

# FACE MASK - BENEFITS AND RISKS DURING THE COVID 19 AMONG OUTPATIENTS

## ABSTRACT:

The public is quickly becoming more aware of the fact that wearing a face mask prevents the spread of the SARS-CoV-2 virus. The use of a mask alone is insufficient to provide an effective level of protection against COVID-19; masks should be used as part of a complete strategy of actions to suppress transmission and save lives. Keep yourself safe if COVID-19 is spreading in your neighbourhood by following a few easy safety steps, including as keeping a physical distance, donning a mask, keeping rooms well-ventilated, avoiding crowds, washing your hands, and coughing into a bent elbow or tissue. The research around the general public's usage of masks to prevent COVID-19 transmission is developing quickly. In the course of this narrative review, we create an analytical framework to understand the use of masks, synthesising the pertinent literature to provide information on a number of topics, including population impact, transmission characteristics, source control, wearer protection, sociological considerations, and implementation considerations. COVID-19 is known to spread mostly through respiratory particles, and it can spread from presymptomatic, paucisymptomatic, and asymptomatic people. Limiting connections with sick individuals by physical separation and other precautions, as well as lowering the risk of transmission per encounter, are necessary for preventing the spread of disease. The preponderance of evidence indicates that mask wearing reduces transmissibility per contact by reducing transmission of infected respiratory particles in both laboratory and clinical contexts. When compliance is high, wearing a mask in public helps to stop the infection from spreading. Given these shortages of medical masks, we recommend the adoption of public cloth mask wearing, as an efficient kind of source control, in conjunction with existing hygiene, distancing, and obtained in-tuned with tracing strategies. The aim of this paper is to analyze and critically discuss the regulations, which require protective masks in public to conform to similar regulations already in place in other countries. Self structured questionnaire was prepared and circulated among a sample size of 100 adults and the result was analysed using software IBM SPSS.

**KEYWORDS:** Facemask, COVID-19, SARS CoV-2, innovation

## INTRODUCTION:

“Face masks are an important component in controlling COVID-19, and policy orders to wear masks. However, behavioral responses are seldom additive, and exchanging one protective behavior for a further could undermine the COVID-19 policy response. We discovered that mask odors cause risk compensation behavior. Americans subject to the mask orders spend 11–24 fewer minutes reception on the typical and increased visits to some commercial locations—most notably restaurants, which are a high-risk location”. (1). “The pertinent need for masks arises from plausible dissemination of the SARS-CoV-2 through close contacts, moreover because of the possibility of virus transmission from asymptomatic, pre-symptomatic, and mildly symptomatic individuals. Given current global shortages in personal protective equipment, the efficacy of varied sorts of masks: N95 respirators, surgical masks, and cloth masks are researched. To accommodate limited supplies, techniques for extended use, reuse, and sterilization of masks are strategized. However, masks alone might not greatly hamper the COVID-19 pandemic unless they include adequate social distancing, diligent hand hygiene, and other proven preventive measures” (2). “The SARS-CoV-2 could also be a respiratory virus largely spread via droplets and possibly also airborne contact. Viral spread largely occurs via exposure of the nasopharyngeal or oropharyngeal mucosa to microdroplets expelled from coughing or sneezing by infected individuals. Thus, those persons wearing standard surgical face masks are still at risk for droplet exposure via the lateral, unsealed portions of the mask . On the contrary, standard respirators approved by the National Institute of Occupational Safety and Health (NIOSH), namely N 95 masks, are fit and seal tested to form sure filtration of at least 95% of airborne droplets” (3).

