



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(9): 1445-1448
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www.thepharmajournal.com
Received: 10-06-2022
Accepted: 14-07-2022

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A study to assess the knowledge of college students in aspects of COVID-19 and facemasks

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Abstract

The COVID-19 pandemic is an ongoing infectious global pandemic of Corona Virus Disease 2019 (COVID-19) caused by Severe Acute Respiratory Syndrome Corona Virus (SARS-CoV-2). The Present study mainly aimed to assess the knowledge of college students in aspects of COVID-19 and Facemasks. Exploratory research design was used in the study. A sample of 200 students (100 boys and 100 girls) was selected as sample from MPUAT, Udaipur. Random sampling method was used. The results revealed that significant difference was found between boys and girls knowledge regarding the aspects i) wearing of mask during vigorous physical activity. ii) importance of wearing a mask even when not infected with Covid, iii) efficiency of cloth masks over N95/surgical masks and on types of mask used. The study concludes that most of the students have good knowledge level related to preventing measures of corona virus infection.

Keywords: COVID-19, knowledge, facemasks, college students

1. Introduction

An outbreak of the novel coronavirus infectious disease 2019 (COVID-19) caused by the severe acute respiratory syndrome, coronavirus 2 (SARS-CoV-2) has been reported in Wuhan, China since December 2019, and has become a pandemic (Raun, *et al.* 2020., Peng, *et al.* 2020 and Hudaib, *et al.* 2022) [4, 3, 2].

COVID-19 spread mainly from an infected person to others by breathing the expelled tiny droplets from the nose or mouth during coughing, sneezing, or speaking. Those droplets are relatively heavy and quickly dropped to the ground's surface; thus, people can become infected by touching these objects or surfaces. Therefore, wearing masks, wearing gloves, and washing hands regularly are the primary protection methods (Sedano *et al.* 2020 and WHO, 2020) [5, 1].

A face mask is a piece of protective equipment that primarily protects the airways, and it has been used for decades as an infection prevention tool. Since the COVID-19 pandemic epidemic, they have been an integral part of our everyday lives. Many nations have mandated the usage of face mask in their recommendations in the COVID-19 pandemic control plans, despite the absence of quantitative data about its effectiveness against contagion.

The World Health Organization and Health Ministries of many countries have issued number of advisories and almost every organization has advocated the use of masks and provided guidance on how to use them properly to prevent infection. Initially, it was suggested by Infection Prevention and Control Experts to wear a mask if a person had cold, breathing problems, fever, or cough due to many reasons but eventually it was made universal/mandatory to all people with and without symptoms who are considering facemasks as a form of self-defense against the spread of corona virus. In present scenario facemasks have become part of our daily lives to fight against corona virus and are largely used in environments where close human contact is common and unavoidable, notably in public transportation settings, retail settings, and workplaces. The primary function of a face mask, regardless of its type, design, environment, or wearer, is to prevent both oneself and others from contracting a viral illness.

1.1 Objective: To assess the knowledge of college students in aspects of COVID-19 and Facemasks.

2. Methodology

Exploratory research design was used to conduct the study. A total of 200 students (100-girls and 100-boys) from colleges of MPUAT, Udaipur (Rajasthan) were selected as the sample for

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the research. Random sampling technique was used for the selection of sample. A Questionnaire was developed to assess the knowledge of college students in aspects of Covid 19 and Facemasks. Five point scoring scale was used for the responses i.e., score 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree. Frequency and Percentage distribution was calculated and Chi-square test was used to know the difference of students and knowledge of college students in aspects of Covid 19 and Facemasks.

3. Results

3.1 General Profile of the Students

3.1.1 Age: The majority of male students (53%) were between the age group of 21 and 23. The remaining students (25%) were around 24-25 years, and (22%) were from 18-20 years age group. Majority of female students (52%) were between the age range 21-23 years and (23%) were around 18-20 years while (23%) were from 24-25 years age group.

3.1.2 Education: Most of the students from boys category (52%) were UG students and 43% were pursuing their PG and only 5% students were from PhD and from female students category, majority (55%) were from UG, while 39% and 6% were PG and PhD students respectively.

