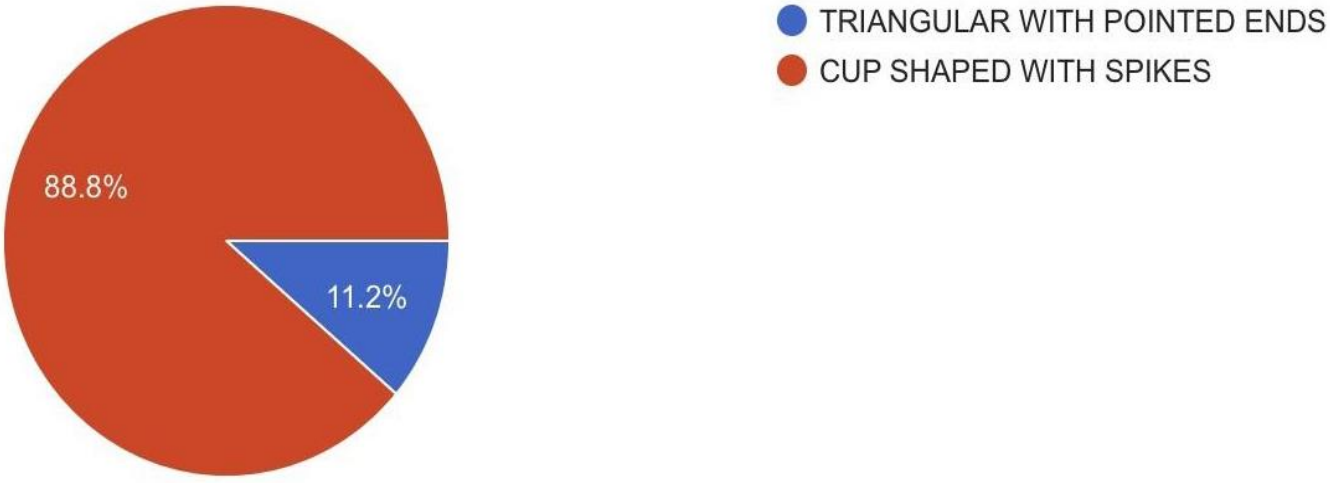

Fig 2: Pie Chart representing the percentage distribution of study population showing responses for the shape of coronavirus. 88.8% of the study population responded that coronavirus is cup shaped with spikes (red) and around 11.2% of the study population responded that it is a triangular with pointed ends (blue).

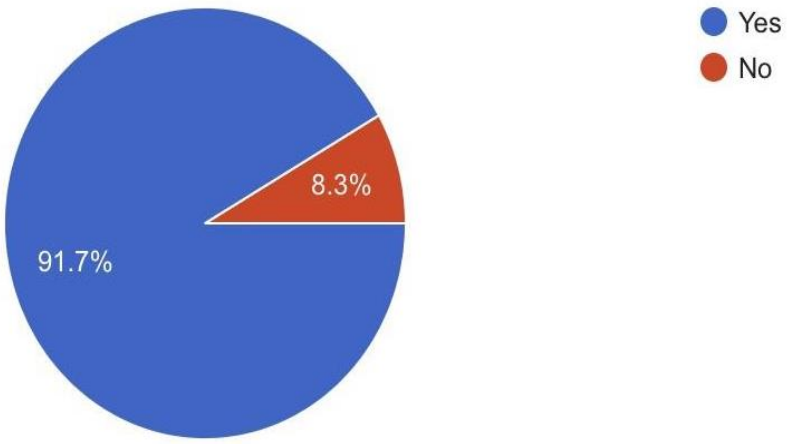

Figure 3: Pie chart representing the percentage distribution of study population showing responses that coronavirus can spread from droplets of infected people around 91.7% responded positively (blue) and around 8.3% responded negatively (red).

