

Assessment of the role of risk perceptions in decisions and behaviors among New COVID-19 pandemic in Saudi Arabia households systematic review 2024

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Abstract

Background

Most countries, Saudi Arabia faced several challenges during the novel coronavirus disease 2019 (COVID-19) pandemic, some of which were related to the religious position of the country. The main challenges included deficits in knowledge, attitudes, and practices toward COVID-19, again toward new COVID-19 the negative psychological impacts of the pandemic on the general population and healthcare workers, the management of religious mass gatherings (e.g., Hajj and Umrah), and the imposition of travel regulations. Previous literature reported strong associations between decisions and several socio demographic variables about new COVID-19. However, knowledge about how behavioral factors, including risk perceptions and preferences, impact individuals' attitudes towards receiving new COVID-19 mutant is currently lacking. According to the WHO COVID-19 technical guidance, 'staying at home if feeling unwell' is one of the critical public health and social measures (PHSM). **Aim of the study:** To assess the role of risk perceptions in decisions and behaviors among New COVID-19 mutant in Saudi Arabia households systematic review 2024. **Method:** This systematic review utilized the PubMed database for data extraction, including freely accessible studies published in the last 5 years among New COVID-19 mutant. 7 articles from different study designs were included, while awareness and non-English language studies were excluded. **Results:** In recent years, the concept of role of risk perceptions in decisions and behaviors among New COVID-19 pandemic in Saudi Arabia a systematic review 2024. With regard to age-standardized rates (ASR), the

incidence of New COVID-19 pandemic was estimated to be high number cases (males and females) in Saudi Arabia with ASR incidence rates of in males and in females. **Conclusion:** The adoption of broad among New COVID-19 mutant in Saudi Arabia households strategies using a vaccine adapted to the dominant variant in circulation would yield substantial benefits in Saudi Arabia. The earliest responses of the Saudi authorities to the New COVID-19 mutant pandemic involved the implementation of suspension of religious activities, closure of non-essential shops, enforcement of changes at the workplace,. However, the country has faced several challenges, including deficits in the knowledge, attitudes, and practices toward New COVID-19 mutant pandemic.

Keywords: Assessment, role, risk, perceptions, decisions, behaviors, New, COVID-19, pandemic, Saudi Arabia, households.

Background:

New COVID-19 mutant, the causative pathogen responsible for the COVID-19 pandemic, has resulted in over 770 million cases and nearly 7 million deaths worldwide [1]. In Saudi Arabia, over 840,000 cases of and nearly 10,000 deaths due to COVID-19 have been reported between March 2020 and May 2023 [2]. Saudi Arabia underwent five waves of COVID-19 since the first case was reported in April 2020, with wave 5 ending in July 2022 [3]. SARSCoV-2 has continuously evolved throughout these waves as follows: C.1 lineage dominance in wave 1 (March 5 to 30 September 2020), Beta variant dominance in wave 2 October 2020 to 26 April 2021), Delta variant dominance in wave 3 (April 27 to 14 November 2021), and Omicron variant dominance in wave 4 (15 November 2021 to 1 April 2022) and wave 5 (April 2 to 31 July 2022) [4]. In 2023, EG.5, a descendent of the Omicron variant, was the dominant sub variant in Saudi Arabia [5]. As the COVID-19 pandemic hit every sector across the globe, the negative impact on the global economy is geometrically increasing. There may be a depression of world growth rate below 2% in 2020 if this pandemic is not curbed as warned by the United Nation's Trade and Development Agency (UNCTAD). In the opinion of , this is projected to cost about US\$1 trillion off the total worth of the world economy. [6] This is of concern to many policymakers, economists and scholars. (2021) found that the economy of the Saudi Arabia was disrupted and highlighted seven possible scenarios of the pandemic using the general equilibrium model. (2020) affirmed that the global economy supply-Saudi Arabia interruptions commenced from Saudi Arabia and there is evidence of uncertainty concerning production and prices of crude oil, including major stock indices collapsing. In India . (2020), [7] found that COVID-19 has caused severe damage to the Indian economy and may lead to a 4% loss to real Indian gross domestic product. In Malta, [8] Found that the pandemic scenario has led to new measures being taken by stakeholders across the globe to change their business. Many of the stakeholders have engaged themselves in information and communications technology (ICT) business operations in compliance with the international organization regarding physical distancing and group gathering. In Nigeria, [9] [10] found that the construction sector was the worst hit by the pandemic. [11] Discovered an Isolation–distress link to be greater in nations with more COVID-19 cases. The authors covered 62 nations across the globe, including KSA. The authors found that psychological distress is positively connected with social isolation but varies from country to country.[12] Addressed the impact of COVID-19 from the global perspective of the environment, health and economic issues. [13] The authors discovered that the pandemic has led to the enhancement and upgrading of healthcare facilities across the globe but the economic development seems deteriorating. [14] Several governments across the globe have attempted to cushion the economic impact resulting from the COVID-19. Accordingly, staying at home was mandated in various countries in the early stages of the pandemic.[15] Some countries including the Saudi Arabia enforced population-wide lockdown restrictions to limit people's movement and minimize physical

