

PREVALENCE OF HEAD ACHE IN FACE MASK USERS AMONG PARAMEDICAL STUDENTS DURING COVID-19 PANDAMIC

M. Sukhirtha

Assistant professor
Cardio-respiratory physiotherapy
East point college of physiotherapy
East point group of institution
Bengaluru, Karnataka-560049

Abstract-

BACKGROUND: COVID 19 became one of the most concerned situations during the year 2019 and 2020. This pandemic has changed the day to day life of each and every individual. It gave a new normal life for every one of us. This new normal includes wearing of mask for a long duration.

OBJECTIVE: To find out the prevalence of headache due to wearing of face mask for a long duration among the paramedical students during this COVID19 pandemic.

METHODOLOGY: A survey was conducted among the paramedical students of Saveetha medical college and hospital, Chennai. The paramedical departments included physiotherapy, nursing, allied health science, occupational therapy and pharmacy. An online self-made questionnaire was provided to the paramedical student and their responses were recorded and studied.

Key Words- Head ache, Face mask, covid-19.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is being an emerging infectious disease of pandemic proportions. At the height of the crisis, healthcare workers in our country were mandated to wear masks and personal protective equipment (PPE) during contact with patients suspected of having COVID 19¹. The N95 mask that we wear protects against respiratory droplets. In this N-95 the number 95 signifying that it is at least 95 per cent efficient in filtering particles with a median diameter $>0.3 \mu m^2$, and the letter N that the mask is not resistant to oil. The N95 face-mask is associated with mild discomfort, but headaches have not been reported before. Some authors observed complaints of headaches and discomfort amongst healthcare workers who wore the N95 face-masks, and elected to study this phenomenon^{2,3}. Previous studies have shown that there is a significant increase in headache among frontline healthcare workers who used PPE for prolonged hours during Severe Acute Respiratory Syndrome (SARS) and COVID-19 outbreak⁴.

Some authors explained that extended wearing of mask, that has become a part of now-a-days routine life, had led to the emergence of 'mask fatigue'. Mask fatigue was defined as the lack of energy that accompanies, and/or follows prolonged wearing of a mask⁵.

In past days it has been made compulsory in almost all the countries as the usage of mask is mandatory in public places. And taking the life of health care workers, wearing of masks all day long has become a new normal in their life.

In this study a self-made questionnaire was circulated among the paramedical students studying in Saveetha medical college and hospitals, Thandalam, Chennai. The questionnaire was circulated in the online means using a link and the responses were recorded and studied.

METHODOLOGY

Design of self-made questionnaire

During and after the period of the emergence of COVID 19, the usage of face mask was made compulsory for the protection from the spread of the disease. And after this change in the lives of the people it was noted that the people started complaining of headache more frequently and more often. We thought the cause of these headaches might be usage of the face masks for a prolonged period of time. To come to a conclusion regarding this, a self-made questionnaire was developed and was circulated among the paramedical students (of Saveetha medical college and hospitals) who were using the face masks for more period of time after the health care professionals compared to the other people.