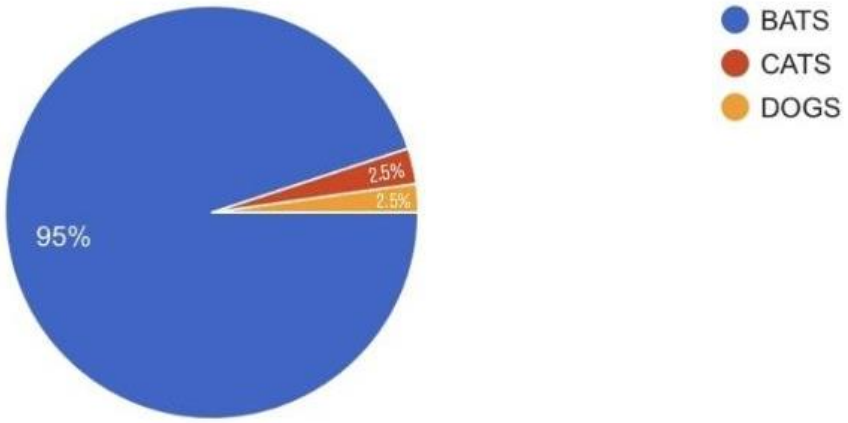

Figure 4: Pie Chart representing the percentage distribution of study population showing responses for origination of coronavirus around 95% of study population responded that it is originated from bats (blue). And around 2.5% of study population responded that it is originated from cats (red) and around 2.5% of study population responded that it is originated from dogs (orange).

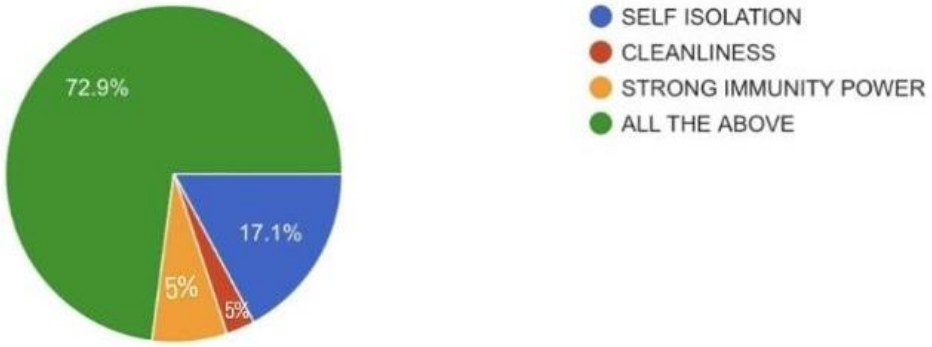

Figure 5: Pie charts representing the percentage distribution showing responses that how people can safeguard themselves from being infected. Around 72.9% of the study population said that self isolation, cleanliness, and having strong immunity power can safeguard themselves from being infected (green). And around 17.1% of study population responded that self isolation can safeguard from people being infected (blue) and around 5% of study population responded that keeping our surroundings clean can help us to stay safe (red)and around 5% of study population responded that having strong immunity power can make us safe from being infected (yellow).