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contact [16]. In other countries, individuals were encouraged to stay home if unwell, continue to utilize COVID-19 testing and isolate if positive. Examples include South Korea's seven-day mandatory COVID-19 isolation policy.[17]

Methodology

Aim of the study:

To assess the role of risk perceptions in decisions and behaviors among New COVID-19 mutant in Saudi Arabia households systematic review 2024.

Study design:

Systematic reviews Using multiple databases, including PubMed, Web of Science, Up-to-date and Google Scholar data extracted from published articles were systematically to New COVID-19 mutant in Saudi Arabia.

Search strategy:

Reference lists of the included studies were searched to identify additional potentially relevant studies. Studies in systematic reviews of New COVID-19 mutant in Saudi Arabia . The strategy of interest in this review was objectively New COVID-19 mutant in Saudi Arabia. The same methods were used for searching the Scopus databases .

Searches and Data Sources

Literature from Saudi Arabia related to various New COVID-19 mutant types were collected by electronic search in Medline/PubMed, Cochrane Library, Scopus, Web of Knowledge, Google Scholar and public database that meet the inclusion criteria . Data from the Saudi New COVID-19 mutant registry were also collected. Relevant keywords were used in affiliation to Saudi Arabia. No filters were used during the electronic searches.

Inclusion criteria

Only literature published during 2020–2024 from Saudi Arabia and related to the New COVID-19 mutant pandemic and factors were included. Data from the Saudi National COVID-19 mutant pandemic registry were also considered. All sources which demonstrate the type of COVID-19 mutant pandemic with possible factors were put under inclusion criteria. All relevant articles (including case-control, cohort, cross-sectional, etc.) were included, as they permit the estimation of odds ratios.

Exclusion Criteria

Publications are written in a language other than English and those focused on survivors of COVID-19 mutant pandemic, pharmacological research, qualitative studies, and reviews and meta-analysis were excluded. Publications on laboratory research including animal trials were also excluded.

Data Extraction

The extracted data are summarized in table 1 includes the Findings of the Selected Studies based Assessment of the role of risk perceptions in decisions and behaviors among New COVID-19 pandemic in Saudi Arabia households systematic review 2024, the Author, Date, Country, result, region and type of organization where the study was performed. Focuses on the results of the COVID-19 mutant pandemic in Saudi Arabia and lists which dimension of Saudi Health care System COVID-19 mutant pandemic.

Table1: Summary of Findings of the role of risk perceptions in decisions and behaviors among New COVID-19 pandemic in Saudi Arabia households systematic review 2024.