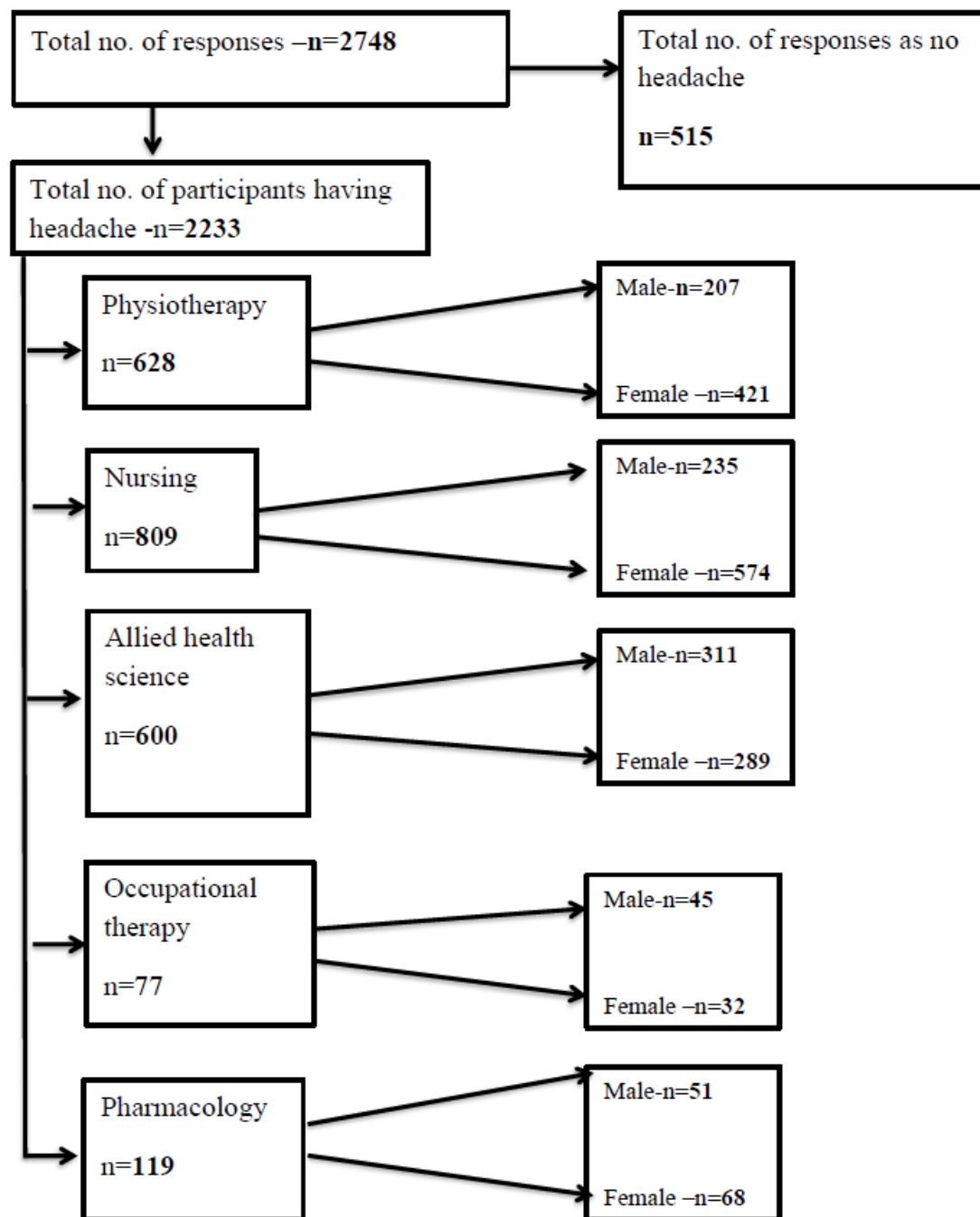
The questionnaire had questions regarding the masks for e.g. Types of masks they use, period of time they use the mask. The questions were also asked regarding the headache they have for e.g. Onset of the headache, how often they experience the headache, region of the head that has the pain, how long the head ache lasts and how it gets relieved. The questionnaire also has questions regarding the history of their headache if they had the problem of head ache before the usage of the masks.

Inclusion and exclusion criteria

Eligibility criteria were set as the age group of the participants would be 18 to 26 years. Both male and female genders were included. Students from department of physiotherapy, occupational therapy, nursing, allied health sciences and pharmacy were included in the study. No grouping of the participants was done.

Study period

The duration of study implementation was planned as 1 month, starting from 1 May 2021. But after started receiving more no. of responses day by day it was extended for some more period of time to include more no. of participants.

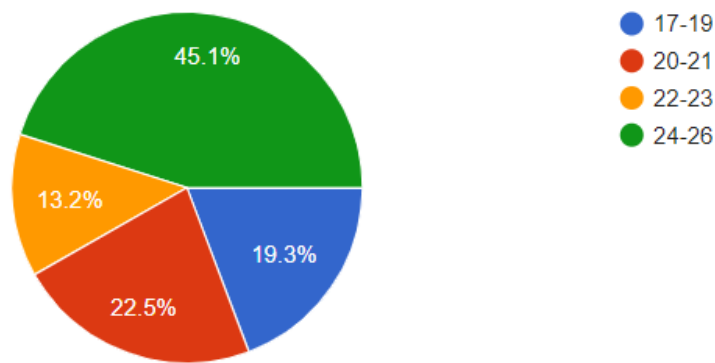


STATISTICAL ANALYSIS

Descriptive analyses were applied for the 5 main groups of participants (table 1): the department the participants are from compared in relation to the gender.