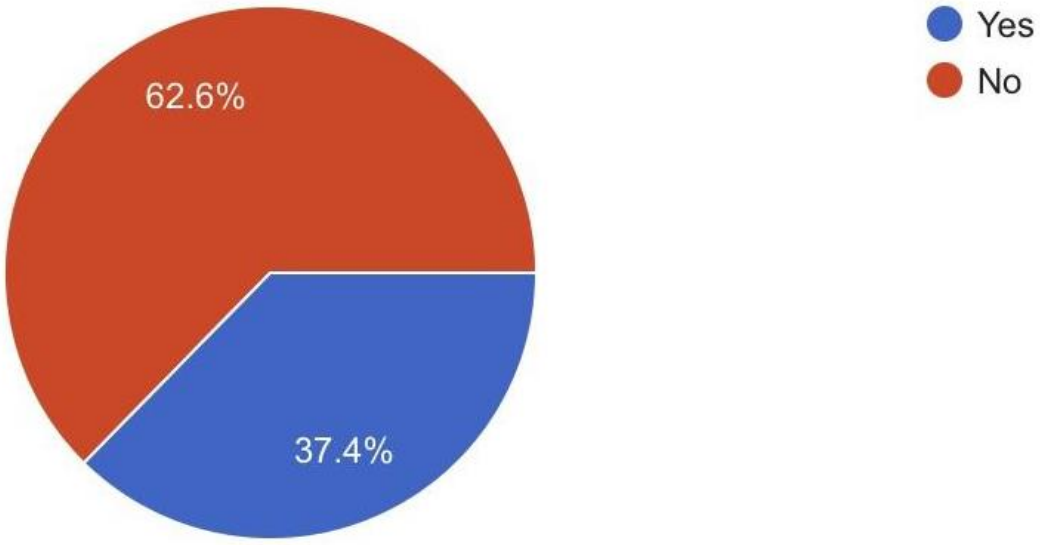

Figure 6: Pie Charts representing the percentage distribution showing responses for wearing masks around 37.5% of study population responded positively (blue) around 62.6% of study population responded negatively (red).

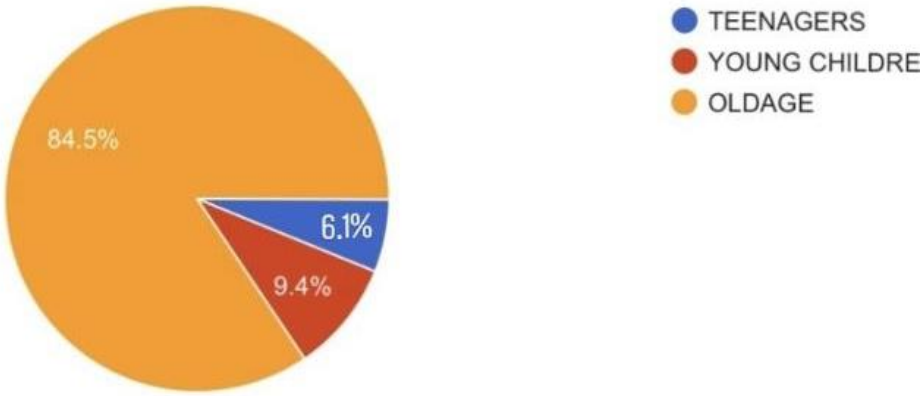

Figure 7: Pie chart representing the percentage distribution showing responses which age group have high chances to get infected around 84.5% responded that old age have high chances to be infected (yellow) and around 9.4% of study population responded that young children have chances to get infected easily (red) and around 6.1% of study population responded that teenagers have high chances to get infected (blue).

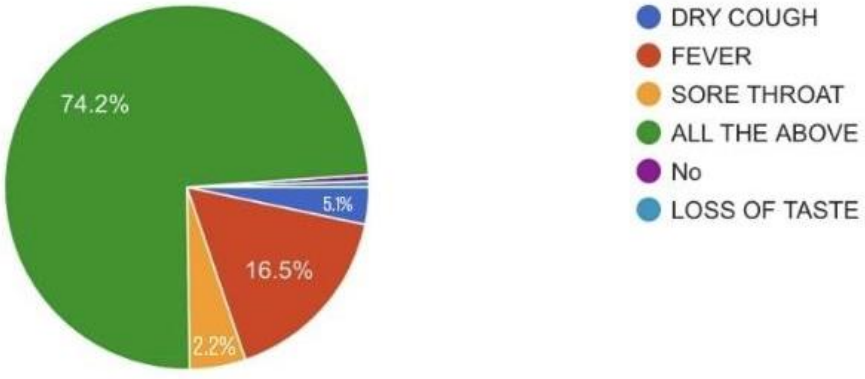

Figure 8: Pie chart representing the percentage distribution showing responses for the symptoms of coronavirus around 74.2% of study population says that dry cough, fever, sore throat,all the above are the symptoms if coronavirus (green) and around 16.5% of study population responded

that fever is also a symptom of coronavirus (red) and around 1% of study population responded that none of the above are the symptoms of study population(violet) and around 1% of study population responded that loss of taste is also a symptom of coronavirus (blue) and around 5.1% of study population responded that dry cough is a symptom of coronavirus(dark blue) and around 2.2% of study population responded that sore throat is also a symptom of coronavirus (yellow).

