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A CROSS SECTIONAL STUDY OF AWARENESS, KNOWLEDGE, AND PERCEPTION ON COVID-19 VARIANTS VIA MEDIA SOURCES IN ADULTS OF NASHIK CITY, MAHARASHTRA

Epidemiology

Kavita Suryawanshi BDS, MPH (Graduate Student), Department of Public Health, School of Health Profession, University of Southern Mississippi, Hattiesburg, Mississippi-39401

Sushil Pawar* MDS, MPH, Data Analyst, Florida Department of Health, Tallahassee, Florida-32311 *Corresponding Author

Amit A. Agrawal MDS, Mphil, Professor, PG & PhD Guide, Department of Periodontics, MGV's KBH Dental College & Hospital, Nashik,MUHS, India-422003

ABSTRACT

Background: With the onset of Covid-19 pandemic, multiple variants have emerged due to mutations. Post emergences of every variant, there have been situations of public crisis and fear in people across the world. Accurate information shared about the Covid-19 variants was one of the key factors to address public havoc. **Aim:** This study aimed to assess awareness, knowledge, and perception about the Omicron and Delta variants of Covid-19 in the adult population of Nashik city, Maharashtra. **Materials and Method:** A cross-sectional online survey was designed and distributed to 77 participants via email and social media platforms. **Results:** The majority of respondents 86.2% fell within the age range of 18 to 40 years. 90% of subjects regularly followed the media platforms of news, and social media applications- WhatsApp/ Twitter/ Facebook to receive the updates on Covid-19 variants. The education status of these participants was not found to be related to the use of social media platforms including news to gain information about the Covid-19 variants. 79% replied correctly for Omicron and Delta variants of Covid-19, 15% were unsure and 6% said no. **Conclusion:** The majority of our study subjects followed the media for updates on Covid-19 disease. Social media apps – WhatsApp, Facebook, and news have significantly played a role in educating about Covid-19 variants information. We observed a high level of awareness and perception of Covid-19 and its variants while a mid to low level of knowledge about the variants. We found a low correlation between education status and knowledge-based responses. These findings are valuable for examining the behavior of adults following the media and actual knowledge of disease gained by the people.

KEYWORDS

Covid-19, Delta, Omicron, Social Media, Awareness, Knowledge, Perception.

INTRODUCTION:

The emergence of coronavirus disease 2019 (Covid-19) was one of the biggest milestones in mankind's history, irrespective of whether severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) becomes the seasonal flu like other coronaviruses or gets eliminated (Wu et al., 2021). After the Covid-19 disease, seasonal outbreaks of its variants were reported worldwide. Followed by the Alpha, Beta, Gamma, Delta, and Omicron were the variants of Covid-19 that caused serious health issues (Boehm et al., 2021; Thakur et al., 2021). These variants vary in transmissibility and virulence effects caused to human beings. Presently the scientific knowledge achieved in response to this pandemic has improved the basic understanding of the human for SARS-CoV-2 virus and Covid-19 disease, benefiting the control and prevention of emerging infectious diseases in the future (Wu et al., 2021). However, panic situations have been reported in people after the emergence of Covid-19 variants and one of the main reasons for the rapid spread of misinformation about the Covid-19 variants through different media platforms such as news channels and social media use (Teo et al., 2021). Ensuring sufficient health literacy within the general populace is vital to supplement government-led initiatives (Teo et al., 2021). These efforts can more efficiently allow the smoother distribution of health services in areas of accurate diagnosis and managing the crisis in a short time in possible outbreak areas (Haleem et al., 2023).

A heightened awareness of recommended preventive health practices, such as mask-wearing and hand hygiene, serves as crucial defenses against the community transmission of COVID-19 (Haleem et al., 2023). Very few studies have been conducted on awareness, and perception of Covid-19 and its variants in the adult population who use social media. The knowledge, attitude, and practice surveys primarily serve to pinpoint the deficiencies and behavioral trends within the broader population of society, taking into account socio-demographic factors. The ultimate goal is to facilitate the implementation of targeted and impactful public health interventions in society. To combat with the Covid-19 in public health; we plan to study the awareness, knowledge, and perception about understanding the media platforms, and its correlation between the adult population of Nashik City, Maharashtra.

METHOD:

The data used in this analysis was collected from a cross-sectional online survey of the adult population of Nashik City, Maharashtra State conducted between Nov 2023 to Dec 2023. The questionnaire included 8 close-ended question items, with 3 questions for basic demographic information, 2 questions exploring the awareness of Covid-19 viral infection and variants of Covid-19, 2 questions based upon the knowledge gained and source of knowledge about the Covid-19 and its variants, and 1 question about to perception towards the other people. The survey was self-structured, created using Qualtrics computer software, and was sent by email, and by social media platforms such as WhatsApp, Facebook, and LinkedIn. In this study, participants were asked to volunteer in their free time and were not provided with any kind of compensation. All responses were kept entirely confidential and were not shared with anyone. Even though the representativeness of our survey is compromised by selection bias, the adult subjects who responded to the survey population have significant ramifications for representing a general adult population. The study reporting was done by the STROBE guidelines (Malik et al., 2020). SAS v9.4 programming software was used to provide Statistical analysis. Of the total of 77 participants, 69 completed the closed-ended questionnaire for our study. With a 95% confidence interval, 50% population representation, and 5% margin of error, a 77 sample size was calculated by using the Rao-soft calculator. Descriptive statistics were employed to summarize the survey data and describe the characteristics of the study participants. We performed the chi-square test of independence to find the relationship between the level of education with different independent variables and found that 50% of cells have expected counts less than 5 so Fisher's exact test was performed to determine the association between education, age, and gender with the independent variables. A statistically significant *p-value* of 0.05, was considered significance level. All dataset was de-identified to ensure the participant's identity was not revealed.

