



Convenience and utility of PPE (Personal Protective Equipment) kits used by doctors during the COVID-19 Corona pandemic

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Abstract

"The COVID-19 pandemic has disrupted every sector in India, including the health sector. It has had an unprecedented impact on doctors, nurses, and other health professionals worldwide in various ways. Individuals are grappling with a multitude of challenges that affect them emotionally, cognitively, physically, and socially." These challenges include heightened anxiety and depression, as well as various health issues such as high blood pressure, liver complications, mental health issues, and eye and skin problems. These issues can be attributed to prolonged mask-wearing, excessive workloads, constant exposure to COVID-19 patients, and irregular eating habits. Because of the pressing demand and significant challenges in this field of study, we are proposing a research paper that aims to provide valuable insights for both the community and fellow researchers. The objective of this study is to explore the impact of utilizing personal protective equipment (PPE) on the physical well-being and job responsibilities of healthcare workers amid the COVID-19 outbreak. The research involved a thorough examination of available literature to gain insights into the implications of personal protective equipment (PPE) on the health and occupational functions of medical practitioners.

Keywords: Personal Protective Equipment (PPE), healthcare workers, gender differences in efficacy, comfort, psychological impact, and infection control in occupational health.

Introduction

The ongoing pandemic has caused widespread disruption across all sectors, including the healthcare industry in India. The COVID-19 pandemic has brought about unparalleled challenges for healthcare professionals, particularly doctors and nurses. Highlighting the crucial significance of personal protective equipment (PPE) cannot be overstated, particularly in safeguarding the well-being of healthcare workers amidst the COVID-19 crisis. This includes discussing the increased risk faced by medical workers due to direct exposure to the virus and underlining the importance of PPE in mitigating this risk. Providing background information about the nature of COVID-19, its mode of transmission, and the challenges faced by healthcare workers in keeping themselves safe while caring for patients can add valuable context. Additionally, addressing the global shortage of PPE during the early stages of the pandemic can underscore the urgency of understanding the effectiveness of PPE kits. The primary aim of this study is to investigate various aspects related to personal protective equipment (PPE) usage among healthcare workers during the COVID-19 pandemic. This includes evaluating the effectiveness of PPE kits in preventing COVID-19 transmission among healthcare professionals, assessing the practicality and utility of these kits during prolonged usage, and exploring any psychological impacts associated with their use. Usage can effectively lay the groundwork for outlining research objectives and methodology in subsequent sections of the paper.

Aim of the study: Assess the comfort and usability of PPE kits during prolonged use in government and private hospitals.

- Examine the psychological impact of wearing PPE on male and female doctors, including levels of stress, anxiety, and feelings of isolation.
- Explore potential differences in PPE availability and resource allocation between government and private hospitals and their impact on frontline health workers.
- Provide recommendations for optimizing PPE protocols and support systems to enhance the safety, well-being, and effectiveness of male and female doctors serving in government and private healthcare sectors during the pandemic.

Review of Literature

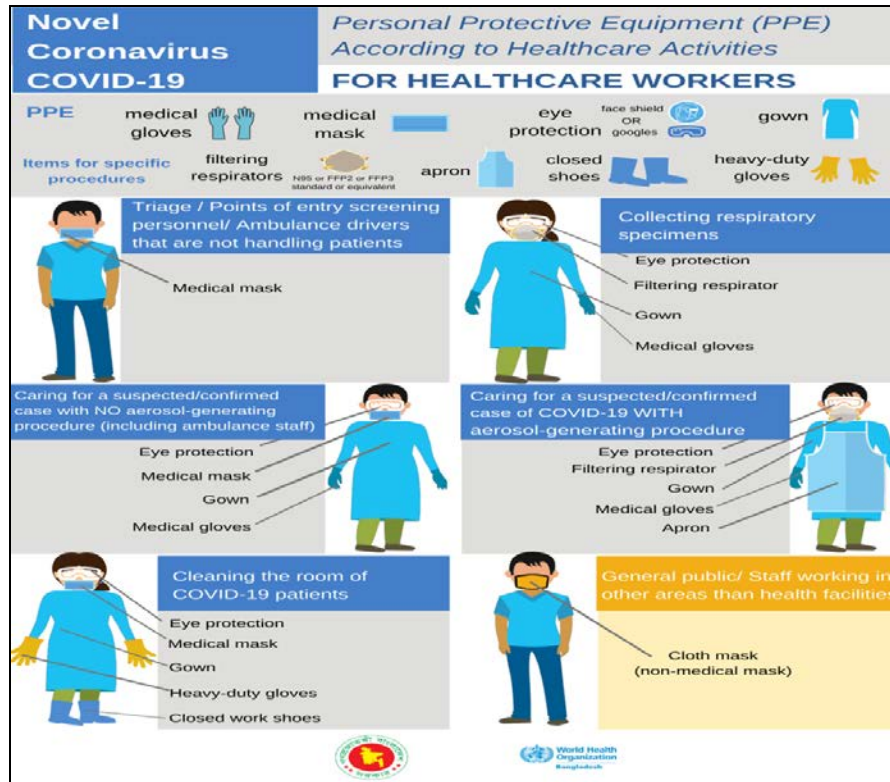
The COVID-19 pandemic has placed immense strain on healthcare systems worldwide, necessitating the widespread adoption of personal protective equipment (PPE) to safeguard healthcare workers from infection risks. Numerous research investigations have consistently underscored the crucial role of PPE in mitigating the spread of viral infections (Chu et al., 2020; Ong et al., 2020). Utilizing personal protective equipment (PPE) is crucial for safeguarding healthcare workers; however, it presents numerous challenges. A major concern is the global shortage of PPE, which has raised concerns about the safety of frontline workers. In addition, prolonged use of PPE can cause discomfort and fatigue, which affects the health and performance of healthcare workers. Wearing PPE also has psychological effects such as increased stress levels and feelings of loneliness. Inequalities in access to PPE across different healthcare settings and regions have been