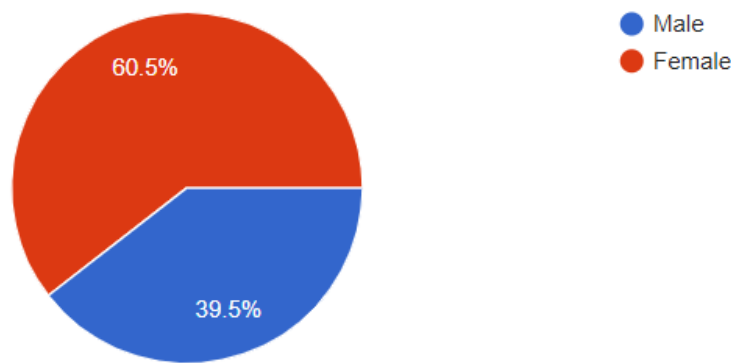
Age

2,748 responses



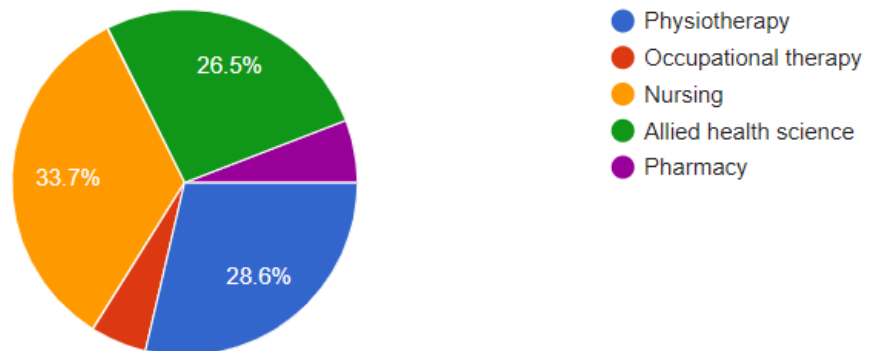
Gender

2,748 responses



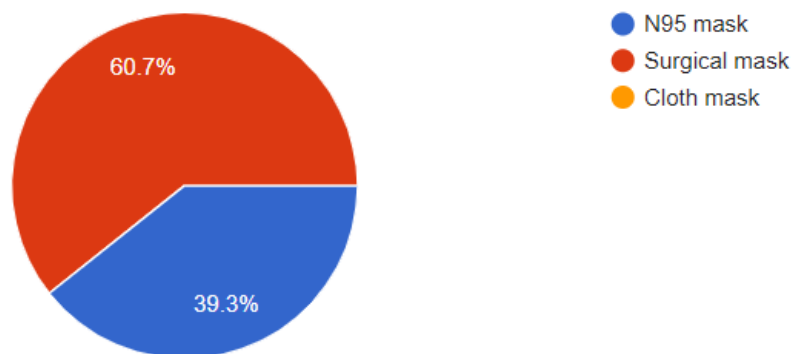
Department

2,748 responses



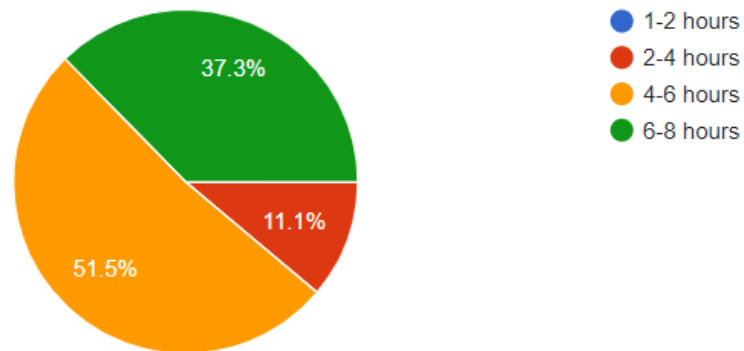
What kind of mask do you use?

2,748 responses



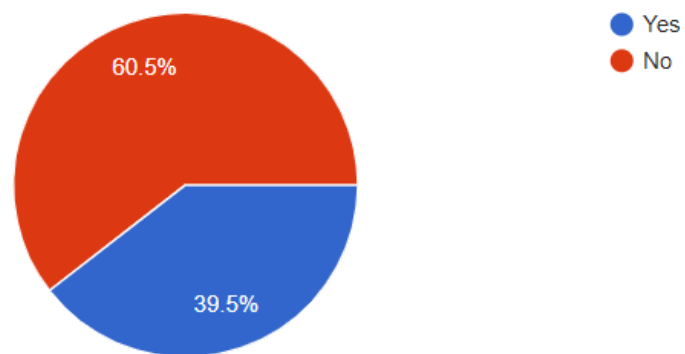
How long do you wear mask in whole day?

2,748 responses



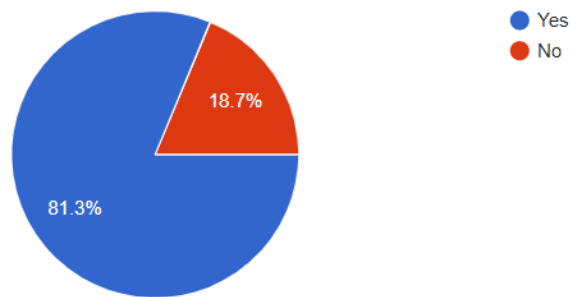
Do you remove mask in between?