Survey Questionnaire:

1. What is you Gender?
(1) Male (2) Female (3) Non-binary / third gender (4) Prefer not to say
2. What is your age?
(1) Less than 30 (2) 30-40 (3) More than 40
3. What is the highest degree or level of education you have?
(1) High School or less (2) College / Bachelors (3) Graduate or Higher
4. Is covid-19 a viral infection?
(1) Definitely not (2) Probably not (3) Might or might not (4) Probably yes (5) Definitely yes

5. Are Omicron and Delta variants of Covid-19?
(1) Yes (2) Maybe (3) No
6. How do you come to know about variants of Covid-19 infection?
(1) Social Media Mobile Apps - WhatsApp/Facebook (2) Colleagues/ Family member/ Friends (3) News
7. Which variant is more aggressive, Omicron or Delta?
(1) Omicron (2) Delta (3) Both (4) Don't Know
8. Do you think that variants of Covid-19 matter for general people?
(1) Yes (2) No (3) Prefer not to say or Don't Know

RESULTS:

Demographics and Sample Characteristics:

Age, gender, educational status, awareness, knowledge, and perception characteristics are articulated in Table 1. The results showed 69 complete responses with gender, the proportion of male participants in the study was 66.15%(n = 43) compared to 33.85%(n = 22) of female participants in the survey. The subjects who participated reported ages; less than 30 were 43.08% (n=28), between 30 to 40 years were 43.08% (n=28), and more than 40 years 13.85% (n=9). For educational attainment, the majority of the participants have a graduate or higher degree (83.08%; n = 54), while 15.38% (n = 10) had a college or bachelor's degree and only 1.54% (n = 1) have high school or less education.

Responses about the awareness about Covid-19:

Awareness about Covid-19 infection was assessed (Table 1). The participants were asked whether Covid-19 is a viral infection or not and responses were scored as Yes and No. The majority of them (n = 36; 55.38%) answered correctly definitely yes, while others replied; probably yes (n= 17, 26.15%), definitely not (n=7, 10.77%), might or might not (n=4, 6.15%), and probably not (n=1, 1.54%). When asked if Omicron and Delta are the variants of Covid-19, 78.46% (n=51) participants responded Yes as the correct answer, whereas 15.38% (n=10) replied maybe and 6.15% (n=4) wrongly answered No.

Responses exploring the knowledge about Covid-19:

The knowledge gained about Covid-19 variants was checked (Table 1). The majority of subjects came to know about the existence of Covid-19 variants through news (72.31%, n=47), social media mobile apps- WhatsApp/ Facebook (18.46%, n= 12) while (9.23%, n=6) came to know through colleagues/family members/ friends.

Table 1: Demographic characteristics of study participants, n = 69:

Demographics		Frequency (n)	Percentage (%)
Age	Less than 30	28	43.08
	30-40	28	43.08
	More than 40	9	13.85
Gender	Male	43	66.15
	Female	22	33.85
Education Level	High School or less	1	1.54
	College/Bachelors	10	15.38
	Graduate or Higher	54	83.08
Awareness			
Covid-19 Viral Infection	Definitely yes	36	55.38
	Probably yes	17	26.15
	Defnitely not	7	10.77
	Might or might not	4	6.15
Omicron & Delta are Covid-19 variants	Yes	51	78.46
	May be	10	15.38
	No	4	6.15
Knowledge			
Source of Information for Covid-19 variants	Social Media Apps – WhatsApp/ Facebook	12	18.46
	News	47	72.31
	Colleagues/Family members/ Friends	6	9.23
Aggressive variants	Delta	25	38.46
	Omicron	15	23.08
	Both	12	18.46
	Don't know	13	20.00
Perception			
Did Covid-19 variants matter for general people	Yes	51	78.46
	No	9	13.85
	Don't know	5	7.69

When asked which variant was more aggressive, 38.46%(n=25) responded for Delta, 23.08%(n=15) replied Omicron, 18.46%(n=12) answered both and 20%(n=13) don't know.

Responses exploring the perception about Covid-19:

Finally, the respondents were asked for their perception about whether the variants of Covid-19 matter for general people, for which they responded Yes 78.46% (n=51), No 13.85% (n=9), and preferred not to say or Don't Know 7.69% (n=5) (Table 1).