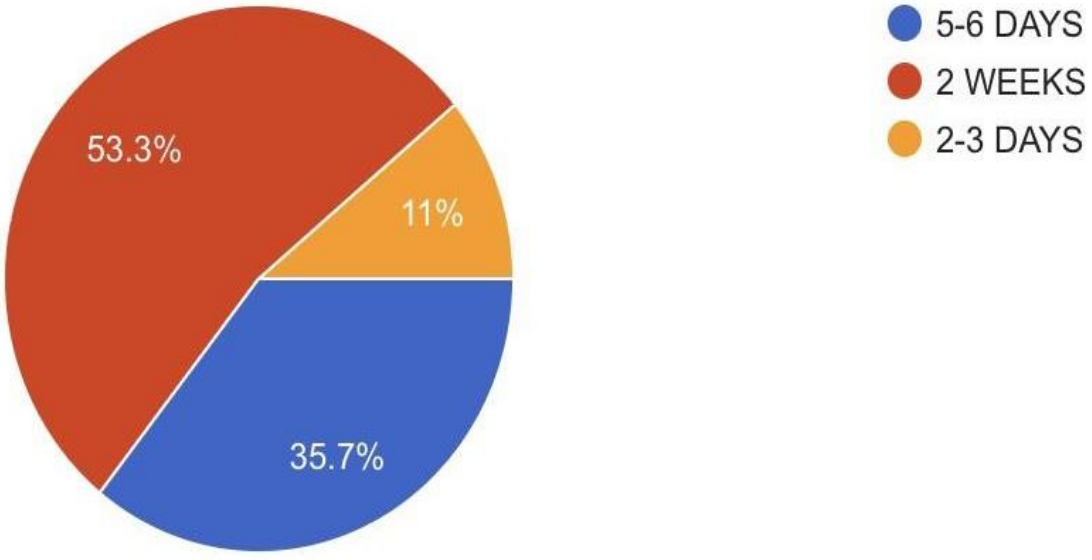

FIG 9: Pie chart representing the percentage distribution showing responses as to how many days does it take to show symptoms in our body .Around 53.3% of study population responded that it

takes 2 weeks for the virus to show symptoms (red) and around 35.7% of study population responded that it takes five to six days for the virus to show symptoms (blue) and around 11% of study population responded that it takes two to three days to show symptoms in our body (yellow).

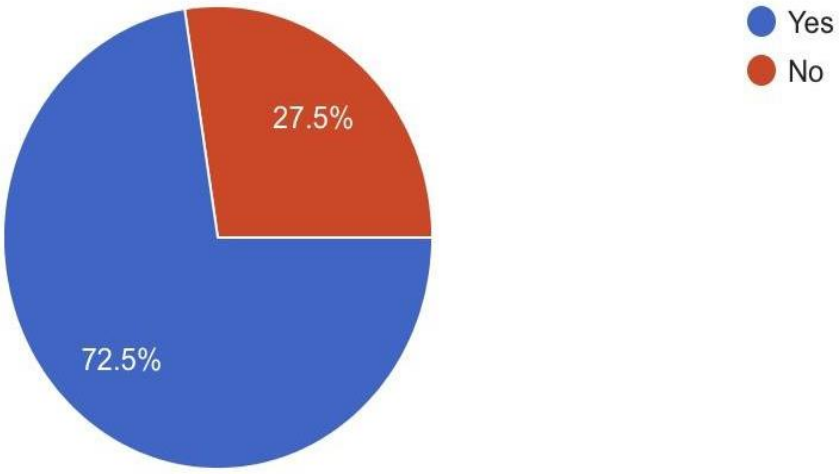

FIG 10: Pie chart representing the percentage distribution of study population showing responses that Animals can also get infected. Around 72.5% of the study population responded positively (blue) and around 27.5% of the study population responded negatively (red).

