

Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia systematic review 2024

Maram Taher Alghabbashi¹, Mohammed Saleh Alshmemri¹, Maad Taher Alghabbashi², Marwah Al-Emam Muhmmad Ahmed³, Mohammed Abdullah Saad Alotaibi⁴, Seham Moteeb Al- Motairi⁵, Mohammed Ahmed Alzahrani⁶, Ali Yahya Ali Alkhairy⁷, Salem Bakheet Salem Aljohani⁸, Fahad Matrouk Albouqami⁸, Fahad Homod Almjnoni⁹

¹Associate professor, Faculty of Nursing Umm Al-Qura University, Makkah, Saudi Arabia.

²Social Service Department, King Abdulaziz Medical City Jeddah, Saudi Arabia.

³Nursing specialist, King Salman Bin Abdulaziz Medical city in Madinah, Saudi Arabia.

⁴Nursing specialist, DAWADMI GENERAL HOSPITAL, Saudi Arabia.

⁵Nurse specialist- clinical resource nurse, National guard hospital - Riyadh, Saudi Arabia.

⁶Nursing Technician, East Jeddah hospital, Jeddah, Saudi Arabia.

⁷Nursing Technician, The first health cluster in Jeddah, Saudi Arabia.

⁸Nursing Technician, The second health cluster in Jeddah, Saudi Arabia.

⁹Male Nursing Technician, Al-Hindawiya Primary Health Care Center, Saudi Arabia.

Abstract

Background: The severe acute respiratory syndrome-coronavirus-2 pandemic has spread rapidly and has a growing impact on individuals, communities, and healthcare systems worldwide. At the core of any pandemic response is the ability of authorities and other stakeholders to react appropriately by promoting hygiene and social distancing behaviors. The Epidemics led to significant healthcare challenges worldwide. Healthcare workers (HCWs) are critical in managing the pandemic, and their knowledge, attitudes, and perceptions of risk play a key role in effective public health responses. Effective risk communication is essential for influencing HCWs' regarding nursing adherence to preventive measures and improving their understanding of epidemics. Successfully reaching this goal requires both individual and collective efforts to drastically modify daily routines and activities. **The aim** of this literature review was to assessment Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia systematic review 2024. **Methods:** A comprehensive literature review was conducted, examining peer-reviewed articles, official reports, and relevant studies up to December 2024. The review focused on empirical research that specifically addressed the factors about Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia 2024. **Results:** This systematic review provides a detailed summary of the up-to-date studies on the Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of risk on Healthcare Workers through 6 studies published between 2020 and 2024 present systematic review that explored Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers and especially nursing **Conclusion:** This review reveals the impact of Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic on HCWs' knowledge, attitudes, and practices regarding epidemics. Continued educational efforts are essential to keep HCWs updated on infection control and preventive measures, particularly for those in lower-level roles or non-governmental healthcare sectors. where the overwhelming majority placed high trust in the MOH as its main reference for COVID-19 information.

Key Words: Knowledge, Perceived, Risks, COVID-19, Healthcare Workers, Saudi Arabia .

Introduction:

Background:

The new COVID-19 mutant (severe acute respiratory syndrome–coronavirus-2 (SARS-CoV-2) , which first originated in mainland China, has spread rapidly around the world. As of September, 2020, more than 1,003,337 deaths have been reported and a total of 188 countries and territories have been affected (John Hopkins University of Medicine, 2020). (1) At the peak of pandemics and global outbreaks, many different groups, such as community organizations, governments, healthcare providers and the media develop and implement a number of strategies, programs, and initiatives that communicate safety recommendations and policies essential for containing the spread of disease.(2) For example, healthcare especially nursing providers and government officials often play an important role in effectively conveying appropriate hygiene and social distancing behaviors to the public, to control the spread of disease.(3)

Health messaging plays a vital role in enhancing community response during epidemics by influencing risk perception and promoting adherence to essential preventive measures to curb the spread of infection. (4) Such measures include the use of masks, social distancing and proper hand hygiene.(5) Effective health messages can significantly shape community behavior, ensuring compliance with preventive actions while reducing misinformation and panic-driven reactions.