Bivariate Analyses:

The first set of Bivariate analysis was performed to determine the relationship between the education status and independent variables. The results showed that there was a statistically significant relationship between The results showed that there was a statistically significant relationship between education variable and the independent variables – age (p=.003), Covid-19 viral infection or not (p=.01), aggressive variants (p=.0002), and Impact on general people (p=0.04).

The second set of Bivariate analysis was performed between age and independent variables of interest. Results revealed that age was significantly related to the following variables – gender (p=.01), Covid-19 viral infection or not (p=.0002), Omicron and Delta Covid-19 variants or not (p=.006), source of information for Covid-19 variants (p=.005), aggressive variants (p<.0001), and Impact on general people (p=.007).

Lastly a third Bivariate analysis was performed between gender and independent variables. Results showed a significant relation between the variables gender and Covid-19 viral infection or not (p=.006), and aggressive variants (p=.004). The Bivariate results are shown in Table 2.

DISCUSSION:

This survey represents a comprehensive survey about awareness, knowledge, and perception of Covid-19 and its variants with responses from the adult population of Nashik City.

In our study majority of our study participants 83% regularly followed news and social media apps like Facebook, Whatsapp, or news and 82% of them answered correctly for the survey

Table 2: Bivariate Analysis and Independent variables

	Independent Variables	Test	Test Statistic	P-value
Education Level	Age	$\chi 2$	10.07	0.003
	Gender	$\chi 2$	0.68	0.16
	Covid-19 viral infection or not	$\chi 2$	3.50	0.01
	Omicron and Delta Covid-19 variants or not	$\chi 2$	0.79	0.09
	source of information for Covid-19 variants	$\chi 2$	0.40	0.10
	aggressive variants	$\chi 2$	11.88	0.0002
	Impact on general people	$\chi 2$	2.80	0.04
Age	Gender	$\chi 2$	3.50	0.01
	Covid-19 viral infection or not	$\chi 2$	6.27	0.0002
	Omicron and Delta Covid-19 variants or not	$\chi 2$	3.12	0.006
	source of information for Covid-19 variants	$\chi 2$	3.33	0.005
	aggressive variants	$\chi 2$	7.35	<.0001
	Impact on general people	$\chi 2$	2.81	0.007
Gender	Covid-19 viral infection or not	$\chi 2$	3.77	0.006
	Omicron and Delta Covid-19 variants or not	$\chi 2$	1.26	0.07

	source of information for Covid-19 variants	$\chi 2$	0.53	0.07
	aggressive variants	$\chi 2$	2.97	0.004
	Impact on general people	$\chi 2$	0.88	0.07

$\chi 2$-Chi-Square test of independence; Fischer's Exact Test

about Covid-19 being a viral infection. The majority of our study participants 83% were graduate or higher level educated. However, the education status and media source of information showed no significant relation suggesting that the study participants did not completely rely on the media for information about Covid-19 disease.

When asked whether Covid-19 is a virus infection or not, 64% responded yes while a comparable portion 36% said no or unsure about it, this suggests that even though a higher percentage of the study group daily use social media or news, they are unsure about the general information of Covid-19 infection as the viral origin.

This study further revealed less correlation between the subjects education status and knowledge about Covid-19 variants, suggestive of uninfluential delivery of information shared through media sources. However, the majority of them answered correctly for both of these variants being aggressive.

The age group of this study was found to be highly significantly related to knowledge, awareness, and perception-based question variables.

When asked about the impact of these COVID-19 variants on general people, the majority of participants responded yes, possibly explaining the effect of Covid-19 affecting public health including the crisis.

Research has proven Delta and Omicron variants possess higher infection rates, transmissibility, and aggressiveness (Pascarella et al., 2021b). Our study results indicate that knowledge, awareness, and perception about Covid-19 variants are high among social media and news users but people often do not want to go into detail to know the severity of these variants. They may have received misinformation about aggressiveness due of rumours and news circulated in media, following emergence of Delta or Omicron type. Our study shows that the highly educated group was significantly related to aggressiveness of Covid-19 variants Delta or Omicron response indicating the update of adults' knowledge about the severity and transmissibility. Finally, detailed information about the Covid-19 variants matters for general people; social media and news play a significant role in generating and addressing awareness, knowledge, and perception of Covid-19 disease through authentic information avoiding public crisis during an outbreak.

CONCLUSION

The above results show that media source of information plays a major role in educating people on updated information about Omicron and Delta variants of Covid-19. There is a high possibility of misinformation regarding Covid-19 delivered through these sources posing a significant threat to public health since it has the potential to exacerbate public health issues by encouraging panic state or fear. Therefore we emphasize that improvement should be made in generating improved awareness sessions and people should expand their resources for better preparedness for future epidemics or pandemics.

Limitations

The survey was conducted over a short period with incompetence to reach a large number of people. This survey was distributed randomly to convenient subjects with limited numbers and who used smartphones or computers.

Conflicts of interest

All authors declared no financial support from any organization for this study. All authors have declared that there are no other relationships or activities that could appear to have inuenced in submitted work.

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