Author, Date, Country	Region	Study design	Study aim	Results
Kitro et al. (2024)[18]	Chiang Mai, Northern Thailand	A cross-sectional study	To assess the willingness, perceptions, and factors associated with booster COVID-19 vaccine uptake in this context.	<p>derived COVID-19 booster vaccine. The willingness to receive the monovalent XBB-derived COVID-19 booster vaccine was 45.0% among vulnerable individuals and 43.3% among healthcare workers. Factors associated with a higher likelihood of getting the booster in the post-pandemic period included having a body weight over 100 kg, receiving a flu vaccine in the past year, perceiving that COVID-19 significantly affected daily life and work, believing in the safety of the booster, and trusting that the booster would prevent severe illness from new variants. In our study, the willingness to receive a COVID-19 vaccine post-pandemic was around 44% among vulnerable groups and HCWs. This rate is notably lower than findings from a meta-analysis conducted during the pandemic up to June 2022, which reported an intention to receive a booster dose of 79% (95% CI 72–85%) among the general population and 66% (95% CI 58–74%) among HCWs [21].</p> <p>Conclusions COVID-19 vaccine willingness is relatively low (44%) among HCWs and vulnerable populations in the post-pandemic era. This reduction likely stems from reduced perceived risk, disease severity, impacts on daily and work life, and confidence in the boosters' effectiveness. Those who trust the boosters' safety and effectiveness received a flu vaccine, never refused vaccination, and recognized that COVID-19's impact may drive vaccine booster uptake. These individuals could serve as key advocates to encourage their peers, reduce vaccine hesitancy, and combat misinformation, helping to protect both themselves and their communities in the post-pandemic era.</p>

<p>Liu et al (2024) [19]</p>	<p>US adults</p>	<p>An online survey</p>	<p>To investigated understanding the role of risk preferences and perceptions in vaccination decisions and post-vaccination behaviors among U.S. households</p>	<p>The COVID-19 pandemic had a negative impact on the world, not only because of COVID-19’s high transmission, infection, and mortality rates when compared to previous respiratory diseases, but also because of the social consequences, such as economic loss due to limited operations or even closure of many businesses, involuntary unemployment, and high public health expenses . In this study, we investigate primary factors influencing people’s vaccination decisions to better understand their vaccine hesitancy. We customized four different risk measures relating to both risk perceptions and risk preferences and analyzed their relative correlation with respondents’ vaccination decisions. Results indicate that all four risk measures were highly associated with respondents’ vaccination behaviors, and vaccination plans for unvaccinated individuals. In addition to the risk measures, our study conforms to previous findings that reported significant associations between socio demographic variables, such as race, age, political affiliation, education, and income level, and individuals’ vaccination behaviors</p> <p>Conclusions</p> <p>This information is useful in guiding policymakers to effectively focus efforts on regulating high social exposure activities among groups with a higher participation likelihood to prevent further outbreaks of infections in the future. Our results also suggested that policymakers and state health departments can perform preventive health regulation by focusing on the activities/locations with high participation levels, not specific to COVID-19, but also in any future events of pandemics. These could include limiting the total number of people in a restaurant or grocery store, mandating mask wearing, and requiring negative test results, which were implemented in a majority of states/territories during the early months of the pandemic .</p>