(6) The success of preventive strategies largely depends on public compliance, which is influenced by how communities perceive the risk and understand these measures (7). Several studies have explored public knowledge and attitudes toward epidemics, reporting varied results based on geographic, demographic, and occupational factors (8).

Healthcare workers (HCWs) especially nursing represent the cornerstone in the fight against the COVID-19 pandemic (9). Previous reports showed that HCWs are at high risk of acquiring the infection and psychological distress during pandemics (10) besides, they play a crucial role in disseminating proper knowledge during an emergency.(11) Therefore, it is imperative that HCWs have knowledge and attitude towards the COVID-19 pandemic to ensure their strict compliance to control measures and effectively disseminate accurate information about the pandemic.(12) Nonetheless, the current body of published literature shows conflicting results regarding the level of HCWs' knowledge and attitudes regarding COVID-19.(13) studies from the Middle East showed variable levels of HCWs' knowledge and attitudes regarding COVID-19.(14) Thus, big data and real-life evidence are needed to orient the already challenged healthcare systems during the pandemic and reflect the single community dynamics.(15)

A lack of knowledge may also affect individual and community awareness of disease prevention strategies (16). The Healthcare Workers, especially nursing and general public's knowledge, awareness, and risk perception with regards to the disease can serve as indicators that inform preparations for future pandemics or outbreaks. However, the relationships between knowledge, awareness, risk perception, and behavior change remain unclear (17). While there is a tremendous amount of research examining risk perception and the circumstances under which it may promote behavior change, literature assessing this relationship in the context of pandemics and global outbreaks from a community standpoint is limited. (18) We conducted a scoping review to examine how knowledge, awareness and misconceptions influence risk perceptions and the adoption of hygiene (e.g. hand washing) and physical distancing (e.g. avoiding crowded places) behaviors.(19)In an effort to alleviate the spread of new COVID-19 mutant of Pandemic in Saudi Arabia, which reported high number of cases and deaths the Ministry of Health (MOH) has been especially active in disseminating information to the general public to raise awareness of new COVID-19 mutant of Pandemic in terms of general knowledge, community updates, risk factors, and preventive measures. (20) To ensure the effectiveness of the new COVID-19 mutant of Pandemic risk communication, a questionnaire survey was conducted with responders from all over the country, spanning different age groups, socioeconomic classes, and education levels.(21)

Methodology

Aim of the study:

To assessment Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia systematic review 2024.

Study design:

Systematic reviews using Online searching engines were using databases to identify relevant articles through the included electronic databases: Google Scholar, PubMed, and Saudi Digital Library (SDL), data extracted from published articles were systematically analyzed for assessment of Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia systematic review 2024.

Search strategy:

To conduct a thorough literature review, a systematic search strategy was developed to identify studies related to factors Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia. The databases searched included PubMed, Scopus, Web of Science, CINAHL, and PsycINFO, covering publications up to December 2024. Keywords used in the search included combinations of: "Knowledge," "Perceived Risks," "new COVID-19 mutant of Pandemic," "Saudi Arabia," "healthcare workers,".

Search methods

A comprehensive search was performed to obtain studies on the Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia. The databases used in the search included ProQuest and Scopus, and the keywords used were "Knowledge," "Perceived Risks," "new COVID-19 mutant of Pandemic," "Saudi Arabia," "healthcare workers,". These keywords were used to find articles with matching terms in their abstracts or titles. To discover the most recent studies and literature on our review topic, the search was limited to articles published.

Inclusion criteria

Studies were selected based on the following inclusion criteria:

- (1) Empirical research articles published in peer-reviewed journals,
- (2) Studies focused on Healthcare Workers and nurses working in Saudi Arabia,
- (3) Articles that specifically address Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic
- (4) Publications in English.

Exclusion Criteria

- (1) Non-empirical studies, such as opinion pieces and editorials;
- (2) Studies not specifically related to healthcare settings;
- (3) Articles that do not explicitly discuss the Saudi Arabian context, and new COVID-19 mutant of Pandemic
- (4) Studies published in languages other than English.

Table 1

Characteristics of reviewed articles about Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers in Saudi Arabia .