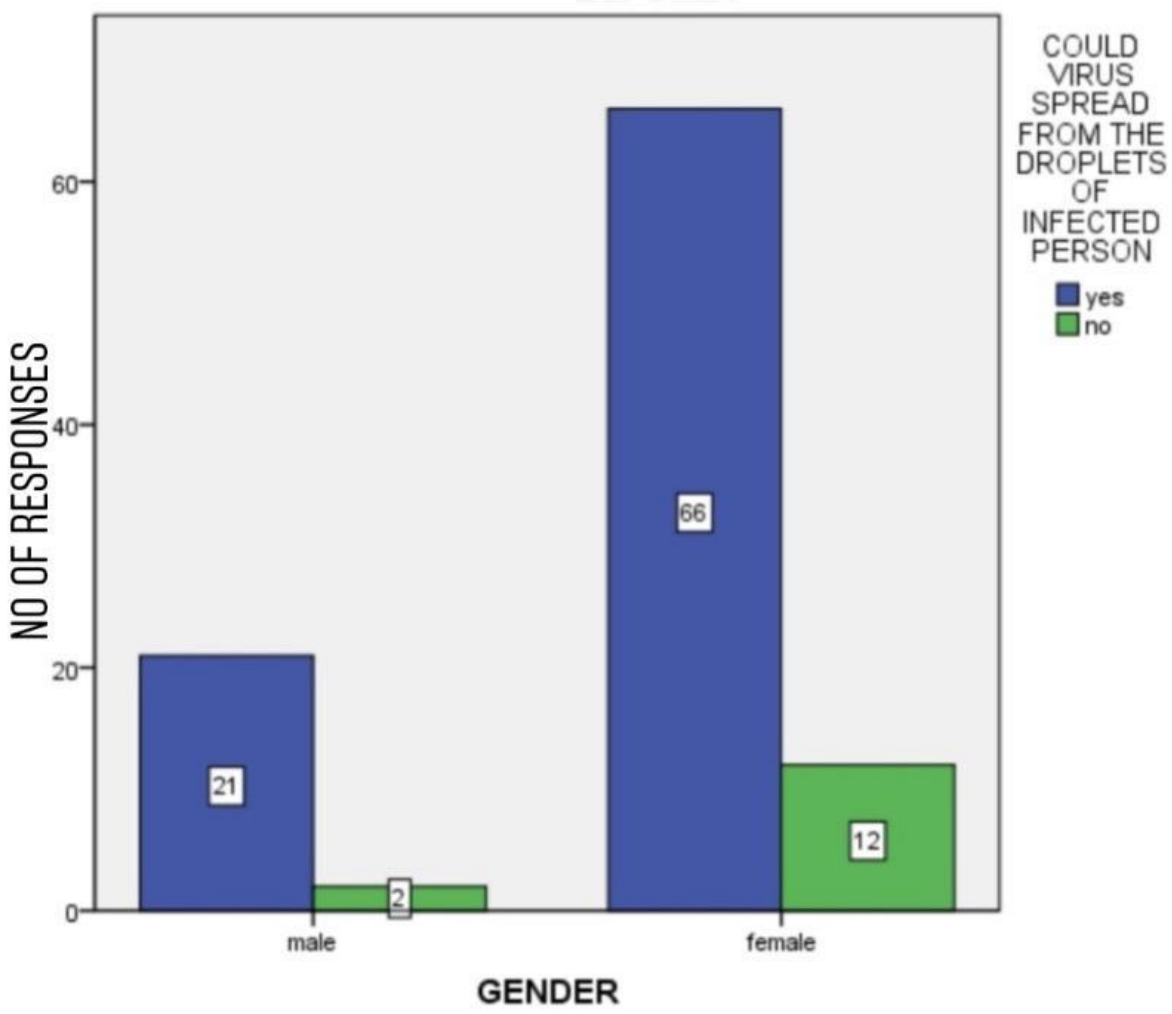

Figure 11: Bar charts represent association between gender and awareness among the study population regarding whether coronavirus can spread from the droplets of infected people. X axis represents the gender and Y axis represents the number of participants responded due to droplets of an infected person virus can be spread (blue) and number of participants who think there is no spreading of virus from droplets of an infected person (green). Out of aware participants, females (66%) were more aware than males (21%) regarding the spread of coronavirus due to droplets of an infected person. Chi square test was done and association was found to be statistically significant. [Pearson's Chi square value : 4.666, P value = 0.025 (<0.05)].