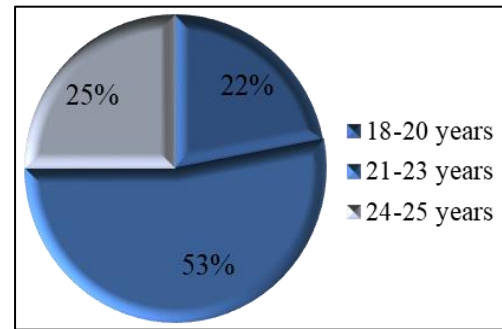


Fig 1: Percentage distribution of boys based on age

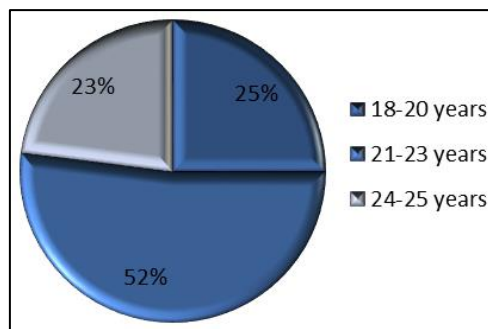


Fig 2: Percentage distribution of girls based on the age

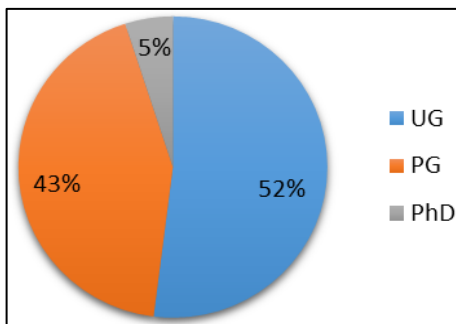


Fig 3: Percentage distribution of boys based on educational level

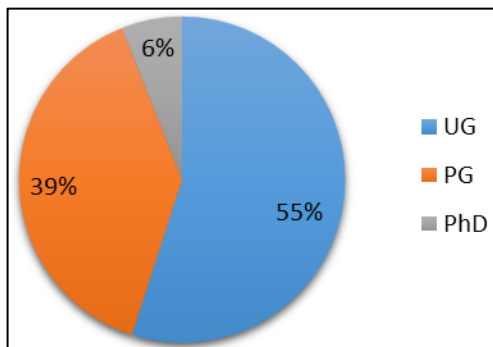


Fig 4: Percentage distribution of girls based on educational level

to medium sized families and remaining 11 percent boys and 9 percent girls were came from large families.

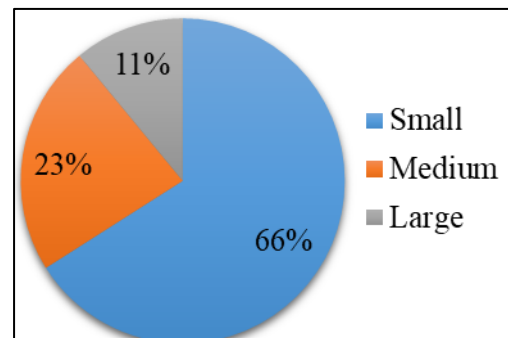


Fig 5: Percentage distribution of boys based on family size

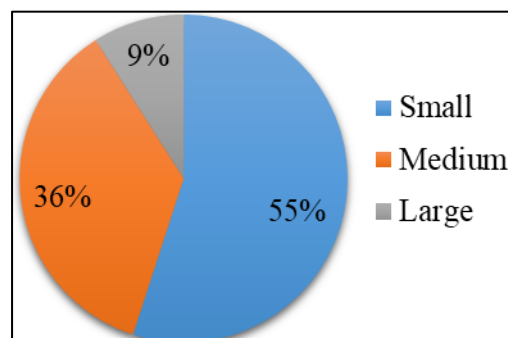


Fig 6: Percentage distribution of girls based on family size

3.1.3 Family size: Majority of the students from both boys and girls category belonged to small families including 66 percent from boy's category and 55 percent from girls category, while 22 percent boys and 36 percent girls belonged

3.2 Knowledge level related to preventing measures of corona virus infection

The majority of the students, boys (41%) and girls (48%)

knowledge regarding COVID-19 and its preventive measures was very good, while 39%-boys and 32%-girls knowledge was good.