highlighted, which contribute to inequities in healthcare delivery.

Vulnerable populations, such as healthcare workers in remote areas and people with underlying health conditions, are at greater risk due to inadequate PPE availability. Despite continuous research endeavors, substantial knowledge gaps persist regarding the enduring impacts of personal protective equipment (PPE) on the psychological welfare of healthcare professionals. Furthermore, there

remains a scarcity of studies examining the efficacy of individual PPE components, such as face shields or goggles, in diverse healthcare environments.

Recommendations for optimizing PPE protocols and support systems to enhance the safety, well-being, and effectiveness of male and female doctors serving in government and private healthcare sectors during the pandemic:



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PPE Protocols

1. Provide adequate supplies of appropriate PPE, including gender-specific sizes.
2. Ensure proper fitting and training on donning and doffing PPE.
3. Implement a buddy system for PPE checks.
4. Regularly review and update PPE protocols based on latest guidelines and research.
5. Ensure adequate ventilation and cooling systems in healthcare facilities.

Support Systems

1. Provide mental health resources, including counseling and stress management workshops.
2. Offer flexible scheduling and telemedicine options to reduce workload and exposure risk.
3. Establish a peer support network for doctors to share experiences and advice.
4. Provide access to wellness programs, including exercise classes and healthy meal options.
5. Recognize and reward doctors' efforts and contributions through incentives and appreciation programs.

Additional Recommendations

1. Conduct regular safety drills and training exercises.

2. Encourage open communication and feedback on PPE and support systems.
3. Provide gender-specific facilities and amenities, such as lactation rooms and gender-neutral bathrooms.
4. Offer family support services, including childcare and eldercare resources.
5. Foster a culture of safety, respect, and empathy in healthcare facilities.

By implementing these recommendations, healthcare organizations can optimize PPE protocols and support systems to enhance the safety, well-being, and effectiveness of male and female doctors serving in government and private healthcare sectors during the pandemic

Methodology: In the research paper Convenience and utility of PPE on male and female doctors during Covid-19, 300 participants from government and private hospitals were included. Data was collected using random sampling, analyzed using SPSS, and an evaluation and dissemination plan was outlined.

Tools Used: Data collection involved the utilization of a self-designed questionnaire and the inclusion of the Socio-Economic Status Scale developed by Kuppu Swami.

Table 1: Distribution of respondent in a reference of getting enough resources from the government for COVID- 19 patients

Statement	Frequency	Percentage
Did you get enough resources from the government for Covid-19 patients		
Yes	178	59.3
NO	57	19.0
Sometime	59	19.7
Never	5	1.7
Always	1	.3
Total	300	100.0

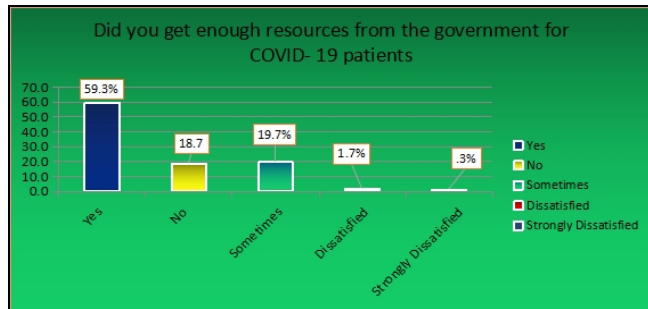


Fig 1: Distribution of respondent in a reference of getting enough resources from the government for COVID- 19 patients

Table 1 and Fig 1: Indicates that majority of the respondents are getting enough resources from the government for COVID- 19 patients as 59.3 % respondents said yes, 19.7% said sometimes, 18.7 % said no, 1.7 % said dissatisfied and 0.3 % said Strongly dissatisfied.

Table 2: Distribution of respondents concerning the special dress they wear when they meet patients.