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<p>Guermazi, et al (2024) [20]</p>	<p>Saudi Arabia</p>	<p>This paper observes the public expenses</p>	<p>To investigate the relationship between the Kingdom of Saudi Arabia (KSA)'s expenses in the health and social fields and the achievement of sustainable development goals (SDGs) 1 (elimination of poverty) and 3 (good health and well-being). This paper also examines the effects of the COVID-19 pandemic on these expenses and goals.</p>	<p>This paper investigates the impact of government expenditure on the performance of social sustainable development goals in KSA. Our findings show that social and public expenses have played a role in reducing poverty. Therefore, the social welfare system, including financial social allowances, funding initiatives for productive families, unemployment benefits and adequate training, has efficiently helped poor and needy people improve their economic situation. On the contrary, despite showing favorable scores, mortality ratios and tuberculosis treatment success rates are not statistically associated with the growth of health expenses. Finally, we observed a complete decline of 100% in the growth of social expenses during the COVID-19 pandemic. However, the findings reveal a continued downward trend in the poverty index and mortality rates. Our paper has many implications. From a theoretical standpoint, we enrich the existing literature on sustainable development goals achievement by investigating the impact of incremental public expenses. We support UN 2030 Vision's inclusive bottom-up approach, involving all stakeholder categories, including the academic community. In addition, we add to the limited literature dealing with emerging countries, notably KSA.</p> <p>Conclusions Our analysis of the outcomes of its commitment to sustainable development offers valuable insights for other countries in the region and worldwide. Accordingly, it would catalyze and foster their partnerships and collaborative efforts to address shared challenges across borders. As KSA's advancements can also enhance SDGs' global standing, we contribute to achieving the UN 2030 agenda for SDG completion worldwide. Our findings present some limitations due to the multifaceted relationship between public expenditure and SDG outcomes. Variables such as governance efficiency, socioeconomic disparities and cultural factors might significantly impact SDG performance, inducing complexities not adequately addressed in this study. This may explain the absence of a significant statistical relationship between health expenditures</p>
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				and SDG health metrics.
Al Akoury, et al (2024) [21]	Saudi Arabia	The Saudi Arabian population was stratified into standard-risk and high-risk subpopulations,	To estimate the potential impact of the administration of booster vaccination with an Omicron-adapted bivalent vaccine versus no booster vaccination following the completion of a primary vaccination series	<p>Our analysis first explored a booster vaccination strategy targeting older adults aged ≥ 65 years and individuals with comorbid conditions. This strategy was estimated to provide substantial public health and economic gains compared to no vaccination. The elderly and high-risk populations have been shown to be at a higher risk of COVID-19-related hospitalization and death [59] and have been traditionally targeted by vaccination campaigns [60]. Although the elderly population has traditionally been defined as older adults aged ≥ 65 years [61], other definitions including adults aged ≥ 60 years have been adopted [62]. Therefore, we further explored a booster vaccination strategy targeting individuals aged ≥ 50 years and the high-risk population.</p> <p>Conclusions</p> <p>The implementation of vaccination campaigns using a vaccine adapted to the dominant circulating variant of SARS-CoV-2 and the expansion of coverage in the standard-risk Saudi Arabian population would offer considerable public health and economic gains. The findings of our analysis could assist decision-makers in optimizing COVID-19 vaccination campaigns that are tailored to specific age and risk populations. Additional studies will be needed in the future as SARS-CoV-2 evolves and new variants emerge.</p>