2,748 responses



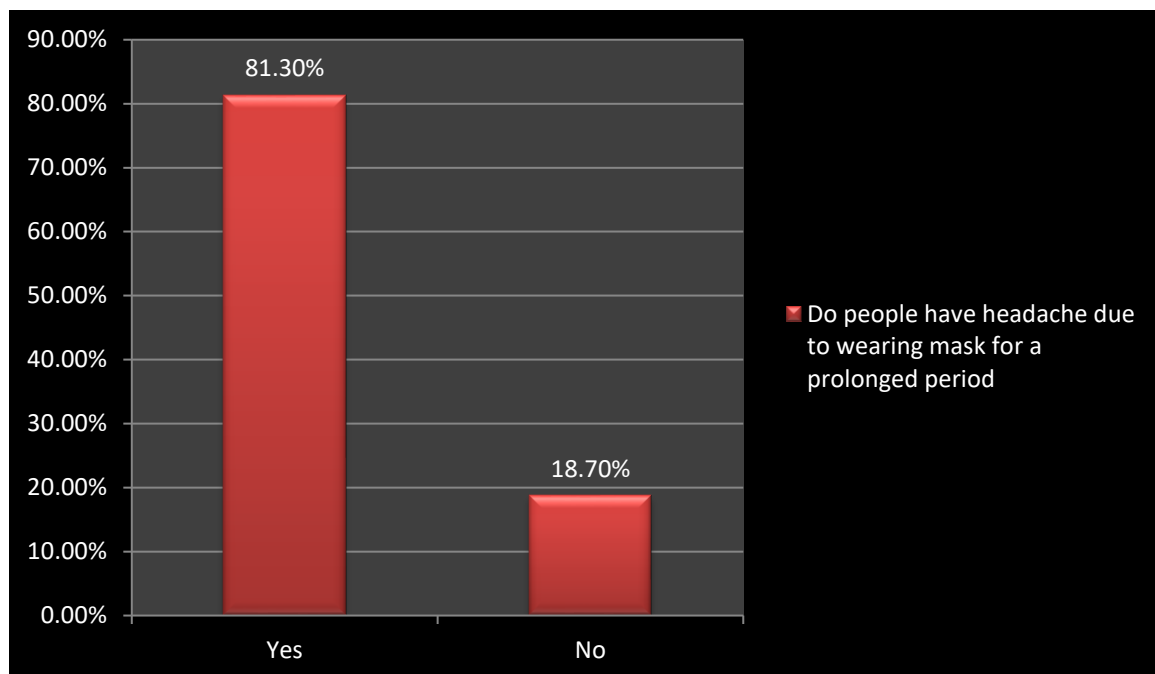
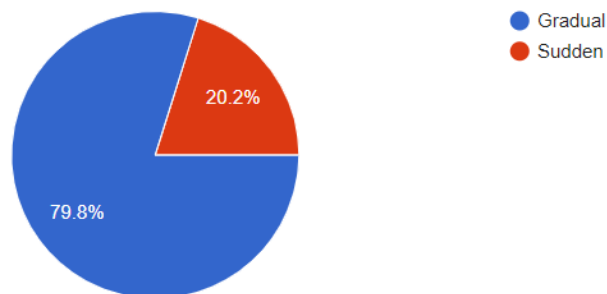
Do you get headache due to wearing mask for a longer time?

2,748 responses



Onset of headache

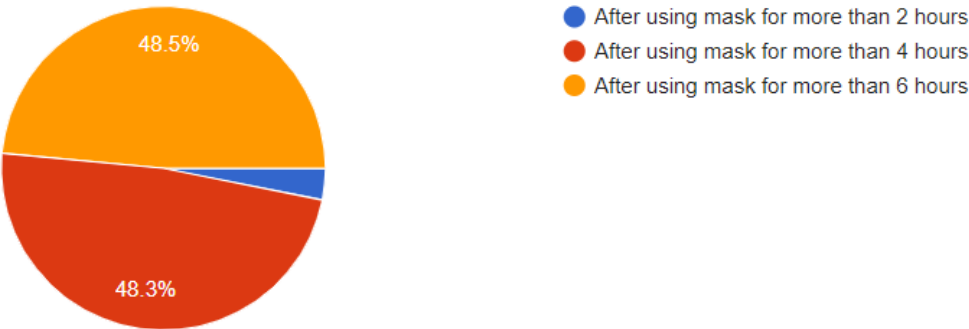
2,233 responses



When do you start experiencing the headache?

 Copy

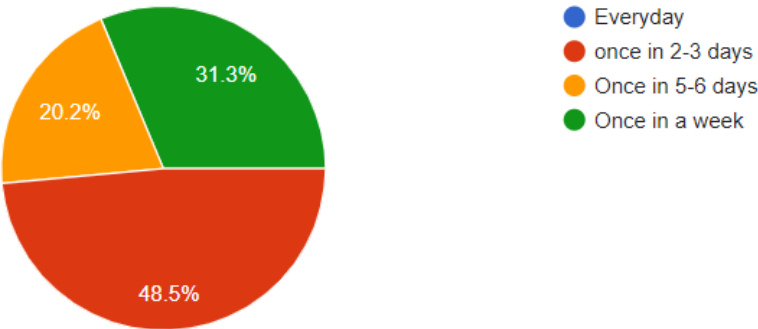
2,233 responses



How often do you get your headache?