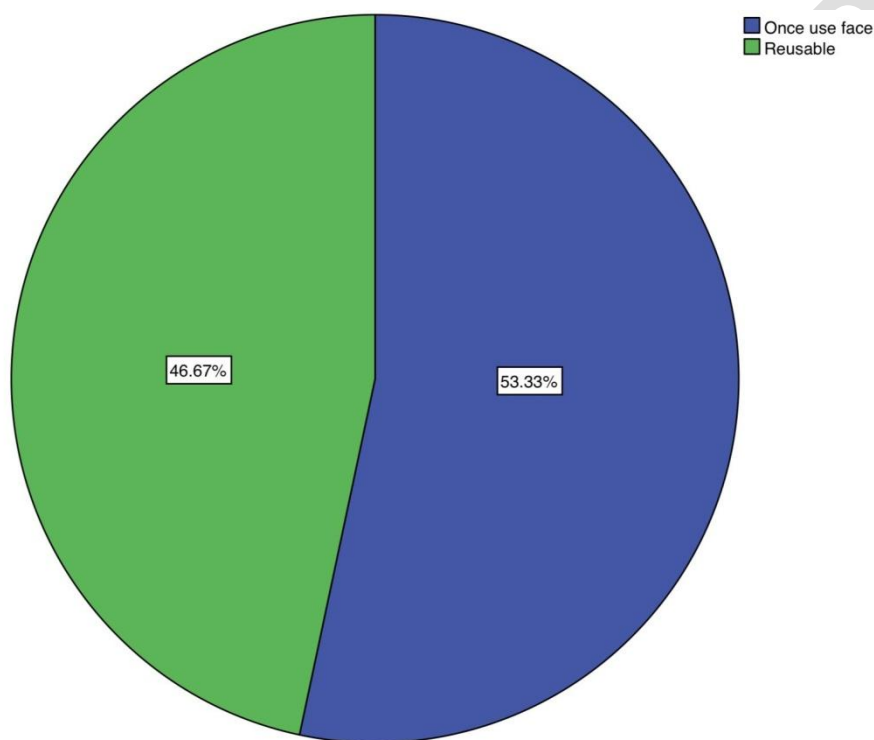
“Few studies characterizing the efficacy of cloth masks exist. Therefore, most mask options are intended for single use only, and must be carefully doffed and disposed of within the setting of a plague , the reuse of respirators is additionally being entertained and warrants careful consideration” (4). Currently, most of the literature available on this subject is from experimental investigations. Needless to say , all the studies demonstrated a rise in protective effects within the following order: masks for everyday use–MNP–N95/FFP–PPE. MARMasks for everyday use can have a little protective effect for the wearer. MNP offers a greater protective effect since it had been originally designed to decrease droplet elimination, therefore protecting the user’s surroundings. Unfortunately, thanks to ethical reasons, there's a scarcity of randomized controlled studies on the protective role of masks within the prevention of SARS-CoV-2 infections in comparison to an impact group with no masks. “The new SARS-CoV-2 pandemic is an example of a world public health emergency, which is related to considerable social and economic challenges. Adequate infection control practices are of critical importance, which include proper use of private protective equipment” (3). “The infected individual, when talking, coughing or sneezing, spreads droplets containing the virus, directly contaminating other individuals within one to 2 meters of distance, also because of the surrounding environment. transmission mechanism may occur when aerosol-generating procedures are performed. Concerning respiratory protection, there's currently weak evidence that the utilization of respirators provides better protection than surgical masks for SARS-CoV-2 or other viruses (with the exception of aerosol-generating procedures, during which case the utilization of a respirator is recommended)” (5).

“Eye protection should be guaranteed whenever there's a risk of splashes, droplets or aerosols. the utilization of various , or above necessary, levels of private protective equipment, for the transmission route of the agent, may be a sort of misuse and may affect its supply for situations when it's clearly indicated. The adequate provision of protective equipment, also as training of healthcare professionals in its correct use, is very recommended to ensure safety of care” (6). The limitations of this study is that the sample size of the study was less and limited to people of Tamil Nadu. In future larger samples including a wider region of India can be done.

#### **MATERIALS AND METHODS:**

A cross-sectional survey was conducted among the adolescent population with a sample size of 100. A self administered structured questionnaire was prepared based on visual pollution and consisted of 12 questions. It was circulated to participants through an online platform (google form). The statistics were done using SPSS software, chi-square test was used to check the association and P value of 0.05 was said to be statistically significant. The pros of the survey is that the adolescents of different lifestyles and cultures were surveyed. Children and adults were excluded from the survey. Simple random sampling method was the sampling method used to minimise the sampling bias.

#### **RESULTS AND DISCUSSION:**



**FIGURE 1:**

Pie chart showing percentage distribution of usage of mask. Wherein green colour represents reusable mask (46.67%) and blue colour represents once used face mask(53.33%).

