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Effect of Prolonged use of Facemask among Health Science Students during COVID-19 Pandemic

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Abstract

Corona virus disease (covid-19) is a contagious disease caused by severe acute respiratory syndrome corona virus 2(sars-cov-2) which causes infection in nose, sinuses or upper throat and lungs. Recommended preventive measures include vaccination, wearing mask in public, social distancing ventilation and hand washing. Among which Face mask has its importance in protecting people from the corona virus disease. Prolonged usage (>8h) of mask (in office workers, college students, health workers) has been associated with complaints of headache, as well as an increase in perceived exertion and perceived shortness of breath. This study aimed to find out the effect of prolonged use of facemask among health science students during COVID-19 pandemic. A cross sectional study conducted among 101 health science students. A validated self-administered questionnaire consists of 3 components such as satisfaction of wearing masks, site of pain, and severity of pain was distributed among the students. Both genders age range from 18 to 25 and who wear N95 and surgical masks were included in this study. Completed questionnaire were analyzed statistically. The obtained result shows that the quantification of pain felt by students only mild pain was common and it was 57.42%, moderate (36.63%) and severe (1.98%) pain. Even though masks have become an essential part of daily life, extended use and the material of facemasks play a vital role in producing significant discomfort in all participants throughout their lengthy use, which requires careful consideration in everyday life.

Keywords

COVID-19, Facemask, College students, Pain, Satisfaction

Introduction

Corona virus disease (COVID-19) is a contagious disease caused by severe acute respiratory syndrome corona virus 2 (sars-cov-2) which causes infection in nose, sinuses or upper throat and lungs. In early 2020, after December 2019 initial outbreak in China, the world health organization identified this type of virus the outbreak quickly spread over the world. Symptoms of COVID-19 are variable which begins one to fourteen days after exposure to the virus. People

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who are infected can transmit the virus to another person up to two days before they themselves show symptoms (Harapan et al., 2020).

Recommended preventive measures include wearing mask in public, social distancing ventilation and air filtering, hand washing, covering ones mouth while sneezing or coughing, disinfecting surfaces, and monitoring and self-isolation for people exposed. Face masks are simple barrier to help prevent respiratory droplets from reaching others. It reduces the spray of droplets when worn over the nose and mouth. Wearing a mask helps protect those around you, in case you are infected but without symptoms (Abboah-Offei M et.al., 2021).

It is medical truisms that while treating any medical illness will always has its beneficial effects and also have its side effects. Face masks further cause perioral dermatitis, infection around the mouth, sweat and moist vapour between the mask and the skin. The prolonged usage of mask among doctors, nurses, and public people and college students may cause consequence such as itches; rashes caused by the mask or attached rubber strings rubbing the skin of nose and ears (Yong et al., 2021). Prolonged use (>8h) of mask i.e. (in office workers, college students, health workers) has been associated with complaints of headaches (KöseoğluToksoy et al., 2021), as well as an increase in perceived exertion and perceived shortness of breath (Morris et al., 2020).

Several studies found that wearing of facemask for prolonged period causes problems in health care professionals (Vinita Mary et al., 2020; Rosner, 2020). As like health care setups, college environment also needs the students to wear masks throughout the entire day for prolonged time. But there is lack in literature to identify the consequences faced during prolonged wearing of facemask among college students. This study was conducted to find out the effect of prolonged use of facemask among college students during COVID 19 pandemic.

Methodology

A cross sectional study conducted among 101 health science students at KG College of Physiotherapy. This study has no risk and was approved by KG institutional research and ethical committee. Using purposive sampling method, both genders age ranges from 18 to 25 years and who wear N95 and surgical masks for about >8 hours per day were included in this study. Students who are not willing to participate, who were absent on the day of issuing questionnaire were excluded from this study. A validated self-administered questionnaire was distributed among the students consisting of 3 components such as satisfaction of wearing masks, site of pain, and severity of pain. The data was analysed using version 20 of the Social Sciences (SPSS) application. The demographic and discomfort are being analysed using descriptive statistics, and the results were expressed as a frequency and percentage.

Results

The demographic information is shown in Table 1 and Figure 1. From the study, majority of the participants (76.23%) were reported that they are not satisfied of wearing mask. More than half (61.385) of the subjects stated that they fell pain at the ear and only 14.85% reported pain at ear, nose, and cheeks. However, only 1.98% reported of severe pain (Table 2).