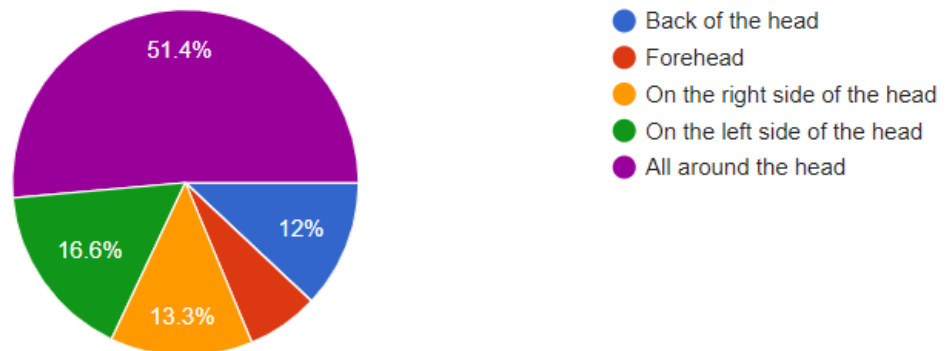
 Copy

2,233 responses



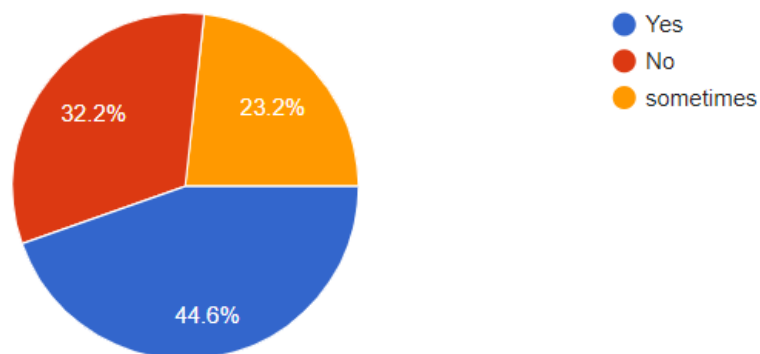
Where do you feel the pain during your headache?

2,233 responses



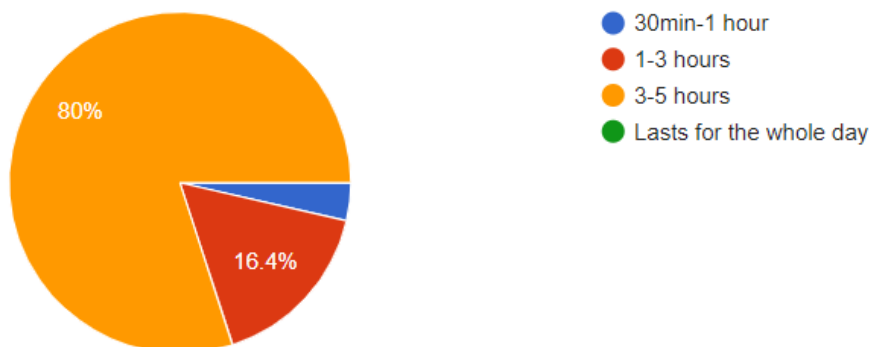
Do you take any medications for the headache?

2,233 responses



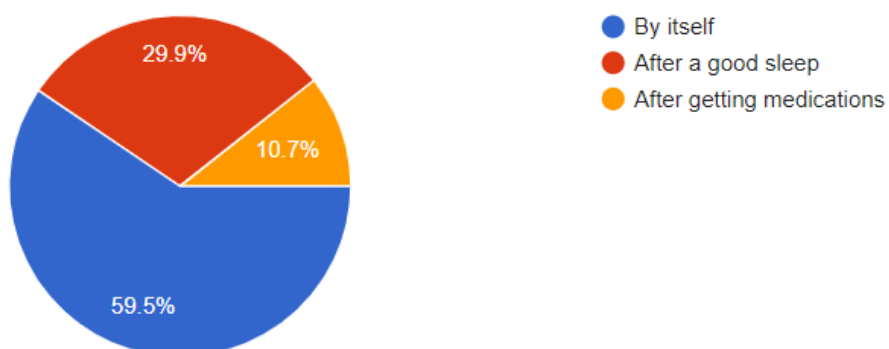
How long does the headache last?