<p>Sheerah et al . (2023), [22]</p>	<p>Saudi Arabia.</p>	<p>A Literature Review</p>	<p>To investigate the Challenges in Saudi Arabia during the COVID-19 Pandemic</p>	<p>During health crises, there is a high demand for information, and individuals seek information from various sources. Traditional media, including television and newspapers, play a role in disseminating evidence-based information, whereas social media platforms allow individuals to express their opinions, perceptions, and attitudes toward public health policies regarding COVID-19. Individuals may also rely on their social networks, such as family, friends, and coworkers, for information. As attitudes and practices are closely linked to knowledge, it is important to identify the sources of information on COVID-19 and evaluate their impact on individuals' attitudes and practices. A study with 3358 participants revealed that most individuals relied on social media and the Saudi Ministry of Health as their primary sources of COVID-19 information</p> <p>Conclusion</p> <p>The earliest responses of the Saudi authorities to the COVID-19 pandemic involved the implementation of travel bans, suspension of religious activities, closure of non-essential shops, enforcement of changes at the workplace, and imposition of curfews. However, the country has faced several challenges, including deficits in the knowledge, attitudes, and practices toward COVID-19, psychological impacts of COVID-19, vaccine hesitancy, planning for religious mass gatherings, and travel regulations. The Saudi authorities managed these problems by providing health education programs, disseminating information on COVID-19 via governmental media and social websites, providing psychological counseling to those at risk of experiencing psychological consequences. Religious mass gatherings were temporarily suspended, followed by a gradual return to these practices under social-distancing precautions. Still, more research is needed to examine the long-term effects of the COVID-19 pandemic on the public health of Saudi Arabia and whether the measures taken could minimize these effects. The preparedness of Saudi Arabia for future pandemics can be fostered by critically appraising the challenges faced during the current COVID-19 pandemic</p>
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<p>Al Hamli et al (2023) [23]</p>	<p>Saudi Arabia</p>	<p>Collected data online through a pre-tested instrument, which was directed to online Saudi consumers via different electronic tools, e.g., email and social media platforms.</p>	<p>To investigation was carried out in light of the COVID-19 outbreak that affected online platforms.</p>	<p>The results showed a moderate positive correlation between the product variety factor and online shopping. The product variety factor has a significant positive influence on purchasers' online shopping behaviors. This can be explained by the fact that product variety increases consumers' likelihood of finding a good match with their preferences. In which the study showed that Saudi female consumers are favorably impacted by the aspect of product diversity. Giving customers a range of options increases their ability to satisfy their wants, which prompted people to start purchasing online. Investigated the effect of the COVID-19 pandemic on consumers' purchasing decisions in Slovakia. The findings revealed that shoppers' income, age, and job played critical roles in the context of shifting shopping behavior. According to the survey, online purchases increased by 72%, particularly in product categories, such as electronics, garden supplies, and drugstores. The Effect of Convenient Factor on Purchasers' Online Shopping Behaviors in Saudi Arabia Amid COVID-19. Referring to the results, there was a moderate positive correlation between the convenient factor and online shopping. However, the convenient factor had an insignificant impact on e-commerce shopping in Saudi Arabia during the pandemic.</p> <p>Conclusions</p> <p>During the pandemic, customers gave rise to the online shopping business, when implementing social distancing procedures and staying at home. The investigation was carried out in light of the COVID-19 outbreak that affected online platforms. The study assessed the variables influencing consumer behaviors in Saudi Arabia's eastern region of Al-Ahsa and Dammam. Drawn on the literature review, the study established five main factors, i.e., convenience, psychology, trust, payment method, and product variety that affect consumers buying behaviors. The results showed three factors, including the product variety factor, payment method factor, and psychology factor, have a significant impact on consumers purchasing on e-commerce platforms, while the other two factors were insignificant. The findings will help e-businesses to build user-friendly</p>
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				platforms to improve the online shopping experience. It will also help e-business platforms to maintain an excellent customer service and product quality standards. The findings of this study are based on consumer feedback collected through internet surveys over a certain period of time, i.e., during the COVID-19 pandemic.
Alkathlan, et al (2023) [24]	Saudi Arabia	A qualitative phenomenological study using semi-structured in-depth interviews	To explore the nature of hospital adjustments and the concerns of healthcare providers and administrative staff working in Governmental and private hospitals throughout the Qassim Region of the Kingdom of Saudi Arabia (KSA) during the pandemic	<p>This study provides an overview of new policies and modifications in the pre-existing healthcare system of KSA, along with the perspectives of healthcare providers serving in those settings during the pandemic. A number of approaches were employed by policymakers around the world to scale up their services in healthcare systems in response to the COVID-19 pandemic. For instance, within 2 weeks, China constructed two new special field hospitals for the treatment of COVID-19 patients in the early months of 2020. Meanwhile, in some countries, the primary healthcare systems became receptive points in the form of COVID-19 triage, and acute services were also made available at these centers. However, the KSA employed a “whole-of government” approach to strengthen their healthcare facilities by referring to their previous experiences of a similar viral infection (i.e., MERS). The evidence-based strategies were translated into policies, and more than 25 regional hospitals were designated for COVID-19 cases through the effective integration of healthcare delivery using public health and technology tools</p> <p>Conclusions</p> <p>This research revealed that participants were initially overwhelmed by new administrative policies and interventions but gradually accepted them optimistically. Numerous innovative interventions effectively reduced their physical workload and increased their productivity, but they remained significantly affected by a wide range of psychological disorders, with a high prevalence of obsessive-compulsive disorder. There were some</p>