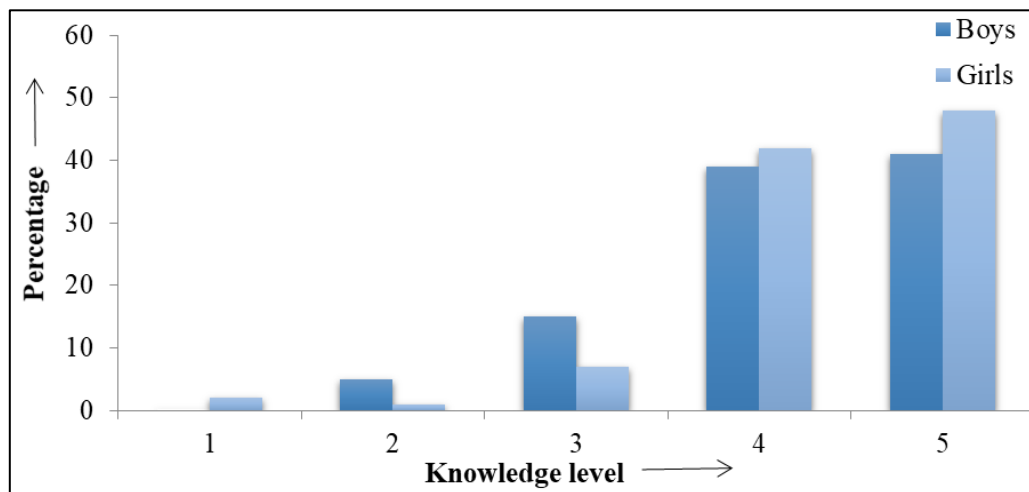


Fig 7: Percentage distribution of students based on their Knowledge level on awareness about preventing measures of corona virus infection

3.3 Knowledge of students regarding type of mask that is more efficient in blocking corona virus particles

Majority, 80% of boys and 67% of girls agreed that respiratory masks are more efficient in blocking corona virus

particles followed by 11% and 18% boys and girls believed that surgical / medical masks are effective and remaining 9% boys and 15% girls stated cloth masks are more efficient in blocking corona virus particles.

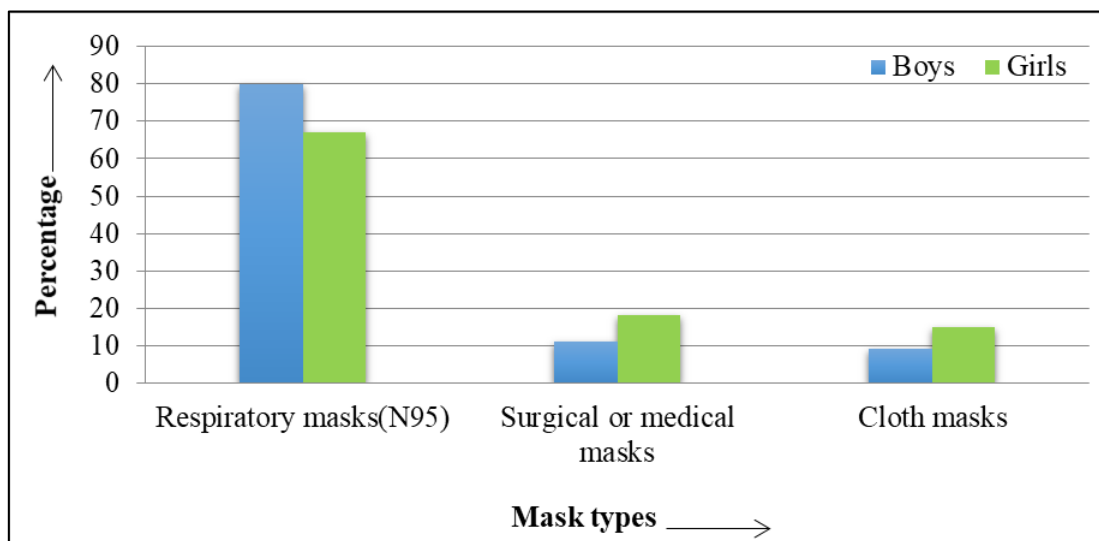


Fig 8: Percentage distribution of students regarding type of mask that is more efficient in blocking corona virus particles

3.4 Knowledge of college students in aspects of COVID-19 and facemasks

A self-structured questionnaire consists of 14 statements, was developed to assess the knowledge of college students in aspects of COVID-19 and facemasks. The data was analyzed using Karl Pearson's Chi-square test. The results were tabulated in Table 1.