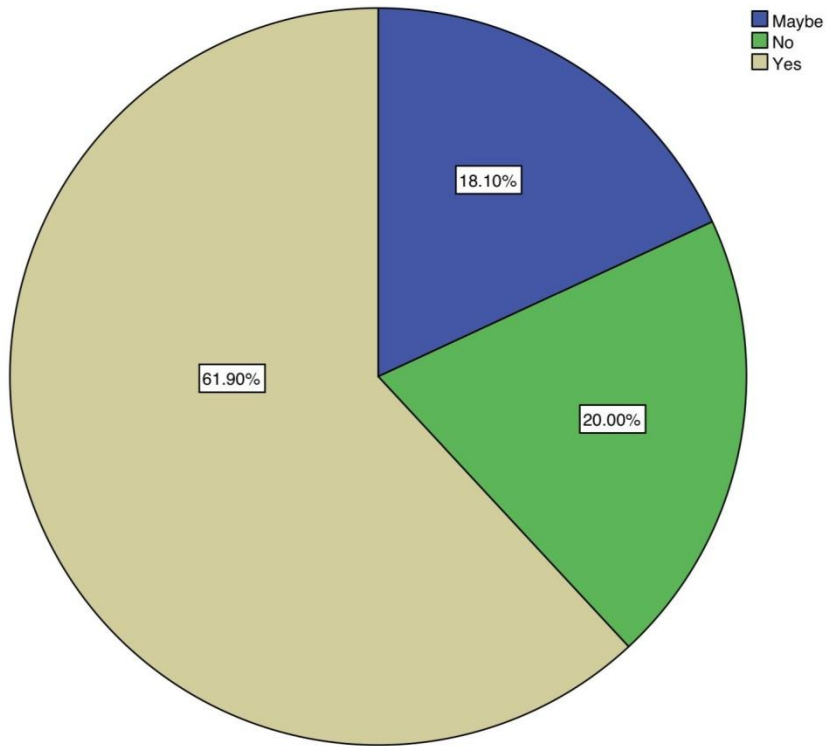


FIGURE 2:

Pie chart showing percentage distribution of effectiveness of facemask. Wherein beige colour represents yes ( 61.90% ), green represents no (20.00%) and blue represents maybe(18.10%).

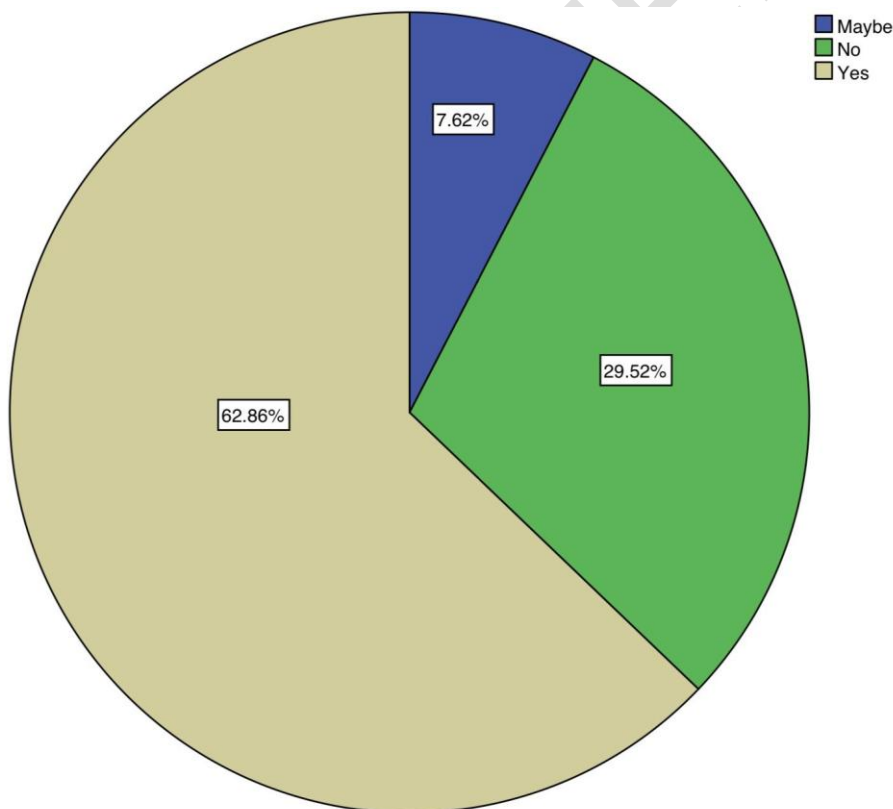


FIGURE 3:

Pie chart showing percentage distribution of cleaning of face mask. Wherein green colour represents no ( 29.52% ), beige colour represents yes (62.86%).

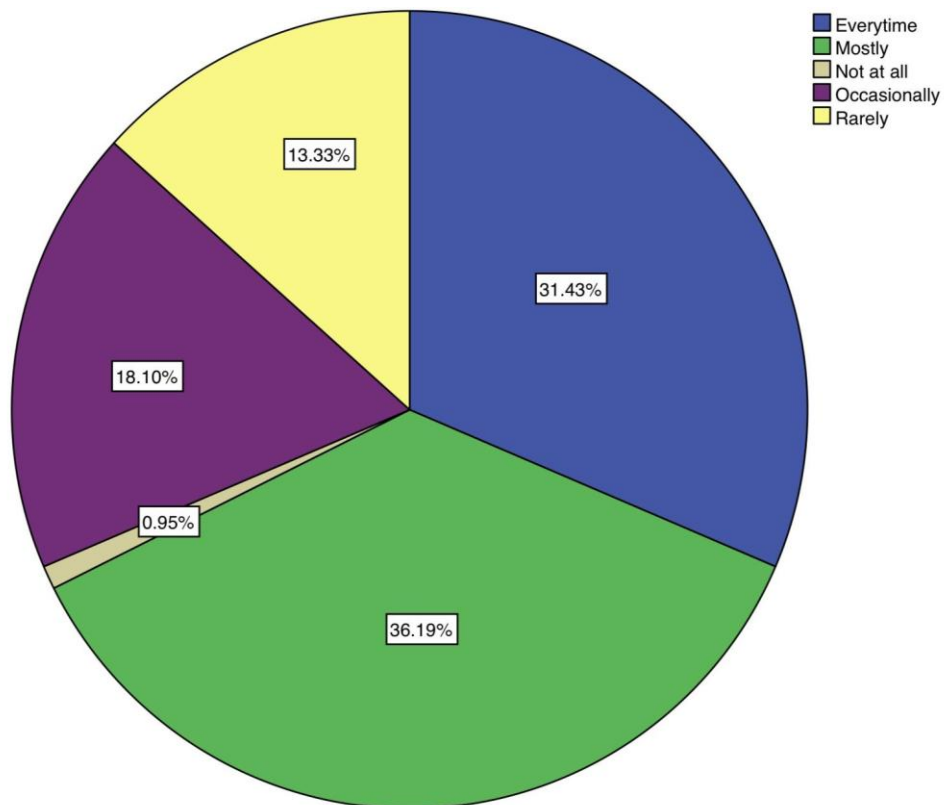


FIGURE 4:

Pie chart showing percentage distribution of duration of wearing face masks. Whereas blue represents every time (31.43%), green represents mostly (36.19%), beige colour represents not at all ( 0.95% ), purple colour represents occasionally ( 18.10% ) and yellow colour represents rarely (13.33%).