				concerns about the new SARS-CoV-2 variant, but the majority were optimistic. Participants used different coping strategies, such as self-help strategies by staying positive, sought emotional support from their family members, and psychiatric assistance to overcome the psychological challenges. We recommend these coping strategies to create positive working conditions for healthcare professional and administrative staff, and the planned use of technology and data, along with the cogeneration of healthcare services with contemporary entrants in the healthcare field to combat future pandemics successfully.
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Results and discussion

The healthcare system of the Kingdom of Saudi Arabia (KSA) is considered one of the most organized systems in the world, with a World Health Organization (WHO) ranking of 26th out of 191 countries. [25] The KSA lies between the Red Sea and the Arabian Gulf and is the largest country in the Arabian Peninsula. [26] In recent years, the concept of role of risk perceptions in decisions and behaviors among New COVID-19 pandemic in Saudi Arabia a systematic review 2024. With regard to age-standardized rates (ASR), the incidence of New COVID-19 pandemic was estimated to be high number cases (males and females) in Saudi Arabia with ASR incidence rates of in males and in females.

As the COVID-19 pandemic enters its Fifth year, it has considerably shaped our lives with immense lockdowns and requirements for social distancing and wearing facemasks [27]. Although most countries worldwide have already vaccinated their adult populations, they continue to face challenges brought about by new strains of the virus, competition over limited vaccine supplies, and vaccine hesitation. The pandemic has also stretched national healthcare systems to their limits [28]. To deal systematically with this unprecedented challenge, hospitals worldwide have modified their strategies to manage their staff, supplies, and space for the provision of optimum care to their patients . At the same time, almost every country in the world has experienced an enormous exhaustion of hospital resources and infection of healthcare workers and also households [29]. A study conducted in China concluded that in the initial phase of the COVID-19 pandemic in the country, the lack of efficient protective measures led to the emotional stress and psychological disturbance of the majority of households and the hospital staff; fortunately, the lessons they learned from such experiences helped them respond to the outbreak in later phases . Another study identified a need to adapt new modes of operation and to implement suitable modifications to patient and households care policies to deal with the challenges of this pandemic [30] Various reasons have been identified for decreased healthcare use during COVID-19 pandemic, which include the households and people’s fear of getting infected while visiting the health facilities, the cancellation or suspension of non-COVID-19 related care and the barriers due to lockdown policies [10,11]. The healthcare system of the Kingdom of Saudi Arabia (KSA) is considered one of the most organized systems in the world, with a World Health Organization (WHO) ranking of 26th out of 191 countries [31]

The KSA lies between the Red Sea and the Arabian Gulf and is the largest country in the Arabian Peninsula [13]. It has a total population of 34,813,871, and consists of 13 provinces [14]. The KSA was among the first countries to immediately respond to and implement disease

containment measures proactively when the WHO instructed countries to control the spread of the COVID-19 virus through the adoption of an organized, methodical approach [26]. The country currently has 494 hospitals, 113,000 physicians, and a ratio of 22.5 beds/10,000 people [14, 17]. The Ministry of Health (MOH) is responsible for the provision of healthcare services to all residents [17]. Studies have highlighted the fact that the policies that were put in place against the Middle East Respiratory Syndrome (MERS) outbreaks were extremely helpful in the country's understanding of public health priorities during large-scale outbreaks of communicable diseases, such as COVID-19 [19]. To deal with the COVID-19 pandemic, the MOH established a national emergency response committee and activated its command-and-control center for the continuous monitoring of national and international updates, health surveillance, population screening, and contact tracing, and raising public awareness of new COVID-19 [20]. through a series of apps and other digital systems, was eventually adapted as an early-warning system for the MOH staff to keep tabs on every progress against COVID-19 throughout the KSA [32].

Conclusion

The new COVID-19 pandemic has certainly led multifaceted and vigorous psychological and mental impact on healthcare providers, it is now both an opportunity and challenge to design further studies that can lead to development of guidelines in Saudi Arabia and worldwide to improve mental health infrastructure that strengthen patient oriented treatment of care plan during this pandemic through development of health interventions that can overall improve productivity of healthcare provider. Numerous innovative interventions effectively reduced their workload and increased their productivity, but they remained significantly affected by a wide range of disorders, with a high prevalence of obsessive-compulsive disorder. There were some concerns about the new SARS-CoV-2 variant, but the majority was optimistic. Participants used different coping strategies, such as self-help strategies by staying positive, sought emotional support from their family members, and psychiatric assistance to overcome the challenges.

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