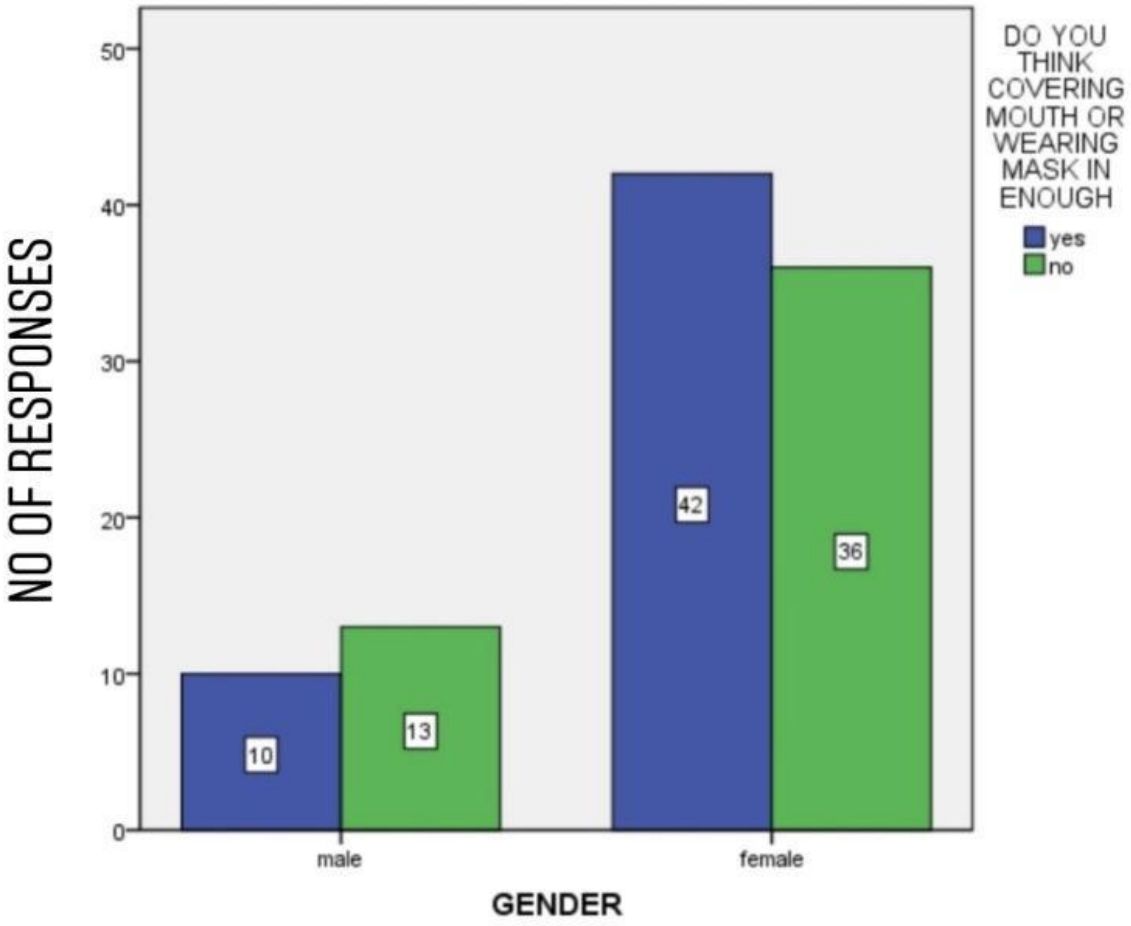

Figure 12: Bar charts represent association between gender and awareness among the study population regarding covering the mouth or wearing a mask can safeguard people from getting infected. X axis represents the gender and Y axis represents the number of participants responded that by wearing a mask or covering mouth can safeguard people from getting infected (blue) and number of participants who think there is no safety even after wearing a mask or covering mouth (green). Out of aware participants, females (42%) were more aware than males (10%) regarding whether covering the mouth or by wearing a mask can safeguard people from getting infected. Chi square test was done and association was found to be statistically significant [Pearson's Chi square value : 5.764, P value = 0.003 (<0.05)]