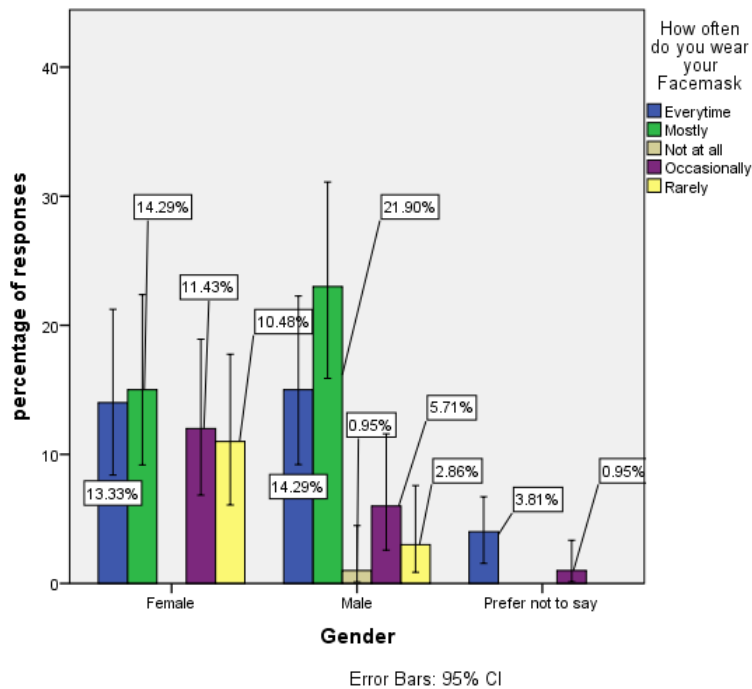


FIGURE 5:

Bar graph showing association between gender and usage of face mask. X-axis represents gender and Y-axis represents the number of participants. 23 males responded mostly, 15 females responded mostly. Blue colour represents every time, purple represents occasionally and yellow colour represents rarely. Chi square test was done and association was found to be statistically non significant. Pearson's chi square value : 16.097, p value : 0.041 ( $p < 0.05$ ) hence statistically significant, providing males have better awareness compared to females.

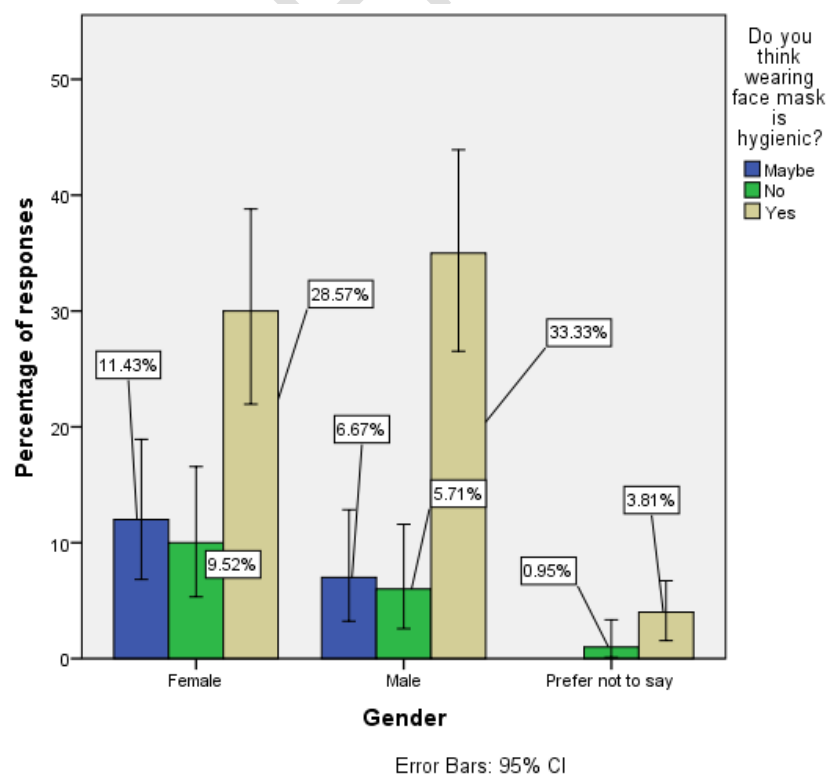


FIGURE 6:

Bar graph showing association between gender and hygiene in using face masks. X-axis represents gender and Y-axis represents the number of participants. Males of 33.33% responded yes and 28.57% of females responded yes. Blue colour represents maybe, green colour represents occasionally. Chi square test was done and association

was found to be statistically non significant. Pearson's chi square value : 3.734, p value : 0.443 ( $p > 0.05$ ) hence statistically non-significant, providing males have better awareness compared to females.