Author, Date, Country	Region	Study design	Study aim	Results
Almohammed et al (2024) (22)	Kingdom of Saudi Arabia	A cross-sectional	To assess the knowledge, attitudes, and perceived risks of HCWs regarding epidemics	<p>The Epidemics has caused a dramatic shift in the healthcare landscape, with a significant surge in cases and associated mortality rates. In the context of the Epidemics, characterized by high transmission rates, morbidity, and mortality, inadequate communication can exacerbate panic, cause confusion, and negatively impact public perception of preventive measures (43). Healthcare workers (HCWs), as the frontline responders to the pandemic, are especially vulnerable, with some reports indicating that HCWs account for up to 24% of global EPIDEMICS cases (44). Insufficient information about EPIDEMICS transmission, incubation, and symptoms has contributed to their high risk of infection (45). Consequently, effective risk communication for HCWs is crucial, as they play an essential role in expert-public communication during the pandemic (46, 47), and their perceptions and practices can influence public compliance.</p> <p>Conclusions This study found that proper risk communication significantly impacted HCWs' attitudes towards Epidemics, with clear information about the virus and preventive measures</p>

				<p>influencing their behaviors. The findings highlight the critical role of effective health messaging in improving compliance with preventive measures, ultimately contributing to the reduction of infection rates. Healthcare authorities should continue to provide educational programs and training to keep HCWs updated on infection control protocols.</p>
<p>Alotaibet al (2024) (23)</p>	<p>Saudi Arabia</p>	<p>A comprehensive search in the MEDLINE database's electronic literature</p>	<p>To explore the multifaceted roles of nurses in improving public health awareness and patient education in the Kingdom of Saudi Arabia</p>	<p>Saudi Arabian healthcare is at the crossroads of an evolution, Alanazi notes about the Kingdom's Vision 2030. Closely associated with this process is the limited human resource of nursing professionals who make up the bulk of the workforce in the health sector. Obviously, their responsibilities concern health promotion, disease prevention as well as patient counseling. Saudi nurses are in a position to mediate between advanced medical knowledge and specific local cultures and healthcare wants. This essay discusses on the important contribution of nurses in health promotion as well as counseling in Saudi Arabia. Clinical and community aspects are outlined while their effectiveness, role of cultural influences and limitations and ways to improve them in this regard are also considered.</p> <p>Conclusions</p> <p>The nursing profession in Saudi Arabia involves mostly handling and coming up with awareness and patient education initiatives. Employed in hospitals, communities and schools they play an active role in promotion of healthy lifestyles and reduction of incidence of diseases. It was found that, there is a complex antecedent of barriers, which are influencing the practice of nurses in public health and education sectors in Saudi Arabia due to cultural, systemic, and professionalism barriers. When these barriers are removed, and nurses are equipped with what they need to make the change, they have the capacity to improve the health of a nation. This is important for Vision 2030 health goals, and enhancing the general health status of the Kingdom.</p>
<p>Zuluaga et al (2023) (24)</p>	<p>The global and country levels</p>	<p>Descriptive study</p>	<p>This article intends to explore from the authors' perspective how information management, risk management, and risk communication during the pandemic</p>	<p>More than 2 years have gone by since the pandemic was declared in 2019 due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Many challenges have been confronted by the healthcare system during this time to control the high impact of this disease. This pandemic, unlike others that humanity has faced, is characterized by a special feature: today, we have an enormous amount of information only a click away. This situation has been of great benefit to humanity and has allowed the development of science; nevertheless, misinformation (infodemics) has been a major problem, which has revealed the behavior of the population regarding the evaluation of information (or better, lack of assessment) related to the use of medications and particularly of vaccines. Given this, it is important that the different people involved (health authorities, societies, healthcare professionals, etc.) assess the behavior and propose appropriate strategies to act and have plans for this and future pandemics. Conclusions</p> <p>One of the most important aspects of any health-related issue is communicating</p>