It is clearly shown in Table 1, that 60% of boy's respondents and 68% of girl's respondents strongly agreed that masks help to reduce the spread of COVID-19, while 59% and 67% of boys and girls respectively strongly agreed that proper method

of wearing facemasks includes covering of nose, mouth and chin. 41% of boys and 42% of girls have agreed that CO₂ intoxication or O₂ deficiency is not caused by wearing masks. 55% and 44% of boys and girls respectively agreed or believed that disinfectants can completely kill the virus, 45% of girls agreed that children under 2 years of age shouldn't wear facemask due to risk of suffocation while 42% boys remained neutral. At 5% level of significance, no significant difference was found between boys and girls perceptions regarding the above mentioned topics.

Table 1: Frequency and Percentage distribution of student's perception regarding wearing a face mask

S. No.	Statements regarding facemask usage and COVID-19	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Total	Chi-square Values
		Boys f (%)	Girls f (%)	Boys f (%)	Girls f (%)	Boys f (%)	Girls f (%)	Boys f (%)	Girls f (%)	Boys f (%)	Girls f (%)		
1	Wearing mask helps to reduce the spread of COVID-19	60	68	33	31	5	0	0	0	2	1	200	3.598 NS
2	The proper facemask wearing includes covering of nose, mouth and chin by facemask	59	67	31	29	8	2	0	0	2	2	200	3.155 NS
3	Mask when worn properly & for prolonged time don't cause CO ₂ intoxication oxygen deficiency	17	21	41	42	31	21	2	8	9	8	200	4.294 NS
4	Disinfectants can completely kill the corona virus on masks	12	14	55	44	19	17	8	11	6	14	200	5.160 NS
5	Children under 2 years of age shouldn't wear facemask due to risk of suffocation	7	15	38	45	42	25	2	3	11	12	200	6.481 NS
6	Masks should not be worn during vigorous physical activity like gymming	12	32	44	39	32	18	4	3	8	8	200	11.839*
7	A mask that doesn't fit exactly may not be totally useless, especially if it has a high filtering capacity	16	11	46	56	33	17	0	8	5	8	200	12.319*
8	It is necessary to wear a face mask even when you don't have COVID-19	21	38	47	49	28	9	0	1	4	3	200	13.106*
9	Cloth face mask is effective as a regular surgical face mask or N95 in limiting the spread of COVID-19	11	12	13	6	24	26	32	40	20	16	200	4.035 NS
10	Social distancing is not required when mask is worn	17	12	7	18	30	25	24	20	22	25	200	6.711 NS
11	Micro waving cloth mask is fast & easy way to sanitize them and is recommended	6	17	5	7	37	30	31	33	21	13	200	8.270NS
12	Masks with exhalation valves are more safer and offer more protection than regular masks	13	30	9	5	6	20	27	37	5	8	200	16.128*
13	Used facemasks can be thrown in a regular recycle bin	6	18	5	9	25	22	46	40	18	11	200	9.442NS
14	People when taking care of covid patients/ covid positive patients can use cloth masks instead of medical masks	7	12	9	14	35	28	33	30	16	16	200	3.233 NS

5% level of significance CV=9.487729037 dof=4

Almost 44% and 32% of boys and girls respectively agreed that it's risky to wear masks during vigorous physical activities. Boys (46%) and girls (56%) agreed that unfit mask with high filtering capacity is not totally useless, and 47% boys and 49% girls agreed or believed that facemasks should be worn even by non covid positive persons and 36% boys remained neutral and 37% girls disagreed with masks with exhalation valves are more safer than regular masks. Significant difference was found between boys and girls opinion regarding these statements at 5% level of significance by using chi square test.

Thirty two percent (32%) of boys and 40% girls disagreed with the statement cloth masks are effective and safer as surgical/N95 masks, 30% boys stayed neutral regarding the issue- social distancing is not required when mask is worn, while 25% girls strongly disagreed.31% boys and 30% girls disagreed with microwaving of cloth mask is fast and easy method to sanitize. At 5% level of significance, no significant difference was found between boys and girls opinion regarding these topics.

4. Conclusion

The study revealed that most of the students have good knowledge related to preventing measures of corona virus infection and were aware that respiratory masks like N95's provides high protection against corona virus than any other masks. The significant difference was found between boys and girls perception and knowledge in the aspects like wearing masks during vigorous physical activity, using of unfit masks that has good filtering capacity, necessity of wearing masks by non covid positive persons, exhalation valve masks capacity compared to regular masks. Other than these aspects, there was no significant difference found between boys and girls knowledge or perceptions regarding

facemasks and COVID-19.

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