Statement	Frequency	Percentage
Do you wear any special dress when you meet patients		
Yes	114	38.0
NO	87	29.0
Sometime	38	12.7
Never	28	9.3
not necessary	33	11.0
Total	300	100.0



Fig 2: Distribution of respondents concerning the special dress they wear when they met patients

Table 2 and Fig 2: That doctors used to wear special attire whenever they met Covid patients, for which most of the i.e. 38% respondents said yes, they used to wear special attire, 29% sometimes wore special attire, 12.7% sometimes also did not wear special attire, and 11% said it is not needed. Sometimes they had to do their work easily by wearing special clothes and sometimes they had to face many kinds of problems, that is why he sometimes did their work even without wearing special clothes.

Table 3: Distribution of respondents based on feeling while wearing PPE kits for 8 to 12 hours during their duty hours.

Statement	Frequency	Percentage
How do you feel when you constantly wear PPT kits for about 8 or 12 hours on duty		
Very Safe	82	27.3
Feel Great	25	8.3
Feel Very Uncomfortable	98	32.7
Very Bad	29	9.7
All of these	66	22.0
Total	300	100.0



Fig 3: Distribution of respondents based on feeling while wearing PPE kits for 8 to 12 hours during their duty hours.

Table 3 and Fig 3: Specifically, 32.7% of respondents expressed discomfort due to wearing PPE for long periods of time, causing various physical problems. On the other hand, 27.3% of the respondents felt a sense of protection from the risk of infection, while 22% reported that they felt very uncomfortable wearing PPE for a long time but still safe while wearing PPE Kit. Additionally, 9.7% of respondents indicated experiencing mixed emotions including safety, discomfort, distress, and relief. In a study conducted by Ankur Aggarwal in 2020, a significant proportion of healthcare workers expressed considerable discomfort while wearing personal protective equipment (PPE) for prolonged durations amidst the COVID-19 outbreak. The use of PPE also presented several challenges for healthcare workers, with excessive sweating being the most common problem, affecting 100% of respondents. Other common problems included fogging on glasses or face shield (88%), feeling of suffocation (83%), difficulty breathing (61%), and fatigue (75%). In addition, 28% of respondents experienced headaches due to prolonged use of PPE, while 19% mentioned developing pressure marks on their skin from repeated use. In addition to the commonly cited challenges, certain healthcare workers encountered skin allergies or dermatitis attributed to synthetic materials within PPE, neck strain from mask usage during intubation procedures, discomfort in the nasal area, pain around the ears, and issues with shoe cover slippage. Despite these challenges, healthcare professionals continued to use PPE during their duty hours as it provided them with a sense of protection from infections. However, it is important to find appropriate solutions to address these problems and support healthcare workers in effectively preventing and managing issues associated with prolonged PPE use.

Summary

The COVID-19 pandemic has significantly impacted doctors' job satisfaction, mental health, and well-being. To address this, healthcare organizations must optimize PPE protocols and support systems. Recommendations include:

- Providing adequate PPE and proper training
- Offering mental health resources and wellness programs
- Fostering a culture of safety and respect
- Addressing gender-specific needs and providing family support services
- Encouraging open communication and feedback
- Recognizing and rewarding doctors' efforts

By implementing these recommendations, healthcare organizations can enhance doctors' safety, well-being, and effectiveness, ultimately improving patient care and outcomes.

Conclusion

The research on the comfort and efficacy of personal protective equipment (PPE) among male and female doctors throughout the COVID-19 crisis encompassed a cohort of 300 participants from both public and private healthcare institutions. Data was gathered via random sampling methods and analyzed utilizing the Statistical Package for Social Sciences (SPSS). Additionally, the study incorporated a thorough strategy for assessing and disseminating the results. The research showed that 32.7% of respondents experienced considerable discomfort when wearing PPE for long periods while caring for patients during the COVID-19 crisis. A considerable number of participants reported feeling physically unprepared due to this issue. In contrast, 27.3% reported feeling safe, as they felt a low risk of infection. In addition, 22% of participants experienced negative feelings regarding PPE use. Interestingly, 9.7% did not. Despite its importance, healthcare workers face several challenges in the use of PPE. Reports of PPE shortages globally have raised concerns about ensuring adequate protection for frontline workers. Additionally, disparities in PPE access across different healthcare settings and regions have exacerbated disparities in healthcare delivery. Research has also highlighted inconsistencies in PPE availability, which contributes to growing disparities in healthcare delivery. Despite research efforts to understand the impact of PPE use during the pandemic, significant knowledge gaps remain. Few investigations have delved into the enduring impacts of personal protective equipment (PPE) on the mental health and overall well-being of healthcare workers.

In summary, the COVID-19 pandemic has posed unparalleled challenges to the healthcare sector, particularly impacting doctors. Optimizing PPE protocols and support systems is crucial to ensure their safety, well-being, and effectiveness. By providing adequate PPE, mental health resources, flexible scheduling, peer support, wellness programs, and recognition, healthcare organizations can foster a culture of safety and respect. Additionally, addressing gender-specific needs and providing family support services can further enhance doctor well-being. By prioritizing doctor well-being, healthcare organizations can ultimately improve patient care and outcomes. Recommendations outlined in this report can guide healthcare organizations in optimizing PPE protocols and support systems to support doctors during the pandemic and beyond.

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