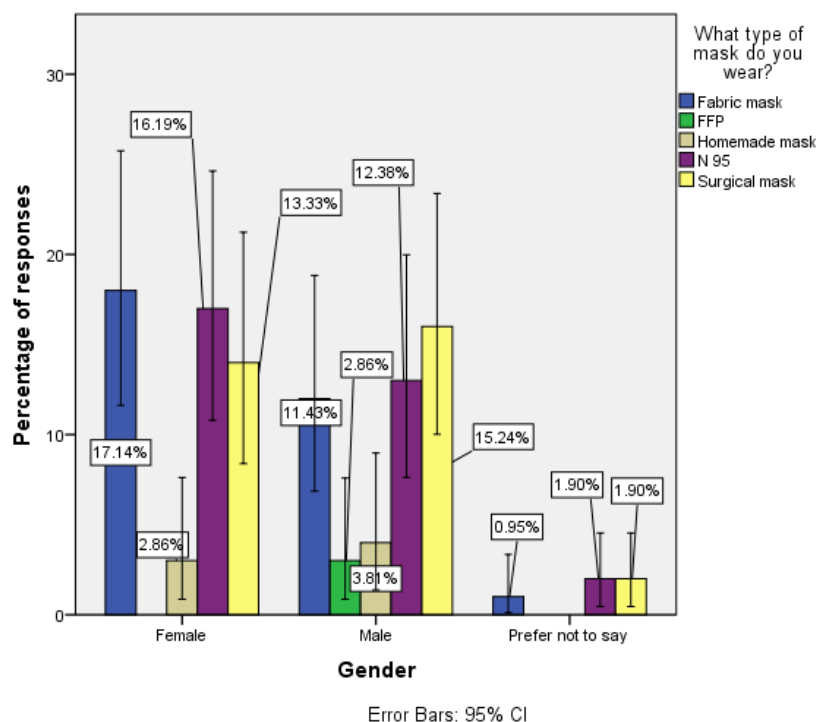


FIGURE 7:

Bar graph showing association between gender and types of face masks. X-axis represents gender and Y-axis represents the number of participants. 17.14% of females and 11.43% of males responded to fabric masks. Beige colour represents homemade mask, green colour represents FFP, purple represents N95 and yellow represents surgical mask. Chi square test was done and association was found to be statistically non significant. Pearson's chi square value : 6.008, p value : 0.646 ( $p > 0.05$ ) hence statistically non-significant, providing females have better awareness compared to males.

“There is considerable ongoing debate on whether to recommend general public mask use (likely mostly homemade cloth masks or other improvised face coverings), and while things are in flux, more authorities are recommending public mask use, though they still cite appreciable uncertainty. With this study, we hope to assist inform this debate by providing insight into the potential community-wide impact of widespread mask use by members of the overall population” (7). Our study highlights the limited evidence base supporting the efficacy or effectiveness of face masks to scale back coronavirus transmission (13-21). “A crucial concern when determining which public health interventions might be useful in mitigating local corona virus epidemics, and which infection control procedures are necessary to stop nosocomial transmission, is the mode of influenza virus transmission between people and within the environment” (8). “It is identified that poor adherence to personal protective equipment during high-risk procedures and failure to receive the annual influenza vaccination as independent risk factors” (9-12). Time lag and low sample size are the limitations of this study. In future, more numbers of population would be analysed.

Our team has a wealth of knowledge and research expertise, which has resulted in publications of the best quality (22–29).

## CONCLUSION:

Face masks play a major role and it reduces transmission of air borne diseases. People of the age group 18-35 years are more aware and people of age group above 55 years are less aware. Males are more aware compared to females according to this study. This study concluded that face masks are beneficial during covid - 19 among outpatients.