				<p>information about both risks and benefits. All activities undertaken to combat a pandemic may fail if communication is not effective. As a result, all stakeholders, particularly health systems, regulatory bodies, and pharmaceutical companies, should take health information communication very seriously and ensure that any health issue is addressed correctly and effectively. This pandemic has highlighted the importance of PV and how it can be the backbone of risk communication and risk management, allowing Society to obtain information that needs to support evidence-based decision-making.</p>
<p>Alsulaimanetal (2023) (25)</p>	<p>Saudi Arabia</p>	<p>A cross-sectional study.</p>	<p>To investigate the association between the perceptions of COVID-19, adherence to healthy behaviors, and the credibility of COVID-19 information</p>	<p>This study has shown that Saudi college students who reported an overall high HBM mean score tended to follow respiratory hygiene and COVID-19 preventive behaviors closely. Such findings are consistent with a recent study conducted among US college students, which found that individuals with high HBM were more prone to apply respiratory hygiene and COVID-19 preventive behaviors . It is also consistent with another previous study that concluded that individuals who reported higher perceived benefits found to be more likely to apply stress management techniques such as running or exercising, listening to music, and venting to a friend or family member than those with low perceived benefits . The findings are compatible with another study that found individuals with high HBM were more willing to adopt healthy behaviors like wearing a helmet when biking than those with low HBM . It is also similar to another study that found that perceived benefits predicted individuals' willingness to receive the COVID- 19 vaccine.</p> <p>Conclusions</p> <p>This unique study illustrates that the HBM , and the credibility of health messages play indispensable roles during health outbreaks such as the recent COVID-19 pandemic. Credible health messages influenced the HBM and triggered individuals to embrace healthy behavior during the COVID-19 pandemic. Health agencies should always craft tailored, consistent, and credible health messages when communicating with various audiences during pandemics to ensure public adherence to healthy behavior. Using different official communication channels to convey effective health messages during pandemics is also crucial. Credible messages influence perceptions and ultimately lead to behavioral changes</p>

<p>Fawzy et al. (2022) (26)</p>	<p>Saudi Arabia</p>	<p>Review</p>	<p>This review is structured around the awareness/knowledge, attitudes, and practices (KAP)-related publications in Saudi Arabia up to date to understand the impact of COVID-19 on these domains</p>	<p>The compliance of the general public in following preventive measures plays a critical factor in reducing the widespread transmission of COVID-19. Therefore, the public’s awareness and good practice are fundamental elements in the overall public health response to the COVID-19 pandemic. It was evident that Saudi Arabia took extreme measures, including the awareness campaigns to respond to COVID19, which contributed to limiting the spread and the burden of the disease. This action is unsurprising as Saudi Arabia has a unique experience dealing with two previous virus family-related outbreaks. This unique history assessed the government in considering the rapid response and precautionary measurements against COVID-19 to control its spread.</p> <p>Conclusions</p> <p>Most concerted efforts organized by the MOH were efficient/effective, with an observable influence on public education towards preventive measurements through multiple media platforms. Based on these findings, Alanezi et al proposed an interesting conceptual framework for augmenting public awareness with elements, including “information sources, types of information, communication channels, and the outcomes” formulated according to the Saudi Arabian lifestyle. The yielded observations can provide baselines to the Saudi government(s) and other health associations for keeping the strict measures during the handling of similar epidemics, updating public awareness creation strategies, including the “targeted awareness-raising intervention programs”, expanding targeted populations’ attitudes toward the pandemic, and planning preventive measures during the lockdown periods in case of future outbreaks.</p>
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<p>Alqahtani, et al (2021) (27)</p>	<p>Saudi Arabia</p>	<p>A qualitative study</p>	<p>To explore risk perceptions and precautionary behavior in response to COVID-19.</p>	<p>The qualitative method may play a major role in understanding community responses and effective solutions and strategies during epidemics like COVID-19. It has been recommended that health information be gathered from different sources in communities and by different methods. Because the qualitative findings could gather health data directly from its source, frequently it has been mixed with quantitative health information in order to incorporate and obtain a richer picture of health information behavior and to identify community-specific health demands tailored to the needs of that specific community .Protection Motivation Theory (PMT) posits that during a new pandemic, obtaining proper information from official sources and dealing with risk perceptions can increase people’s awareness of convenient precautionary behavior and, consequently, their adoption of preventive measures .</p> <p>Conclusions</p> <p>The current results regarding risk perceptions and precautionary behavior, as reported by the study participants, have a positive consequence for implementing public health during the COVID-19 pandemic and will help improve the understanding of emerging infectious diseases among our culture and communities in the future.</p> <p>Finally, due to the characteristics of qualitative methods, the sample size of this study is limited in terms of applying the purposive sampling technique. Future researchers should address the risk perceptions and precautionary behavior in Saudi Arabia quantitatively with a randomized sample.</p>
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Results and discussion