2,233 responses



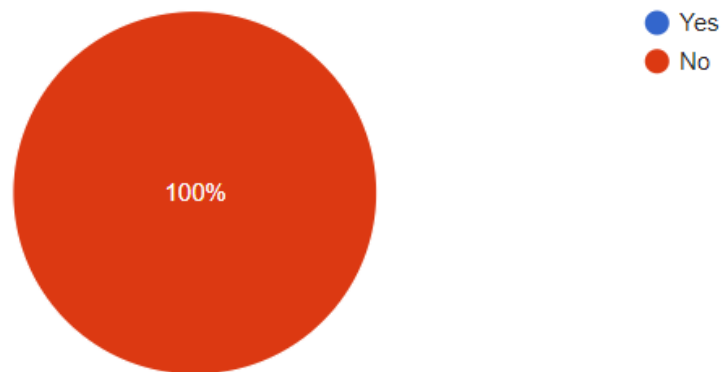
How does the headache get relieved?

2,233 responses

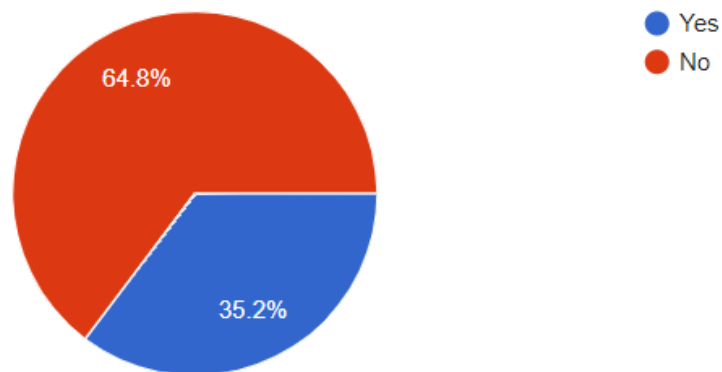


Did you consult a doctor regarding your headache?

2,233 responses

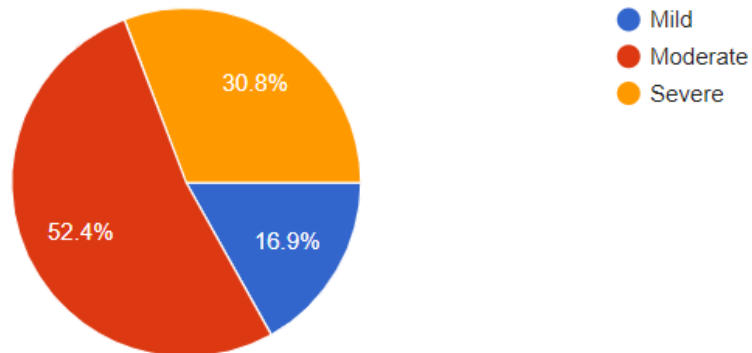


2,233 responses



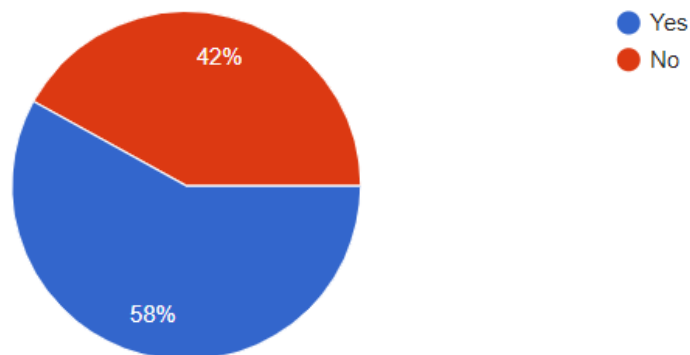
How severe is the headache?

2,233 responses



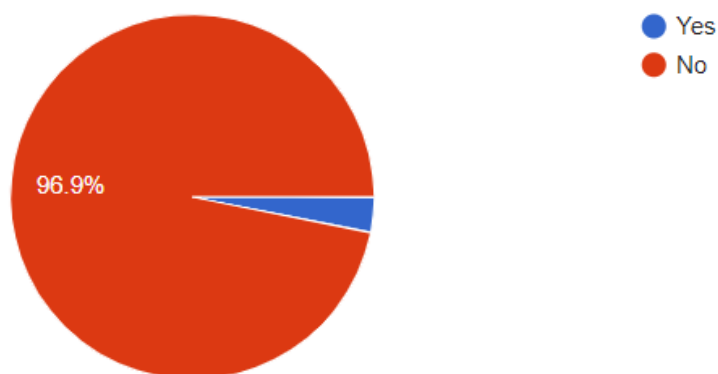
Does your headache affect your eyesight?

2,233 responses



Do you have history of any other medical condition?

2,233 responses

**RESULT**

A total of 2748 participants contributed for the survey. Out of these total participants 1663(60.5%) were female and 1085(39.5) were male.

These participants were grouped into 5 major groups according to the department. Those groups were physiotherapy: 787(28.6), nursing: 926(33.7), allied health science (AHS): 729(26.5), occupational therapy: 145(5.3) and pharmacology: 161(5.9).