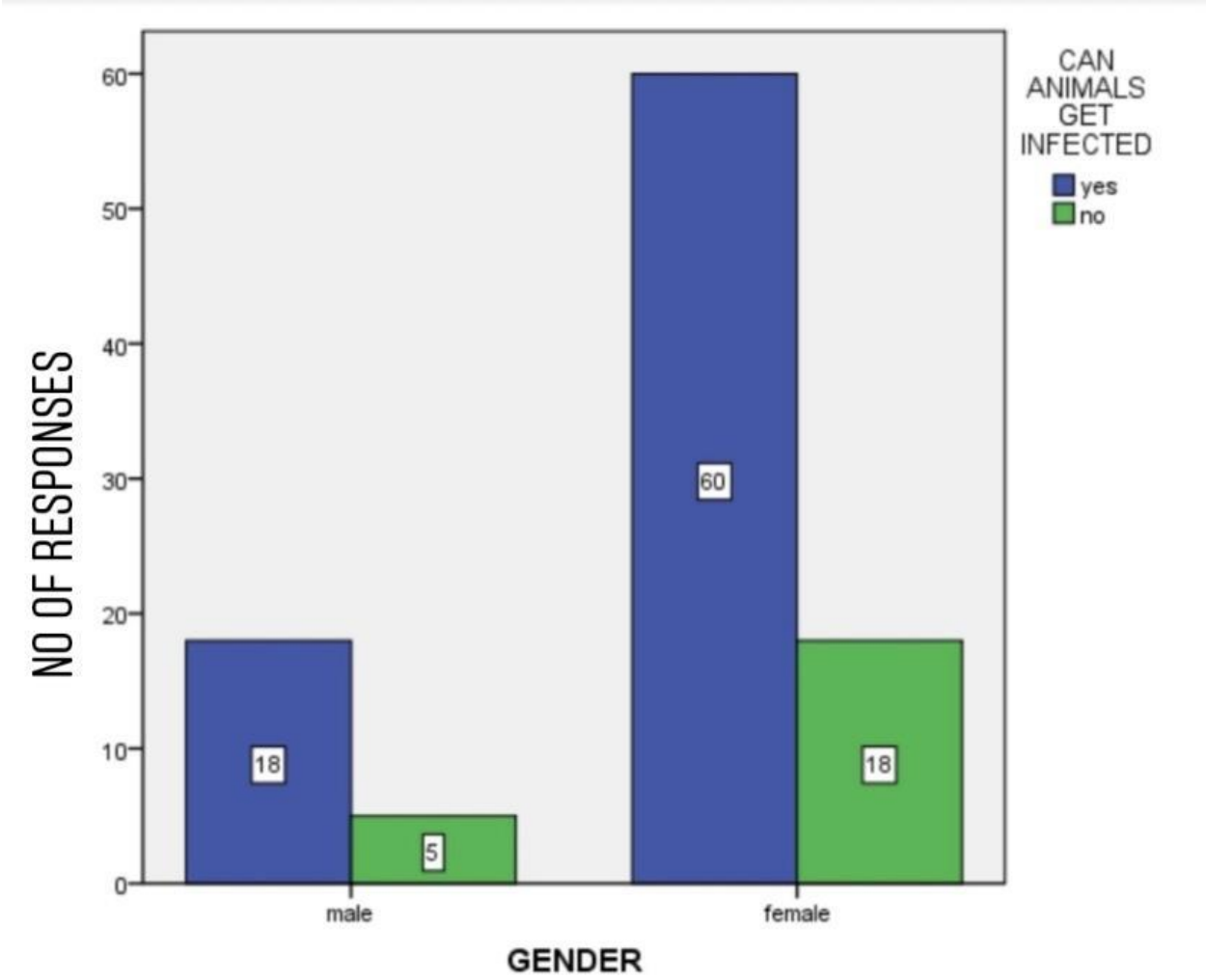

Figure 13: Bar charts represent association between gender and awareness among the study population regarding whether animals can get infected X axis represents the gender and Y axis represents the number of participants responded that coronavirus can infect animals (blue) and number of participants who think animals cannot get infected from coronavirus (green). Out of aware participants, females (60%) were more aware than males (18%) regarding animals can get infected . Chi square test was done and association was found to be statistically significant. [Pearson's Chi square value : 5.018, P value = 0.018 (< 0.05)].