This systematic review provides a detailed summary of the up-to-date studies on the Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of risk on Healthcare Workers through 6 studies published between 2020 and 2024 present systematic review (Table 1) that explored Knowledge and Perceived Risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers and especially nursing . The results of this review showed significant differences between Knowledge differences and educational attainment risks Towards new COVID-19 mutant of Pandemic and the Impact of Risk on Healthcare Workers .

The landscape of the new COVID-19 mutant pandemic has changed dramatically in the EMR, including Saudi Arabia, with a sharp rise in the number of documented cases and related mortality.³⁸ During this unprecedented time, community compliance with preventive measures and limited panic-related behaviors play a crucial role in the pandemic’s successful control.⁽¹¹⁾ It is well-established that an improper risk management strategy can negatively impact public compliance to self-protective measures, especially when these measures interfere with normal activities or have socioeconomic impacts.⁽¹⁹⁾ Effective risk communication represents the cornerstone for a risk management strategy aiming to improve not only how people perceive health risks during the pandemic but also how they react to healthcare emergencies and adhere to self-protective measures ⁽²⁸⁾ In the case of the new COVID-19 mutant pandemic, with its associated high transmission rates, morbidities, and mortality, lack of proper risk communication can exaggerate panic displays, increase public confusion, or lead to unfavorable perception towards the benefits of preventive measures. ⁽²⁹⁾ In this regard, HCWs are the frontline soldiers in the fight against COVID-19; previous reports demonstrated that HCWs and especially nursing account for up to 24% of the global number of documented COVID-19 cases.⁽²²⁾ It is postulated that insufficient information about COVID- 19 transmission, incubation period, and clinical symptoms are the main reasons for the high risk of infection among HCWs;⁴⁵ thus, it is of paramount importance to ensure proper risk communication among this vulnerable group during the COVID-19 pandemic. Besides, HCWs and nurses are key players in the expert–public communication component of the risk communication strategy. ⁽³⁰⁾

Thus, we aimed to understand the impact of risk communication on the perceived risk and attitude towards new COVID-19 among HCWs and nurses in Saudi Arabia. Our results demonstrated that only one-third of the HCWs perceived themselves at a high possibility of acquiring COVID-19 infection.(19) Nonetheless, HCWs within the Kingdom positively perceived the benefits of preventive measures and health messages; these messages positively changed HCW's attitude and practice towards new COVID-19-related preventive measures. (13) Besides, the majority of the HCWs stated that there is a gap of information that needs to be fulfilled. To our knowledge, there no published reports about the impact of risk communication among HCWs in Saudi Arabia. In a recent report by HCWs from Saudi Arabia exhibited a high level of concerns about acquiring COVID-19 infection and a high level of support of actions taken by healthcare authorities to minimize infection risk. Besides, HCWs and nurses in this report stated an unmet gap regarding the information about new COVID-19 in the media.(30)

Conclusions

Our results demonstrated that HCWs felt a notable change in their attitude after receiving proper information about new COVID-19 from health authorities. Thus, healthcare authorities in the Kingdom should implement continuous education programs and training that support HCWs with updated information and protocols on minimizing the risk of new COVID-19 infection in the hospital setting. Besides, clear and pertinent guidance about applying preventive measures during new COVID-19 should be developed to aid HCWs and nurses in minimizing the risk of infection. On the other hand, HCWs and nurses from Saudi Arabia exhibited fair levels of knowledge and attitude towards new COVID-19; however, the knowledge of HCWs and nurses towards the impact of old age on the outcomes of COVID-19 and the presentation of the disease was unsatisfactory. Higher levels of knowledge and attitude were significantly associated with higher educational levels, physician occupation, and working in MOH affiliated hospitals.

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