These groups were further divided according to the gender of the participants. From physiotherapy 519(65.94) were female and 268(33.8) were male. From nursing department 629() were female and 297() were male. From ahs we got 370() male participants and 359() female participants. From OT department 80() responses were from male and 65() responses were from female. And finally from pharmacology department 70() were male and 91() were female. Out of the participants having headaches 1384(61.9%) were female and 849(28.1%) were male participants.

Among the total participants 1668(60.7%) used surgical mask and 1080(39.3%) people used N95 mask. None of the participants used cloth mask since it was compulsory to use either surgical or N95 mask at the college and the hospital. 1026(37.3%) of the participants used masks for 6 to 8 hours in a day, 1416(15.5%) of the total participants used mask for 4 to 6 hours a day and 306(11.1%) of people used mask for 2 to 4 hours. Around 1085(39.5%) of total number of participants had a habit of removing masks in between the day.

Among the participants who did have headaches due to wearing of masks, 1783(79.81%) of people had gradual onset of headaches. Out of these participants 1084(48.5%) started to experience headache after using mask for more than 6 hours, 1079(48.3%) had head ache after using mask for more than 4 hours whereas only 70(3.1%) of the total participants started experiencing headache after using mask for only 2 hours or more. 48.5 % (1084) participants had headache once in 3 days, 699(31.3%) had headache once in a week and 450(20.2%) people had headache once in 5 to 6 days. For the question where they feel the pain we got 1148(51.4%) responses that they felt pain all over the head, 16.6 % (370) felt pain over the left side of the head, 297(13.3%) on the right side of the head, 268(12%) felt over the back of the head and 150(6.7%) of the people felt the pain over the forehead.

996(44.6%) people took medications for the headache whereas 718(32.2%) did not take any medication and others did use medicines sometimes. For around 80% (1786) people the head ache lasted for 35 hours. No one had headache lasting for the whole day and 80(3.6%) of the participants had headache just lasting for 30 min. Among the participants, for 1328(59.5%) the headache got relieved by itself and for 667(29.9%) the headache got relieved after a good sleep and other had to take medicines. None of the patients consulted with a doctor regarding the headache. 1169(52.4%) of the participants had moderate severity headache, 687(30.8%) had mild headache and 377(16.9%) had a severe headache. For 1296(58%) the headache affects the eyesight and others did not have effect on their eyesight. 2163(96.9%) of the participants did not have any other medical history whereas 70.3% of the participants had some history of any medical condition.

DISCUSSION

In this study a self-made questionnaire was circulated among the paramedical students through online platform and their replies were recorded similar to the study conducted by Rosner E et al. it was seen that a lot of people suffered with headaches after wearing face masks for a prolonged period of time especially the people who wear surgical or N95 masks.

Mask weariness has emerged as a result of continuous mask wearing, which has become a part of regular life, according to Sanjay Kalra et al (2020). A lack of energy as a result of wearing a mask for an extended period of time is known as mask fatigue. The numerous causes of mask fatigue were covered in this document, as well as practical ways for lessening it. This issue was, in the current context, relevant to all health care providers and the general public to some level.

All participants answered twenty-one questions about the harmful effects of PPE, medical history, and demographics in an anonymous survey in a study conducted by Rosner E et al. In the end, it was determined that continuous usage of N95 and surgical masks by healthcare staff during COVID-19 caused negative effects such as headaches, rash, acne, skin disintegration, and impaired cognition in the majority of those polled. As a second wave of COVID-19 is expected, as well as future pandemics, it is vital to develop measures to minimise these harmful repercussions. Frequent breaks, increased hydration and rest, skin care, and maybe newly created comfortable masks are indicated for future management of negative effects associated with continuous mask use.

Lim EC et al. (march 2006) carried out a study. A survey of healthcare workers was done to assess the impact of headaches (sick days, headache frequency, and use of abortive/preventive headache medicines) as well as the risk factors for headache formation (frequency, headache subtypes, and face-mask wear length). They concluded that healthcare providers may develop headaches after wearing the N95 face mask. Wearing a face mask for a shorter amount of time can minimise the frequency and intensity of these headaches.

A cross-sectional investigation was undertaken in a tertiary hospital in Extremadura, Spain by JM Ramireze et al. They distributed an online questionnaire to healthcare staff during the peak of COVID-19 infection in our setting. The use of filter masks was found to be connected to the onset of 'de novo' headache, which is more common in healthcare workers and has a greater occupational, family, personal, and social impact.

A cross-sectional survey was conducted by Ong C.J.J.Y et al. during COVID-19 among healthcare personnel at our tertiary university who worked in high-risk hospital regions. All responders filled out a self-administered questionnaire. In the majority of healthcare professionals, PPE-related headaches induce de novo or exacerbation of pre-existing headache conditions, according to the findings.