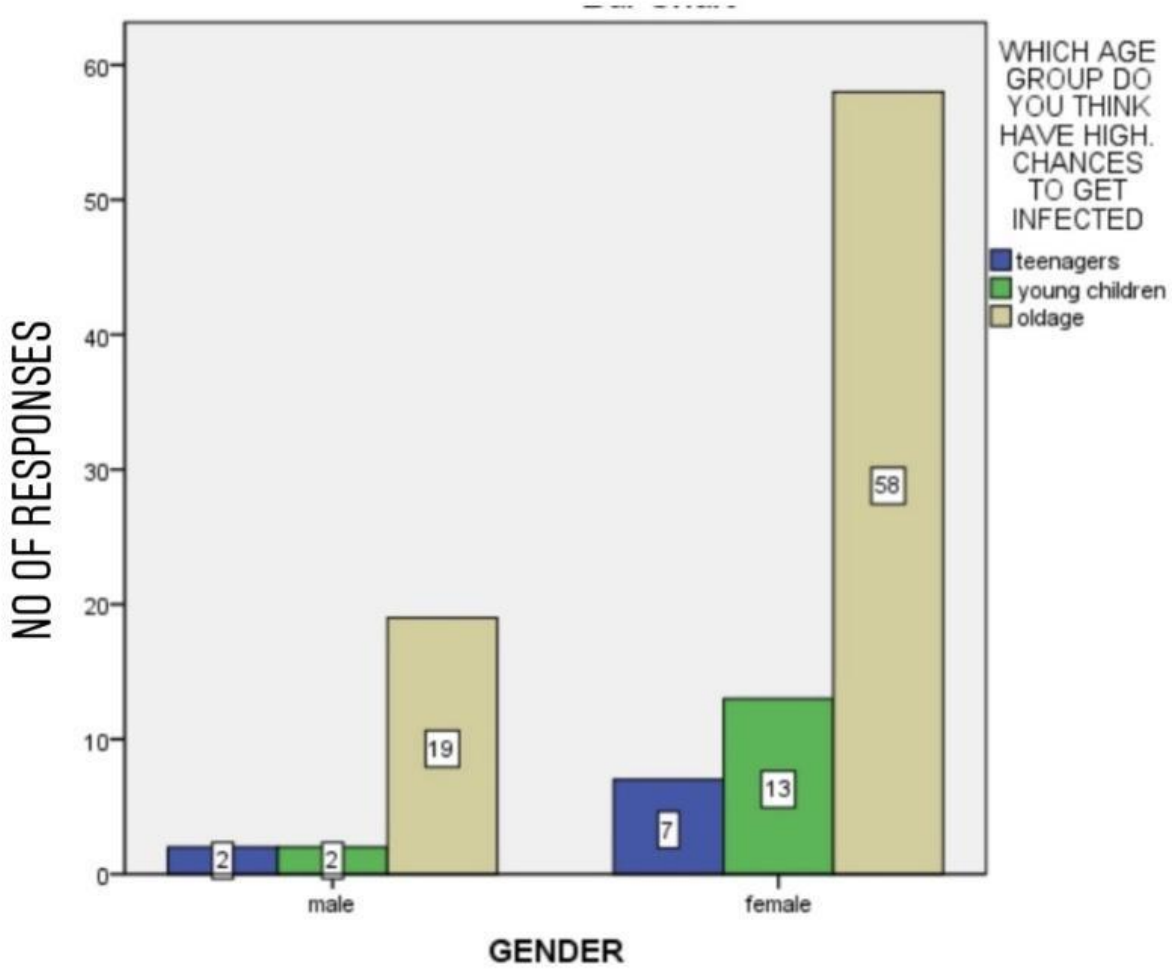

Figure 14: Bar charts represent association between gender and awareness among the study population regarding which age group can get infected from coronavirus. X axis represents the gender and Y axis represents the number of participants responded teenagers can get infected (blue) and number of participants who think young children can get infected (red) and number of participants who responded that old age people can get infected (yellow). Out of aware participants, females (58%) were more aware than males (19%) regarding which age group can get infected from coronavirus. Chi square test was done and association was found to be statistically significant. [Pearson's Chi square value : 4.920, P value = 0.031 (>0.05)].