Table 1. Socio demographic data

Characteristics		**N(%)**
Age	19.49 ± 1.58	
Gender	Male	34(33.7%)
	Female	67(66.3%)
BMI	25.22 ± 1.92	
Undergraduate Students	I year	22(21.8%)
	II year	25(24.8%)
	III year	23(22.8%)
	IV year	26(25.8%)
Post – graduate Students	I year	3(2.9%)
	II year	2(1.9%)
Mask type	N95 mask	43(42.6%)
	Surgical mask	58(57.4%)

BMI- Body Mass Index

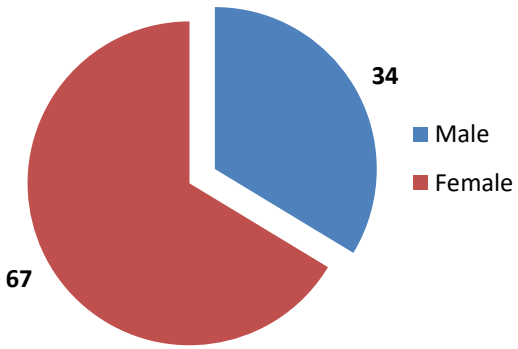

Figure 1. Gender classification

Table 2. Components of Structured Questionnaire

No.	Variable	Description	N(%)
1	Satisfaction of Wearing Mask	Yes	24(23.76%)
		No	77(76.23%)
2	Site of Pain	Ear	62(61.38%)
		Nose	13(12.87%)
		Cheeks	7(6.93%)
		All the above	15(14.85%)
		No pain	4(3.96%)
3	Level of Pain	Mild	58(57.42%)
		Moderate	37(36.63%)
		Severe	2(1.98%)
		No pain	4(3.96%)

Discussion

Facemasks protect against harmful microorganisms and its utilisation is essential during the pandemic. Facemasks prevent transpiration, increase perspiration and temperature in perioral region which could possibly be due to decreased transpiration. Wearing masks for a prolonged amount of time causes a host of physiologic and psychologic burdens and can decrease work efficiency. Activity cannot be performed as long or as efficiently while wearing masks as compared to when masks are not worn. Additionally, the timeframe that an activity can be sustained is decreased when wearing masks and PPE (Johnson , 2016). Prolonged use of N95 and surgical masks causes physical adverse effects such as headaches, difficulty breathing, acne, skin breakdown, rashes, and impaired cognition. It also interferes with vision, communication, and thermal equilibrium. The analysis shows that most of the students were not satisfied by wearing mask and hence felt discomfort with mask. Among 101 students 76% students were not satisfied by wearing facemask for prolonged time in college. By analysing the results of pain 61% students were complained of pain felt over the ears, 13 % were complained of pain over the nose and 7% of cheek pain.

On the analysis of quantification of pain felt by students only mild pain was common and it was 57.42%, moderate (36.63%) and severe (1.98%) pain. Over all the students faced discomfort and difficulties by wearing mask for prolonged time during college. This study also assessed for other discomfort among the students such as trouble breathing while performing any physical activities like stair climbing, walking and running (Di Altobrando et al., 2020); itchy nose (Darlenski, & Tsankov, 2020); sweating around the mouth; skin rashes / acne (Park et. al., 2021). Most of the students reported that wearing of mask for prolonged period of time decreased their concentration during college hours (Wang et al., 2020). Nevertheless, alongside other symptoms like tachypnea, sleep disturbance and fatigue were also significantly elevated (KöseoğluToksoy et al., 2021). Hence, improved mask design with an emphasis on safety, comfort, and tolerability is suggested (Darlenski, & Tsankov, 2020).

Fogging was common among those who were wearing specs. As a result of the discomfort caused by face masks the subjects tend to touch their facemask at frequent intervals, and it can lead to contamination and further infection. All these results in this study were in correlation with the previous studies. Hence prolonged usage of facemask among students resulted in several discomforts that should be considered. To prevent headaches and sensory disturbances, respondents should take frequent short breaks, neck massage, increased fluid

intake especially before starting a shift, alternate use of surgical and N95 masks (if possible), and good ventilation. We recommend wearing an N95 mask with a filter. Wear the mask that best fits your face.

Conclusion

Even though the mask has become an essential component of daily usage, the prolong usage and the material of facemask plays a pivotal role in causing significant discomfort in all the participants during its prolonged usage which needs much attention in daily life.

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