CONCLUSION

According to the survey conducted using a self-made questionnaire which was circulated among the paramedical students studying in Saveetha medical college and hospital through the online platform it was concluded that prolonged usage of face mask cause headache even if the person does not have any history of headache.

REFERENCES:

1. Lim EC, Seet RC, Lee KH, Wilder-Smith EP, Chuah BY, Ong BK. Headaches and the N95 face-mask amongst healthcare providers. *Acta Neurol Scand.* 2006 Mar;113(3):199-202. doi: 10.1111/j.1600-0404.2005.00560.x. PMID: 16441251; PMCID: PMC7159726. I
2. Rosner E (2020) Adverse Effects of Prolonged Mask Use among Healthcare Professionals during COVID-19. *J Infect Dis Epidemiol* 6:130. doi.org/10.23937/2474-3658/1510130 IV
3. Ramirez-Moreno JM, Ceberino D, Gonzalez Plata A, Rebollo B, Macias Sedas P, Hariramani R, Roa AM, Constantino AB. Mask-associated 'de novo' headache in healthcare workers during the COVID-19 pandemic. *Occup Environ Med.* 2020 Dec 30:oemed-2020-106956. doi: 10.1136/oemed-2020-106956. Epub ahead of print. PMID: 33380516; PMCID: PMC7780429.
4. J.J.Y. Ong, C. Bharatendu, Y. Goh, et al., Headaches Associated with Personal Protective Equipment - A Cross-Sectional Study Among Frontline Healthcare Workers During COVID-19, 60 (2020), pp. 864–877.
5. Sanjay Kalra, Sandeep Chaudhary, Viny Kantroo, Jatin Ahuja., Mask fatigue, *J Pak Med Assoc*(2020)
6. Khan M, Adil SF, Alkhathlan HZ, Tahir MN, Saif S, Khan M, Khan ST. COVID-19: A Global Challenge with Old History, Epidemiology and Progress So Far. *Molecules.* 2020 Dec 23;26(1):39. doi: 10.3390/molecules26010039. PMID: 33374759; PMCID: PMC7795815.
7. Tabatabaeizadeh SA. Airborne transmission of COVID-19 and the role of face mask to prevent it: a systematic review and meta-analysis. *Eur J Med Res.* 2021 Jan 2;26(1):1. doi: 10.1186/s40001-020-00475-6. PMID: 33388089; PMCID: PMC7776300.
8. Wang J, Pan L, Tang S, Ji JS, Shi X. Mask use during COVID-19: A risk adjusted strategy. *Environ Pollut.* 2020 Nov;266(Pt 1):115099. doi: 10.1016/j.envpol.2020.115099. Epub 2020 Jun 25. PMID: 32623270; PMCID: PMC7314683.
9. Naveed H, Scantling-Birch Y, Lee H, Nanavaty MA. Controversies regarding mask usage in ophthalmic units in the United Kingdom during the COVID-19 pandemic. *Eye (Lond).* 2020 Jul;34(7):1172-1174. doi: 10.1038/s41433-020-0892-2. Epub 2020 Apr 23. PMID: 32327740; PMCID: PMC7179380.
10. In light of the current global lack of personal protection equipment, studies are being done to determine how well N95 respirators, surgical masks, and fabric masks perform. Techniques for prolonged usage, reuse, and disinfection of masks are developed to accommodate scarce resources. However, unless they are used in conjunction with sufficient social distance, meticulous hand cleanliness, and other tried-and-true preventative methods, masks may not significantly slow down the COVID-19 epidemic.
11. Fennelly KP. Personal respiratory protection against Mycobacterium tuberculosis. *Clin Chest Med* 1997;18:1–17.
12. Krymchantowski A, Barbosa JS, Cvaigman M, Lorenzatto W, Silva MT. Helmet-related, external compression headache among police officers in Rio de Janeiro. *MedGenMed* 2004;6:45
13. Baldi KA. Headband headache. *Mil Med* 1994;159:A3.
14. Farquharson, C., and K. Baguley: Responding to the severe acute respiratory syndrome (SARS) outbreak: Lessons learned in a Toronto emergency department. *J. Emerg. Nurs.* 29(3):222–228 (2003)
15. Meyer, J.P., M. Hery, J. Herrault, et al.: Field study of subjective assessment of negative pressure half-masks. Influence of the work conditions on comfort and efficiency. *Appl. Ergon.* 28(5–6):331–338 (1997).
16. Salahuddin N. The COVID-19 pandemic. *J Pak Med Assoc.* 2020;70: S4-6
17. Roberge RJ, Coca A, Williams WJ, Powell JB, Palmiero AJ. Physiological impact of the N95 filtering facepiece respirator on healthcare workers. *Respir Care.* 2010;55:569-77.