## Consent

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS DISCLAIMER:

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

## REFERENCE:

1. Yan Y, Bayham J, Richter A, Fenichel EP. Risk compensation and face mask mandates during the COVID-19 pandemic. *Sci Rep*. 2021 Feb 4;11(1):3174.
2. Abd-Elseyed A, Karri J. Utility of Substandard Face Mask Options for Health Care Workers During the COVID-19 Pandemic. *Anesth Analg*. 2020 Jul;131(1):4–6.
3. Chia SE, Koh D, Fones C, Qian F, Ng V, Tan BH, et al. Appropriate use of personal protective equipment among healthcare workers in public sector hospitals and primary healthcare polyclinics during the SARS outbreak in Singapore. *Occup Environ Med*. 2005 Jul;62(7):473–7.
4. Matuschek C, Moll F, Fangerau H, Fischer JC, Zänker K, van Griensven M, et al. Face masks: benefits and risks during the COVID-19 crisis. *Eur J Med Res*. 2020 Aug 12;25(1):32.
5. Reshi N. MANAGEMENT STRATEGIES OF COVID - 19 [Internet]. COVID-19 Pandemic update 2020. 2020. p. 214–21. Available from: <http://dx.doi.org/10.26524/royal.37.21>
6. Peres D, Boléo-Tomé JP, Santos G. [Respiratory and Facial Protection: Current Perspectives in the Context of the COVID-19 Pandemic]. *Acta Med Port*. 2020 Sep 1;33(9):583–92.
7. Chaabna K, Doraiswamy S, Mamtani R, Cheema S. Facemask use in community settings to prevent respiratory infection transmission: A rapid review and meta-analysis. *Int J Infect Dis*. 2020 Sep 26;104:198–206.
8. Gencer D, Kaygisiz E, Yüksel S, Tortop T. Comparison of double-plate appliance/facemask combination and facemask therapy in treating Class III malocclusions [Internet]. Vol. 85, *The Angle Orthodontist*. 2015. p. 278–83. Available from: <http://dx.doi.org/10.2319/013114-83.1>
9. Ng TC, Lee N, Hui S-CD, Lai R, Ip M. Preventing healthcare workers from acquiring influenza. *Infect Control Hosp Epidemiol*. 2009 Mar;30(3):292–5.
10. Saraswathi I, Saikarthik J, Senthil Kumar K, Madhan Srinivasan K, Ardhanaari M, Gunapriya R. Impact of COVID-19 outbreak on the mental health status of undergraduate medical students in a COVID-19 treating medical college: a prospective longitudinal study. *PeerJ*. 2020 Oct 16;8:e10164.



11. Santhakumar P, Roy A, Mohanraj KG, Jayaraman S, Durairaj R. Ethanol Extract of *Capparis decidua* Fruit Ameliorates Methotrexate-Induced Hepatotoxicity by Activating Nrf2/HO-1 and PPAR $\gamma$  Mediated Pathways. *Ind J Pharm Educ*. 2021 Mar 19;55(1s):s265–74.
12. Nambi G, Kamal W, Es S, Joshi S, Trivedi P. Spinal manipulation plus laser therapy versus laser therapy alone in the treatment of chronic non-specific low back pain: a randomized controlled study. *Eur J Phys Rehabil Med*. 2018 Dec;54(6):880–9.
13. Rajakumari R, Volova T, Oluwafemi OS, Rajesh Kumar S, Thomas S, Kalarikkal N. Grape seed extract-soluplus dispersion and its antioxidant activity. *Drug Dev Ind Pharm*. 2020 Aug;46(8):1219–29.
14. Clarizia G, Bernardo P. *Diverse Applications of Organic-Inorganic Nanocomposites: Emerging Research and Opportunities: Emerging Research and Opportunities*. IGI Global; 2019. 237 p.
15. Prakash AKS, Devaraj E. Cytotoxic potentials of *S. cumini* methanolic seed kernel extract in human hepatoma HepG2 cells [Internet]. Vol. 34, *Environmental Toxicology*. 2019. p. 1313–9. Available from: <http://dx.doi.org/10.1002/tox.22832>
16. Tahmasebi S, Qasim MT, Krivenkova MV, Zekiy AO, Thangavelu L, Aravindhan S, et al. The effects of oxygen-ozone therapy on regulatory T-cell responses in multiple sclerosis patients. *Cell Biol Int*. 2021 Jul;45(7):1498–509.
17. Wadhwa R, Paudel KR, Chin LH, Hon CM, Madheswaran T, Gupta G, et al. Anti-inflammatory and anticancer activities of Naringenin-loaded liquid crystalline nanoparticles in vitro. *J Food Biochem*. 2021 Jan;45(1):e13572.
18. Vivekanandhan K, Shanmugam P, Barabadi H, Arumugam V, Raj DDRD, Sivasubramanian M, et al. Emerging Therapeutic Approaches to Combat COVID-19: Present Status and Future Perspectives [Internet]. Vol. 8, *Frontiers in Molecular Biosciences*. 2021. Available from: <http://dx.doi.org/10.3389/fmolb.2021.604447>
19. Ezhilarasan D. Critical role of estrogen in the progression of chronic liver diseases. *Hepatobiliary Pancreat Dis Int*. 2020 Oct;19(5):429–34.
20. Egbuna C, Mishra AP, Goyal MR. *Preparation of Phytopharmaceuticals for the Management of Disorders: The Development of Nutraceuticals and Traditional Medicine*. Academic Press; 2020. 574 p.
21. Kamath SM, Manjunath Kamath S, Jaison D, Rao SK, Sridhar K, Kasthuri N, et al. In vitro augmentation of chondrogenesis by Epigallocatechin gallate in primary Human chondrocytes - Sustained release model for cartilage regeneration [Internet]. Vol. 60, *Journal of Drug Delivery Science and Technology*. 2020. p. 101992. Available from: <http://dx.doi.org/10.1016/j.jddst.2020.101992>
22. Barabadi H, Mojab F, Vahidi H, Marashi B, Talank N, Hosseini O, et al. Green synthesis, characterization, antibacterial and biofilm inhibitory activity of silver nanoparticles compared to commercial silver nanoparticles [Internet]. Vol. 129, *Inorganic Chemistry Communications*. 2021. p. 108647. Available from: <http://dx.doi.org/10.1016/j.inoche.2021.108647>
23. Bharath B, Perinbam K, Devanesan S, AlSalhi MS, Saravanan M. Evaluation of the anticancer potential of Hexadecanoic acid from brown algae *Turbinaria ornata* on HT–29 colon cancer cells [Internet]. Vol. 1235, *Journal of Molecular Structure*. 2021. p. 130229. Available from: <http://dx.doi.org/10.1016/j.molstruc.2021.130229>
24. Gowhari Shabgah A, Ezzatifar F, Aravindhan S, Olegovna Zekiy A, Ahmadi M, Gheibihayat SM, et al. Shedding more light on the role of Midkine in hepatocellular carcinoma: New perspectives on diagnosis and therapy. *IUBMB Life*. 2021 Apr;73(4):659–69.
25. Sridharan G, Ramani P, Patankar S, Vijayaraghavan R. Evaluation of salivary metabolomics in oral leukoplakia

and oral squamous cell carcinoma. *J Oral Pathol Med*. 2019 Apr;48(4):299–306.

26. R H, Hannah R, Ramani P, Ramanathan A, Jancy MR, Gheena S, et al. CYP2 C9 polymorphism among patients with oral squamous cell carcinoma and its role in altering the metabolism of benzo[a]pyrene [Internet]. Vol. 130, *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology*. 2020. p. 306–12. Available from: <http://dx.doi.org/10.1016/j.oooo.2020.06.021>
27. J PC, Pradeep CJ, Marimuthu T, Krithika C, Devadoss P, Kumar SM. Prevalence and measurement of anterior loop of the mandibular canal using CBCT: A cross sectional study [Internet]. Vol. 20, *Clinical Implant Dentistry and Related Research*. 2018. p. 531–4. Available from: <http://dx.doi.org/10.1111/cid.12609>
28. Wahab PUA, Abdul Wahab PU, Madhulaxmi M, Senthilnathan P, Muthusekhar MR, Vohra Y, et al. Scalpel Versus Diathermy in Wound Healing After Mucosal Incisions: A Split-Mouth Study [Internet]. Vol. 76, *Journal of Oral and Maxillofacial Surgery*. 2018. p. 1160–4. Available from: <http://dx.doi.org/10.1016/j.joms.2017.12.020>
29. Mudigonda SK, Murugan S, Velavan K, Thulasiraman S, Krishna Kumar Raja VB. Non-suturing microvascular anastomosis in maxillofacial reconstruction- a comparative study. *Journal of Cranio-Maxillofacial Surgery*. 2020 Jun 1;48(6):599–606.